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**Application of Combination and Relaxation Breath Guided Imagery with Music to Reduce Pain Levels in Patients with Post-Colles Fracture Surgery at the Eri Sadewo Pavilion, Floor V, Gatot Soebroto Army Hospital**

Memed Sena Setiawan<sup>1</sup>, Bela Amanda Septia<sup>2</sup>

Departement of nursing, RSPAD Gatot Soebroto College of Health Sciences, Jakarta

e-mail: [Memedsenasetiawan@gmail.com](mailto:Memedsenasetiawan@gmail.com), [dwibella67@gmail.com](mailto:dwibella67@gmail.com)

**Abstract**

Colles fracture is defined as a fracture of the distal radius. Colles fracture is a common trauma to the wrist. This fracture usually occurs most often after falling on a stretched hand or with an outstretched hand. Pain is a problem in post-op Colles Fracture patients. One of the nursing interventions to reduce pain intensity is with deep breathing relaxation techniques and a combination of guided imagery with music. This paper aims to determine the effect of deep breathing relaxation techniques and a combination of guided imagery with music in reducing pain levels in post-fracture surgery patients. This paper uses data collection methods with interviews, observations, physical examinations and documentation studies. Non-Pharmacological interventions were given for 10 minutes in 3 meetings in post-colles fracture surgery patients. The results obtained after being given deep breathing relaxation technique intervention and a combination of guided imagery with music showed a decrease in pain levels from a scale of 5-6 (Moderate) to a scale of 3 (Light). The conclusion is that after conducting a case study, the results showed that there was a change in the pain scale before and after the intervention was given using deep breathing relaxation techniques in combination with guided imagery with music.

**Keywords:** Colles Fracture; Pain; Relaxation Technique; Deep Breathing

**Introduction**

(Putra, 2023).

A fracture is a condition in which the continuity of the bone or cartilage tissue in the joint, including the epiphysis, is broken either completely or partially. This condition can interfere with the function of the bone organ as a support for the body and can cause disability (Kepel & Lengkong, 2020). Fractures can be caused by direct trauma or extreme muscle contractions, which can cause injury to body organs and bone fragments

One type of fracture that often occurs in the community is a Colles fracture, which is a fracture in the distal extra-articular radius. This fracture has a shape similar to a 'dinner fork', with a protrusion on the back of the wrist (Yadnya & Wijaya, 2022). Usually, this fracture occurs due to falling with an outstretched hand, which results in a fracture and dislocation of the distal radius towards the dorsal, as well as injury to the wrist joint (Burhani

& Naqvi, 2020). Epidemiologically, these fractures are more common in young adults (especially men) due to high energy mechanisms, while in adults or the elderly (especially women), they are more common due to low energy mechanisms (Yadnya & Wijaya, 2022).

According to the World Health Organization (WHO) in 2019, there was an increase in the incidence of fractures worldwide, with a prevalence rate of 3.2% or around 15 million people. In 2020, the fracture prevalence rate decreased to 2.7% or around 13 million people worldwide (Azaria Ribka et al., 2023). In Germany, from 2009 to 2019, around 807,834 people were reported to have fractures, with an average incidence of around 100,000 people per year (Szymski et al., 2023).

In Indonesia, fractures are the third leading cause of death according to data from (Ministry of Health of the Republic of Indonesia, 2021), with a prevalence reaching 5.5% of the population. (Health Service Research, 2018) informs that there are around 67% of fracture incidents in Indonesia. In DKI Jakarta, the prevalence of fracture cases according to (RIKESDAS) in the same year reached 71.9%.

Handling of Colles Fractures has two methods, the first method is non-operative treatment, which includes closed reduction techniques and conservative management, with the option of plaster mobilization for stable fractures. The second method is operative treatment, which can include the use of Kirshner wire fixation and external fixation.

Most patients who undergo operative treatment will experience several problems. One of them is pain, pain is a

common problem that arises after patients recover from surgery. This response is a side effect of surgical procedures that can make patients feel uncomfortable and in pain. Pain management must be carried out properly because comfort is a basic human need. Therefore, nurses need to find the most effective strategy to control patient pain (Purnamasari et al., 2023).

