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Application of Range of Motion (ROM) in Mr. H with Physical Mobility Impairment in Non-Hemorrhagic Stroke Patients

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ABSTRACT

Background & Objective: Ischemic stroke or non-hemorrhagic stroke is a condition that occurs due to a blockage in the blood vessels of the brain, thereby disrupting blood flow to the brain, either partially or completely. This study aims to evaluate nursing care with the application of Range of Motion (ROM) intervention in non-hemorrhagic stroke patients who experience physical mobility impairment. **Method:** The method used was a case study of one patient at RSD Gunung Jati Cirebon. Data collection techniques included interviews (anamnesis), physical assessment, direct observation, and documentation. **Result:** Nursing care was provided over three days, during which the patient initially complained of pain and limited movement in the left extremity. Mobilization interventions in the form of ROM exercises based on Evidence-Based Nursing (EBN) were administered for three consecutive days, with each session lasting 25 minutes and each movement repeated. Evaluation results showed an improvement in physical mobility from a score of 2 to 3. **Conclusion:** Thus, ROM exercises have been proven effective in improving mobility in patients with physical mobility impairments due to non-hemorrhagic stroke.

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Introduction

Stroke is a cerebrovascular disease that occurs due to a reduction in blood flow to the brain, caused by blockages or narrowing of blood vessels, or sometimes due to the rupture of blood vessels. Lifestyle changes such as irregular eating habits, lack of exercise, excessive working hours, and consumption of fast food have become habits that can potentially trigger a stroke.

Each year, 1.5 million people worldwide suffer from stroke. Of these, 5 million die and 5 million others suffer permanent disabilities, placing a burden on families and society. Stroke is rare in people under the age of 40, and when it does occur, the primary cause is high blood pressure. However, stroke also occurs in children, accounting for approximately 8% of cases related to sickle cell disease. High blood pressure and smoking are the most significant modifiable risk factors. Out of every 10 people who die from a stroke, four could be saved if their blood pressure were controlled. Among those under 65 years of age, two-fifths of stroke-related deaths are linked to smoking. Stroke incidence rates are declining in many developed countries, largely due to better control of high blood pressure and reduced smoking rates. However, the absolute number is increasing due to an aging population (WHO, 2024).

According to the Indonesian Ministry of Health (2024), stroke is the leading cause of disability and death in Indonesia, accounting for 11.25% of total disabilities and 18.5% of total deaths. According to survey data

In West Java Province in 2013, the prevalence of stroke increased to 6.6%, and by 2018, it had risen to 11.4%. Stroke in West Java is estimated to have the highest number of stroke patients based on healthcare professional diagnoses, totaling 238,001 people (7.4%) and 533,895 people (16.6%) (Permatasari, 2020). According to the 2013 Riskesdas survey, the prevalence of stroke among those aged ≥ 15 years and based on diagnosis was 4.8% in Cirebon City and 3.9% in Cirebon Regency (Mahayani & Putra, 2019).

Stroke patients will experience mobility limitations, meaning they are unable to perform full range of motion on their own. This limitation can be identified in clients whose one extremity has limited movement or is even completely immobilized. Range of motion exercises consist of two parts: active range of motion (the client can move all their joints through their full range of motion without assistance) and passive range of motion (the client cannot move all their joints independently, so the nurse assists with the movement) (Daulay, Hidayah, and Santoso 2021). The provision of integrated therapy as early as possible can prevent the loss of function due to immobilization and avoid disability, thereby reducing dependence on others (Maulina Putri Harahap 2019). One such rehabilitation method is range of motion (ROM) exercises.

Range of Motion (ROM) exercises are a form of physical exercise aimed at maintaining and improving joint ability to perform movements maximally, normally, and comprehensively. Additionally, these exercises also serve to strengthen and maintain muscle tone. Several factors can influence muscle strength improvement in ROM exercises, such as age, gender, and the frequency of stroke episodes experienced by the patient.

As one of the rehabilitation methods, ROM exercises have proven to be quite effective in preventing disabilities in stroke patients. This intervention is also an important part of basic nursing care that plays a significant role in determining the success of therapy, particularly in preventing permanent disability after the patient has undergone hospital treatment. This exercise also helps reduce the patient's dependence on family members and supports the improvement of the patient's self-esteem and coping abilities (Daulay, Hidayah, & Santoso, 2021).

