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# Early Mobilization Intervention: Non-Drug Solutions for Post-Fracture Surgery Pain in the Lakey Room of West Provincial General Hospital

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**ABSTRACT**

*Based on data from the Central Surgical Installation (IBS) at the NTB Provincial Hospital, cases of orthopedic injuries have been increasing every year and ranked fourth in surgical cases. The purpose of early mobilization is to facilitate blood circulation, reduce pain, and enhance wound healing. The aim of this research is to determine the effect of early mobilization on pain intensity reduction in post-operative fracture patients in the RSUD NTB. The research method used is a Pre-Experimental design with a One Group Pretest Post test Design. A sample of 12 post-operative fracture patients meeting the inclusion criteria was used, and the sampling technique employed was Total Sampling. The inclusion criteria for this study were patients aged 25-50 years, undergoing surgery for the first time and cooperative in the research process, the instrument used to measure the level of pain using the visual analog scale (VAS). This research was tested using the Wilcoxon test, showing that out of 12 samples pain decreased with a significance value of 0.002 or significance ≤0.05, meaning there is an effect of early mobilization on the reduction of pain intensity in post-operative fracture patients. It is expected that in the future, healthcare institutions will further optimize the implementation of early mobilization for post-operative fracture patients.*

**ABSTRAK**

Berdasarkan data Instalasi Bedah Sentral (IBS) di RSUD Provinsi NTB Kasus cedera Orthopedi setiap tahun mengalami peningkatan dan menjadi urutan ke empat kasus bedah. Pelaksanaan mobilisasi dini bertujuan untuk memperlancar sirkulasi darah, menurunkan rasa nyeri, dan meningkatkan penyembuhan luka. Tujuan penelitian adalah untuk mengetahui pengaruh mobilisasi dini terhadap penurunan intensitas nyeri pada pasien post operasi fraktur di ruang lakey RSUD Provinsi NTB. Metode penelitian yang digunakan adalah *Pra-Eksperimental* dengan desain *One Grup Pretest Post test Design*. Sampel sejumlah 12 pasien *post-op* Fraktur yang sesuai dengan kriteria inklusi dan teknik sampling yang digunakan adalah *Total Sampling.* Kriteria inklusi untuk studi ini adalah pasien berusia 25-50 tahun, menjalani operasi untuk pertama kalinya dan kooperatif dalam proses penelitian, instrumen yang digunakan untuk mengukur tingkat nyeri menggunakan skala analog visual (VAS). Penelitian ini diuji menggunakan uji Wilcoxon didapatkan dari 12 sampel menunjukkan penurunan nyeri dengan nilai signifasi 0,002 atau signifikasi ≤0,05 artinya ada pengaruh mobilisasi dini terhadap penurunan intensitas nyeri pada pasien post operasi fraktur. Diharapkan kedepannya dalam instansi pelayanan kesehatan agar lebih mengoptimalkan untuk menerapkan mobilisasi dini pada pasien post operasi fraktur

## A. INTRODUCTION

Fractur is the loss of bone continuity, cracking or fracturing of bones that were originally intact, either local or partial bones which are usually caused by trauma or physical exertion, accidents, be it work accidents, traffic accidents and so on which are determined by the type and extent of the fracture (Lumuan et al., 2024). According to the World Health Organization (WHO) in 2019, the incidence of fractures is increasing, it was recorded that approximately 15 million people have fractured with a prevalence rate of 3.2%. Fractures in 2017 were approximately 20 million people with a prevalence rate of 4.2% and in 2018 it increased to 21 million people with a prevalence rate of 3.8% due to traffic accidents (Reza Putri, 2025). According to (Riskesdas, 2018) the parts of the body that were affected by the most injuries were lower extremity (67%), upper extremity (32%), head injuries (11.9), back injuries (6.5%), chest injuries (2.6%), and abdominal injuries (2.2%) .