Postoperative pain management can be done using two methods, namely using pharmacological and non-pharmacological techniques. Pharmacological techniques involve collaboration with medical personnel to administer analgesic drugs, while non-pharmacological techniques include the application of deep breathing relaxation techniques and a combination of guided imagery with music in postoperative patients.

Relaxation techniques include a series of breathing exercises that can reduce oxygen consumption, respiratory rate, heart rate, and muscle tension. Relaxation techniques need to be taught with instructions several times to achieve optimal results to reduce pain intensity. (Purnamasari et al., 2023).

Deep breathing relaxation techniques will be more effective if combined with Guided imagery techniques. This technique can be added with natural music to increase imagination so that patients achieve positive effects and can reduce the pain scale. Music has a therapeutic effect that can help in healing and reduce physical and physiological tension. Listening to music will divert attention from pain and provide a sense of comfort and relaxation. In accordance with the theory according to (Nursing Management of the Karya Bhakti Nusantara Nursing Academy, 2019).

Relaxation is a state of condition where a person feels free from stress and anxiety, or returns to balance after experiencing a disturbance (Courtois et al., 2020). The goal of relaxation techniques is to achieve a state of complete relaxation including physiological, cognitive, and behavioral aspects. Physiologically, the state of relaxation can be observed from a decrease in epinephrine and non-epinephrine levels in the blood, a decrease in pulse, a decrease in blood pressure, a decrease in muscle tension, a decrease in metabolism, vasodilation, and an increase in temperature in the extremities (Gholamrezaei et al., 2022).

A series of breathing exercises that can reduce oxygen consumption, reduce respiratory rate, reduce heart rate and muscle tension. It is important to teach deep breathing relaxation techniques with proper instructions so that optimal results can be achieved and pain intensity can be reduced. Relaxation techniques involve abdominal breathing with a slow and regular rhythm. Patients are advised to close their eyes and breathe slowly and comfortably. According to Courtois (2020), deep breathing relaxation techniques aim to increase alveolar ventilation, maintain gas exchange, prevent pulmonary atelectasis, increase cough efficiency, reduce stress, both physical and emotional stress, including reducing pain intensity and anxiety (Courtois et al., 2020).

Deep breathing relaxation techniques will be more effective when combined with several other techniques such as guided imagery. Guided imagery is a technique that uses a person's imagination to achieve positive effects. Involving the senses of sight, hearing, touch, taste, and smell, with the aim of making the patient calmer and more relaxed. This is because

the guided imagery technique can activate the parasympathetic nervous system.

This technique begins with a relaxation process, namely asking the patient to slowly close their eyes and focus on their breathing, the patient is encouraged to empty their mind and fill their mind with images that can make them calm and peaceful. Positive imagination can weaken the psychoneuroimmunology that affects the stress response, this is related to the gate control theory which states that only one impulse can travel to the spinal cord to the brain at a time, and if this is filled with positive imagination then the sensation of pain cannot be sent to the brain therefore the pain can be reduced (Purnamasari et al., 2023).

Music has a therapeutic aspect, so music is widely used for healing, winning, and improving the physical and physiological conditions of patients and health workers. Listening to music will divert attention from pain and provide a sense of comfort and relaxation.

The effect of the combination of deep breathing relaxation techniques and guided imagery makes respondents calmer and more relaxed. When respondents take oxygen through the nose and into the body, combined with guided imagery with the help of natural music, makes patients divert their attention and focus on the imagination of nature while closing their eyes. Physiologically, the state of relaxation is characterized by decreased levels of epinephrine and non-epinephrine in the blood, decreased pulse, decreased blood pressure, decreased muscle tension, decreased metabolism, vasodilation, and increased temperature in the extremities.

Positive imagination can weaken the

psychoneuroimmunology that affects the stress response, this is related to the gate control theory which states that only one impulse can travel to the spinal cord to the brain at a time, and if this is filled with positive imagination then the sensation of pain cannot be sent to the brain therefore the pain can be reduced. This is what causes the intensity of pain felt by patients to decrease after being given deep breathing relaxation techniques and a combination of guided imagery with guided music.