Research results show that ROM exercises can improve flexibility and expand joint range of motion. These exercises are recommended to be performed for one to two weeks, twice a day (in the morning and evening), for 10 to 15 minutes each, to provide better recovery opportunities (Kusuma & Sara, 2020).

Objective

Based on the above description, the researcher is interested in compiling a scientific report on "The Application of Range of Motion (ROM) in Mr. H with physical mobility disorders in Non-Hemorrhagic Stroke (SNH) patients."

Method

The research method used in this study is a qualitative method with a case study design. The population in this study consists of Non-Hemorrhagic Stroke (NHS) patients in the Stroke Unit of RSD Gunung Jati Cirebon. The number of respondents is one NHS patient with physical mobility impairments. The study was conducted from February 8–10, 2025. Data collection was conducted using techniques such as anamnesis, physical assessment, direct observation, and documentation. Data analysis began at the start of the assessment and was documented daily to monitor the patient's progress. The findings were then compared with existing theories and presented in the discussion section.

Results

After conducting an assessment on February 8, 2025, the following data was obtained. The client, Mr. H, is a 59-year-old male residing at Jl. Panggung Utara, Cirebon Regency. He works as a self-employed individual, practices Islam, is of Javanese ethnicity, and is an Indonesian national. His highest level of education is high school. He is married and has three children, two of whom are female and one male.

During the health history assessment, it was found that the client has a history of diabetes mellitus, no allergies, and has never undergone any surgical procedures. The client was brought to the hospital with complaints of head pain and inability to move the left extremity, unable to walk due to pain in the left leg, and unable to move. The diagnosis was Non-Hemorrhagic Stroke (NHS).

Physical examination revealed several issues commonly used as data in establishing actual and potential nursing diagnoses. The examinations conducted are as follows.

Upon assessment, Mr. H was found to be in a generally weak condition with compos mentis consciousness, GCS 15 (E4V5M6), blood pressure 198/119 mmHg, pulse 90 beats per minute, respiration 20 breaths per minute, SpO2 99%, and body temperature 36°C. During the examination of the 11th cranial nerve (accessory nerve), it was found that the client was unable to move the left side of his body. In terms of psychological status, the client expressed fear and anxiety about not being able to recover as before and felt helpless due to being unable to perform his usual activities. This aligns with Murtini's (2024) research, which explains that stroke is a health issue with long-term impacts on the recovery process. Stroke patients often experience physical limitations and dependence on activities, leading to psychological disturbances such as anxiety or fear.

Based on this data, the diagnosis for the patient is Physical Mobility Impairment related to Neuromuscular Impairment, with the following interventions:

TABLE 1. Nursing Intervention

No	Nursing Diagnosis	Planning		
		Outcome Criteria	Interventions	Rationale

	Physical Mobility Impairment	After nursing care for 2x24 hours, physical mobility is expected to improve with the following outcome criteria: 1. Stronger limb movement 2. Increased muscle strength 5,5,5,5 3. Increased range of motion (ROM)	Mobilization Support (I.05173) Observation 1. Identify pain or other physical complaints Therapeutic 2. Involve family members in helping the client improve mobility Education 3. Explain the purpose and procedure of mobilizatio 4. Teach simple mobilization techniques that must be performed	1. To identify the source of pain 2. To help clients perform mobilization 3. To ensure that clients and their families understand the purpose of mobilization 4. To accelerate healing

Discussion

Assessment is the initial stage using the nursing process and is a systematic process of collecting data from various sources, namely the patient, family, ward nurse, patient status, and direct observations of the patient. The assessment conducted by the author on Mr. H, a 59-year-old male with a high school education who works as a self-employed individual, was admitted to the Stroke Unit on February 7. Currently, the client was brought to the hospital because he could not walk due to pain in his left extremity, inability to move, and was diagnosed with Non-Hemorrhagic Stroke (NHS). During the physical examination, the client was found to be weak, fully conscious (GCS 15), with vital signs as follows: BP: 198/119 mmHg, Pulse: 90 beats per minute, SpO2: 99%, Respiratory rate: 20 breaths per minute, Temperature: 36°C. Examination of the 11th nerve (accessory nerve) revealed that the client was unable to move his left limbs. Psychologically, the client was afraid and anxious that he would not be able to recover as before and felt helpless because he could not perform his usual activities.