Fractures cases in Indonesia are the third leading cause of death from heart disease and tuberculosis. Based on the results (Riskesdas, 2018) it was found that in Indonesia the incidence of injuries increased from 2007. The incidence of injuries increased from 7.5% in 2007 to 8.2% in 2013 and increased again to 9.2% in 2018. Meanwhile, according to the part of the body that experienced the occurrence of the dominant injury, it occurred in the lower limb with a prevalence of 67.9%, followed by the upper limb with 32.7%. Based on data obtained from the results of the annual report of the NTB Provincial Hospital in 2018, visits to otolaryngology patients through the otolaryngologist's polyclinic are still quite high from the data in 2014, which was 4,600 visits to 5,978 visits in 2018. This shows that the number of injuries is increasing year after year. Meanwhile, according to data from the Central Surgical Installation (IBS) section at the NTB Provincial Hospital in 2018, Othopedi patients found the 4th highest surgical cases after urology surgery (1,151), general surgery (1,132), obgyn surgery with 1,069 cases, and Orthopedic with 802 cases.

Pain in fractures is pain that is included in nosceptive pain, if there has been tissue damage, then the noseceptive system will shift its function, from a protective function to a function that helps repair damaged tissue. Pain is an unpleasant or uncomfortable condition that is very subjective because the feeling of pain is different from person in terms of scale or level, and only the person who experiences it can tell or explain the pain they experience. Pain was felt by 20%-71% of patients with extremity fractures in the inpatient room on days 1 to 4 who experienced moderate to severe pain. The physical response to pain is characterized by changes in general state, body temperature, face, pulse, body posture, breathing, cardiovascular collapse, and shock (Kusuma, 2024). The impact caused by fractures includes limited activity, pain due to motor and sensory nerve activity in the fractured tissue. Pain can cause problems in the musculoskeletal system such as muscle cramps, reduced bone function, fatigue, and limited movement (Alligood, 2017).

The pain experienced by the patient, makes the patient afraid to move the injured extremity, so the patient tends to stay lying down for a long time, leaving the body stiff. Therefore, a nurse needs to provide information to patients and their families about non-pharmacological therapies that can help patients in relieving or reducing pain, namely mobilization or range of motion (Handoyo, 2021). In this case, the pain felt by the patient must be quickly treated with collaborative action between doctors and nurses, both in the provision of pharmacological and non-pharmacological therapies. Even with the administration of analgesic therapy, pain in surgery patients is still about 50% felt by patients and can interfere with the patient's comfort. So the role of the nurse must provide actions independently to provide pain-relieving actions such as non-pharmacological actions such as early mobilization to prevent stiffness, muscle cramps and acceleration of wound healing in

patients. The purpose of the study was to determine the effect of early mobilization on reducing pain intensity in post-fracture surgery patients in the lakey room of NTB Provincial Hospital.

## B. METHODS

This type of research is quantitative research, the research method is Pre-experimental design, with a one-group pre-test-pos-test design approach, which reveals the causal relationship by involving one group of subjects. The subject group was observed before the intervention, then observed again after the intervention (Nursalam, 2011). The intervention given in this study was early mobilization. The sample in this study was 12 patients Fracture surgery, the sampling technique used was Total Sampling. The inclusion criteria for this study were patients aged 25-50 years, undergoing surgery for the first time and cooperative in the research process, the instrument used to measure the level of pain using the visual analog scale (VAS), this study was tested using the Wilcoxon test.

## C. RESULT AND DISCUSSION

### 1. Result

**Table 1.** Average Score of Respondents' Pain Before Early Mobilization in Post-Fracture Surgery Patients in the Lakey Room of the NTB Provincial Hospital

| N | Mean | Median | SD |
|---|---|---|---|
| 12 | 7 | 7.00 | 0,793 |

Source: Data collected via VAS questionnaires

Based on the table above, it was found that the pain scale in the respondents before early mobilization was on average severe pain scale (scale 7 with a range of 0-10) with a standard deviation of 0.793.

**Tabel 2.** Average Score of Respondents' Pain After Early Mobilization in Post-Fracture Surgery Patients in the Lakey Room of NTB Provincial Hospital

| N | Mean | Median | SD |
|---|---|---|---|
| 12 | 3 | 3 | 0,853 |

Source: Data collected via VAS questionnaires

Based on the table above, it was found that the pain scale in the respondents after early mobilization was on a mild pain scale (scale 3 with a range of 0-10) with a standard deviation of 0.853.