In a study conducted by (Purnamasari et al., 2023), it was a study aimed at determining the effect of deep breathing relaxation techniques and a combination of guided imagery with music on reducing pain levels. The results showed that deep breathing relaxation techniques and a combination of guided imagery with music were proven effective in reducing pain levels in post-fracture surgery patients.

There were 20 patients who were given deep breathing relaxation techniques and a combination of guided imagery with music. Before the intervention, 14 patients (70%) experienced moderate pain and 6 patients (30%) experienced severe pain. After the intervention, 9 patients (45%) reported mild pain and 11 patients (55%) experienced moderate pain. The change in pain scale before and after the intervention was shown in the results of statistical tests with a significance level of 95%. Thus, it can be concluded that there is an effect of deep breathing relaxation techniques in combination with guided imagery with music on reducing pain. In a study conducted by (Rompas & Mulyadi, 2020), it was a study aimed at determining the effect of deep breathing relaxation techniques and a combination of guided imagery with music on

reducing pain levels. With the results that deep breathing relaxation techniques and a combination of guided imagery with music have proven effective in reducing the pain scale in post-cesarean section patients at GMIM Hospital.

There were 20 patients who were given deep breathing relaxation techniques and a combination of guided imagery with music. Before the intervention, 14 patients (70%) experienced moderate pain and 6 patients (30%) experienced severe pain. After the intervention, 1 patient (5%) had no pain, 8 patients (40%) reported mild pain and 11 patients (55%) experienced moderate pain. The change in the pain scale before and after the intervention was shown in the results of statistical tests with a significance level of 95%. Thus, it can be concluded that there is an effect of deep breathing relaxation techniques in combination with guided imagery with music on reducing pain.

## **Method**

This writing uses data collection methods with interviews, observations, physical examinations and documentation studies. Non-Pharmacological interventions were given for 10 minutes in 3 meetings in post-operative Colles fracture patients.

## **Results and Discussion**

### **Focus Data**

### **Data Analysis**

Based on the assessment that had been carried out before the operation (pre-op), focused data was obtained with subjective data, namely the client said that the right hand hurt after falling, the patient said that his hand was numb and tingling, P: Broken bone/fracture, Q: Throbbing pain, R: Right hand (radius),

S: 5-6, T: Disappears, the patient said he was anxious about the surgery that would be performed, the patient always asked about the surgery that would be performed on him.

The objective data obtained were that the patient appeared to be wincing in pain, the patient appeared uncomfortable with the condition of his hand, the patient appeared restless, the patient appeared anxious, the patient was fitted with an Arm Sling, the patient's hand appeared swollen and slightly bent, GCS15 E4M6V5, BP: 110/70 mmHg, HR: 82 x/minute, RR: 20 x/minute, S: 36.2 C, Spo2: 99%, IVFD Nacl 0.9% 500ml 20 tpm was installed, the results of the Radiology examination, Impression: Right Radius Fracture With Distal Fracture Fragment Displacement To Posterolateral.

Based on the assessment that has been done after surgery (post op), the focus data obtained with subjective data is that the client said pain in the post op wound, P: Post op wound, Q: Stabbing pain, R: right hand (radius), S: 5-6, T: Disappears and reappears, the patient said that after surgery her activities/daily activities such as eating, drinking, personal hygiene were assisted by her child/husband, the patient said that her activities were hampered. And the objective data obtained is that the client appears to wince in pain when pain occurs, the client appears restless, the client is fitted with an Arm Sling, the wound appears closed with Circular Casting, the hand appears swollen, the client's activities appear limited and are assisted by her child/husband, , GCS15 E4M6V5, BP: 128/80 mmHg, HR: 86 x/minute, RR: 20 x/minute, S: 36 C, Spo2: 99%, IVFD Nacl 0.9% 500ml 20 tpm installed.