Based on the data obtained from the assessment, the author identified the priority nursing diagnosis for Mr. H according to the SDKI, which is: Physical Mobility Impairment related to Neuromuscular Impairment. Physical mobility is the ability of an individual to move freely, easily, and regularly to meet their activity needs for maintaining their health (Hidayat & Uliyah, 2015). This diagnosis was based on data from the SDKI assessment, with one of the clinical conditions related to this diagnosis being an acute illness: stroke. On February 8, 2025, the following subjective

data was obtained: the client reported being unable to perform activities independently, unable to walk, and experiencing weakness in the left extremity. The following objective data was also found: ADL is fully assisted by family members, left extremity is weak, muscle strength of the left extremity is 2 and the right is 5, intravenous fluids are administered on both the right and left hands, and the client has a catheter in place.

According to (PPNI, 2018), after conducting the assessment process and formulating the nursing diagnosis, the author established a plan to address the identified issues. During the planning phase, the author developed a nursing action plan based on the priority diagnosis identified, which was Physical Mobility Impairment. The author set objectives in the plan in accordance with the Indonesian Nursing Outcomes Standards (SLKI), determined interventions based on the Indonesian Nursing Intervention Standards (SIKI), and provided rationales using various literature sources. In addition to using SIKI (2018) as a reference in developing interventions, the author also utilized a systematic review conducted by Rima Fitriani (2022) in her study titled "The Application of Range of Motion Exercises (ROM) to Improve Muscle Strength in Patients with Physical Mobility Impairment Due to Stroke, the author states that ROM was applied once a day in the morning for 7 days with a duration of approximately 20 minutes, repeated 4 times for each subject, with effective results as there was an improvement in patient mobility.

The actions taken with the Nursing Diagnosis of Physical Mobility Impairment are as follows: the nurse identifies the presence of pain or other physical complaints, and the patient reports pain and weakness in the left leg. then the nurse involves the family to assist the client in improving mobility, and the family is willing to assist the nurse in performing ROM exercises with the client. After that, the nurse explains the procedures and objectives of mobilization, then teaches simple mobilization exercises/ROM so that the client and family can practice them independently. According to Cindita Bella et al. (2021), the application of Range of Motion (ROM) exercises to address nursing issues related to physical mobility impairments in non-hemorrhagic stroke patients in Metro City, ROM exercises are one form of exercise considered sufficiently effective in preventing disability in stroke patients. This exercise is one of the fundamental nursing interventions that can be performed to ensure the success of the therapeutic regimen for patients and to prevent the occurrence of permanent disabilities in stroke patients post-hospitalization, thereby reducing the patient's dependence on family, enhancing self-esteem, and improving coping mechanisms.

On the third day of evaluation, the client reported that their weakness had decreased and pain had become less frequent. The client's activities of daily living (ADL) still required family assistance, but the client could already sit on the bed. The client's physical mobility had improved partially, and care was continued at home by performing the ROM exercises taught by the nurse. The provision of integrated therapy as early as possible can likely prevent functional impairment due to immobilization and avoid disability, thereby reducing dependence on others (Maulina Putri Harahap 2019). One such rehabilitation method is range of motion (ROM) exercises.

Based on the results of the application of ROM for physical mobility issues as described above, the researcher concluded that the application of Range of Motion (ROM) for physical mobility issues in non-hemorrhagic stroke (SNH) patients at RSD

Gunung Jati Cirebon showed an improvement from 2 to 3, indicating that it is effective for clients with physical mobility issues.

Conclusion

Based on the results of the case study on the Application of Range of Motion (ROM) in Patients with Non-Hemorrhagic Stroke (SNH) at RSD Gunung Jati Cirebon, the author can conclude that the assessment conducted on the patients yielded both subjective and objective data. Based on the assessment results, it was found that the patient complained of weakness in the left side of the body, was bedridden, and experienced physical mobility issues. All the patient's activities were assisted by family members and nurses and were performed in bed. The intervention was implemented for the patient over three consecutive days. The evidence-based nursing (EBN) intervention provided consisted of physical exercise therapy, specifically Range of Motion (ROM) exercises. The evaluation of Mrs. M, diagnosed with Physical Mobility Impairment, showed partial improvement at level 4, characterized by increased muscle strength and improved ROM.

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