**Tabel 3.** Pain analysis before and after early mobilization in post-surgery fracture patients in the lakey Room of NTB Provincial Hospital

| Post op - Pre op | N | Mean | Sum | P Value |
|---|---|---|---|---|
| Negative ranks | 12 | 6.50 | 78,00 | 0,002 |
| Positive ranks | 0 | 0 | 0 | |
| Total | 12 | | | |

Source: Data collected via VAS questionnaires

Based on the table above, All 12 samples showed a decrease in pain after being given early mobilization, with a significance value of 0.002, meaning that there was an effect of early mobilization on reducing pain intensity in postoperative fracture patients.

## 2. Discussion

Based on the results of the study, the average pain score in postoperative patients with upper ecthermitous fracture before early mobilization experienced pain on a scale of 7 with a standard deviation of 0.793. Pain is a sensation experienced by a person that is subjective, so everyone will feel different pain sensations for each individual, in general men and women are different in responding to pain because a man must be brave and should not cry, while girls can cry in the same situation. Before the early mobilization exercise, the pain felt by the respondent tended to stare because the respondent's muscles were still tense and allowed the presence of thorombus around the injured area. The results of the above research are supported by the theory according to (Handoyo, 2021) where one of the problems that arise during post-fracture surgery is pain, where the most frequent complaints are conveyed by post-fracture surgery patients such as burning, swelling in the first seven days, and the most severe is on the first day. According to the theory stated by (Sutandyo, 2022), in the bone healing phase of fracture patients, the first phase is the damage phase or hematoma where there will be bleeding around the fracture which will cause a pain response in the patient.

According to (Saputri & Oktariani, 2020) it is stated that the impact of tissue damage due to fractures is muscle stiffness, reduced bone function, fatigue, and limited movement resulting from actual and potential tissue damage, and the presence of motor and sensory nerve activity in fractured tissue, which causes pain or pain. According to (Handoyo, 2021) stated that the impact arising from tissue damage or trauma includes limited physical activity due to pain due to friction of motor and sensory nerves in fracture wounds.

Based on the results of the study, the average pain score of postoperative patients with fracture after early mobilization was carried out on a scale of 3 with a standard deviation of 0.853. In the opinion of the researcher, it shows that after the respondents were given early mobilization, the respondents' pain was reduced and the respondents felt more comfortable to carry out daily activities, this shows that early mobilization can provide comfort for the respondents. Researchers argue that the post-op pain experienced by the fracture can decrease in sensation because the muscles in the fracture area have a reduced concentration of tension so that the blood flow becomes smooth. The results of the above research are supported by the theory according to (Yazid & Masdiana, 2023) the sensation of pain felt by a person is different which can be influenced by several factors including age and gender. According to (Pasca et al., 2008) it states that a person who experiences pain of the same type and repeatedly and can be treated well, then it will be easier for a person to interpret pain so that the patient will be ready to take action when the pain appears. Mobile exercise aims to maximize the supply of oxygen to the brain and the whole body to facilitate blood circulation, stretch muscles and joints so that there is a muscle relaxation phase that can reduce pain in patients.

Based on the table above, All 12 samples showed a decrease in pain after being given early mobilization, with a significance value of 0.002, meaning that there was an effect of early mobilization on reducing pain intensity in postoperative fracture patients. That range of motion exercises can manipulate pain mechanisms in the pain modulation process, range of motion exercises can lead to positive perception, where the positive perception will be forwarded to the hypothalamus to produce Cortocotropin Releasing Factor (CRF) which will then stimulate the pituitary gland (Pituitary) to release endorphins as nuerotransmitters that

affect mood to relax, where the relaxation effect can reduce pain (Felita Sasongko, 2013). According to (Chaidir, 2017) explained that exercises that are carried out with the aim of preparing themselves to carry out activities independently can facilitate circulation in blood vessels which can reduce pain and increase wound healing, and movement exercises are the recommended beginning in the process of recovering from bodily functions, not only in the body affected by trauma but also in all limbs. Based on the results of the research and the supporting theories above, the researcher assumes that range of motion exercises can be given as a non-pharmacological medical procedure that can be performed by post-op Fracture patients independently or with the help of others.

## D. CONCLUSION AND SUGGESTIONS

Based on the results of the Wilcoxon test, 12 samples showed a decrease in pain after being given early mobilization, with a significance value of 0.002, meaning that there was an effect of early mobilization on reducing pain intensity in postoperative fracture patients. Therefore, it is hoped that in the future health service agencies will be more optimized to implement early mobilization in post-surgery patients with fractures.

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