### **Nursing Diagnosis**

Based on the analysis of the data found, 2 preoperative diagnoses and 3 postoperative diagnoses were obtained. For 2 preoperative diagnoses, namely Acute Pain related to Physical Injury Agent (Trauma) D.0077, and Anxiety related to Lack of Exposure to Information D.0080. while for 3 postoperative diagnoses, namely Acute Pain related to Physical Injury Agent (surgical procedure) D.0077, Self-Care Deficit related to Musculoskeletal Disorders (D.0109), and Risk of Infection related to Effects of Invasive Procedures (0142).

### **Nursing Intervention**

The intervention that the author focuses on in this case study is Pain Management. The nursing plan is prepared with the aim that after nursing actions for 3x24 hours the patient's pain level will decrease by providing Non-Pharmacological techniques, namely Deep Breathing Relaxation Techniques and a Combination of Guided Imagery with Music to reduce the patient's pain level. This is in line with journal articles (Purnamasari et al., 2023) and (Rompas & Mulyadi, 2020) which have proven that there is a change in the pain scale before and after the intervention was carried out with Deep Breathing Relaxation Techniques and a Combination of Guided Imagery with Music. Proper instructions are needed to optimize the use of this technique and reduce pain intensity.

### **Nursing Implementation**

After the author has carried out the nursing planning, the nursing action is continued or what is called the implementation of nursing. The implementation of nursing that the author

focuses on and has been implemented in the case study regarding the nursing diagnosis of Acute Pain related to Physical Injury Agents (invasive procedures) is the Non-Pharmacological Technique, namely the Deep Breathing Relaxation Technique and the Combination of Guided Imagery with Music to reduce pain levels for 3 days starting on May 28-30, 2023.

The provision of the Deep Breathing Relaxation Technique and the Combination of Guided Imagery with Music is carried out by creating a calm environment, maintaining patient privacy, asking the patient to close their eyes and trying to concentrate the patient, asking the patient to inhale through the nose slowly while counting silently "inhale, one, two, three", while the patient closes their eyes, ask the patient to imagine something positive while putting on a headset and playing music, then ask the patient to exhale through the mouth while counting silently "exhale, one, two, three", ask the patient to repeat the same as the previous procedure for ± 10 minutes, then ask the patient to open their eyes slowly while observing the patient's response.

This is in line with the journal article (Purnamasari et al., 2023) which states the procedure for deep breathing relaxation techniques in combination with guided imagery. The procedure for deep breathing relaxation techniques in combination with guided imagery is carried out for 10 minutes by asking the patient to inhale through the nose slowly while counting silently "inhale, one, two, three", while the patient closes his eyes, ask the patient to imagine something positive while putting on a headset and playing music, then ask the patient to exhale through the mouth while counting silently "exhale, one, two, three", then

ask the patient to open his eyes slowly while observing the patient's response.

### **Nursing Evaluation**

The last step in the nursing care process is nursing evaluation. Evaluation is an assessment by comparing changes in the patient's condition (observed results) with the objectives and outcome criteria made at the planning stage. Evaluation of nursing care that has been given to Mrs. S with post-colles fracture surgery in overcoming acute pain problems related to physical injury agents using Non-Pharmacological techniques with deep breathing relaxation techniques and a combination of guided imagery with music, can be resolved for 3 days starting from May 28-30, 2023.

With the final data results, the patient said that if pain arises now, she immediately does the technique taught by the nurse independently, because when the patient does the action, the patient becomes relaxed and comfortable, P: post-op wound Q: Throbbing pain R: Right hand (radius) S: pain scale 3 T: Comes and goes, the patient seems to be able to monitor pain independently. It can be concluded that there is an effect of deep breathing relaxation techniques and a combination of guided imagery with music on reducing the pain scale. This is in line with journal articles (Purnamasari et al., 2023) and (Rompas & Mulyadi, 2020).

### **Conclusion**

The results of the application of the Deep Breathing Relaxation Technique and the Combination of Guided Imagery with Music have shown their effectiveness in reducing the pain scale in post-fracture surgery patients. The results of the evaluation of client Mrs. S showed that

the client felt more relaxed and comfortable, the pain scale decreased and vital signs were within normal limits.

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