

THE EFFECT OF BENSON RELAXATION THERAPY ON PAIN REDUCTION AMONG POSTOPERATIVE FRACTURE PATIENTS IN THE NILAM 3 WARD OF DR. H. MOCH. ANSARI SALEH REGIONAL GENERAL HOSPITAL, BANJARMASIN

Linda¹, Muhammad Husein Haykal²

^{1,2} Universitas Muhammadiyah Banjarmasin, South Kalimantan, Indonesia

Abstract

Background: The bone healing process following fracture surgery is a complex biological process. Patients commonly experience pain due to tissue damage resulting from surgical incision. Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. This pain can be managed through non-pharmacological approaches, one of which is the Benson relaxation technique, which promotes a state of relaxation through the repetition of calming words or phrases. **Objective:** This study aimed to determine the effect of Benson relaxation therapy on pain reduction among postoperative fracture patients in the Nilam 3 Ward of dr. H. Moch. Ansari Saleh Regional General Hospital, Banjarmasin. **Methods:** This study employed a pre-experimental design with a one-group pre-test and post-test approach. The sample consisted of 34 postoperative fracture patients selected using an accidental sampling technique. Data were collected using a pain scale assessment and analyzed using the Wilcoxon Signed Rank Test. **Results:** Prior to the intervention, the majority of patients experienced moderate pain (91.2%). Following the intervention, most patients reported a reduction in pain intensity to mild pain (76.5%). The results of the Wilcoxon Signed Rank Test showed a p-value of 0.001 ($p < 0.05$), indicating a statistically significant effect of Benson relaxation therapy on reducing pain levels. **Conclusion:** Benson relaxation therapy was effective in reducing pain levels among postoperative fracture patients.

Keywords: Benson Relaxation Therapy, Pain, Fracture, Surgery

Background

Bone healing following a fracture is a fascinating and complex biological process. A deeper understanding of the bone healing mechanism may contribute to the development of more effective therapeutic interventions. A fracture, commonly known as a broken bone, occurs when the continuity of bone or cartilage is disrupted either partially or completely due to forces exceeding the bone's elasticity. In some cases, fractures may also involve surrounding tissues, including blood vessels, muscles, and nerves (7).

Fractures are among the leading causes of mortality and morbidity in Indonesia. They may result from impacts, physical activities, occupational accidents, or traffic accidents. Consequently, fractures can cause both physical and psychological disturbances, often resulting in pain responses (9).

In 2020, the World Health Organization (WHO) reported an increase in fracture incidence, with approximately 13 million people experiencing fractures and a prevalence rate of 2.7%. In 2019, fractures resulting from traffic accidents affected approximately 15 million individuals, with a prevalence rate of 3.2%. In 2018, the number of fracture cases caused by traffic accidents increased to 21 million, with a prevalence rate of 3.8% (3).

According to health statistics in Indonesia, the incidence of fractures continues to increase. In 2019, approximately 15 million people experienced fractures, corresponding to a prevalence rate of 3.2%. In 2018, approximately 20 million people sustained fractures with a prevalence rate of 4.2%, which increased to 21 million people with a prevalence rate of 3.8% due to traffic accidents. Femoral fractures account for 42% of all

fracture cases, humeral fractures for 17%, and tibial and fibular fractures for 14%. The primary cause of fractures in Indonesia is traffic accidents, particularly those involving motor vehicles, motorcycles, and recreational vehicles, accounting for 65.6% of all fractures. Falls contribute to 37.3% of fracture cases, and males constitute the majority of fracture patients, accounting for 73.8% (6). According to the Basic Health Research Survey (Riskesdas, 2018), 81.6% of traffic accidents involving motorcycles that resulted in injuries occurred in East Kalimantan Province. Meanwhile, South Kalimantan recorded the highest proportion of land traffic accidents (10.1%) (14).

According to data from Satu Data Banua, South Kalimantan Provincial Health Office, the number of land traffic accidents in 2021 reached 4,180 cases distributed across several regencies and municipalities, including Tanah Laut Regency (53 cases), Kotabaru Regency (88 cases), Banjar Regency (271 cases), Barito Kuala Regency (3,052 cases), Tapin Regency (16 cases), Hulu Sungai Tengah Regency (93 cases), Hulu Sungai Utara Regency (47 cases), Tabalong Regency (45 cases), Balangan Regency (28 cases), Banjarmasin City (34 cases), and Banjarbaru City (3 cases).

Postoperative fracture patients commonly experience pain due to tissue disruption caused by surgical incisions. Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Patients with fractures may experience sharp and stabbing pain that can occur suddenly or gradually (13). Patients experiencing postoperative pain may have impaired mobility, restlessness, avoidance behaviors, decreased attention span, stress, and tension, resulting in both physical and psychological responses (15).

Pain management generally involves a combination of pharmacological therapies, such as analgesics, and non-pharmacological interventions. Non-pharmacological therapies have been shown to effectively reduce pain, with effects that may last for several hours or even days, while presenting minimal risk of adverse effects (10).

One non-pharmacological intervention is the Benson relaxation technique, which can reduce physiological pain by guiding patients into a calm and relaxed state (4).

Benson relaxation combines relaxation response techniques with an individual's belief

system or faith factors. This relaxation method focuses on the repetition of specific phrases recited surrenderingly and rhythmically. The phrases used may include the name of God or other words that provide comfort and tranquility to the patient (1).

Several studies have demonstrated the effectiveness of Benson relaxation in reducing pain intensity. For example, the study entitled "The Effect of Benson Relaxation Technique on Reducing Pain Scale in Post-Fracture Surgery Patients at Temanggung Regional General Hospital" conducted by Sekar et al. (2020) found that Benson relaxation significantly reduced pain intensity in postoperative fracture patients. Similarly, a study entitled "The Effect of Benson Relaxation Technique on Pain Reduction Among Post-Cesarean Section Patients at Dr. Achmad Mochtar Regional General Hospital, Bukittinggi" reported that pain reduction occurred due to distraction from pain perception, increased comfort and relaxation, and the use of the phrase "istighfar," which fostered spiritual closeness to Allah SWT and promoted inner peace (4). Patients' responses and expressions indicated that they felt calmer and more comfortable after receiving Benson relaxation therapy.

Benson relaxation may inhibit sympathetic nervous system activity, thereby reducing the body's oxygen consumption and promoting muscle relaxation and comfort among fracture patients (6).

Furthermore, Benson relaxation works by diverting an individual's attention away from pain and creating a sense of comfort. The repetition of calming phrases or mantras stimulates the body's endogenous analgesic mechanisms. This technique offers two major advantages: facilitating patient recovery and potentially reducing healthcare costs. Benson relaxation has also been reported to lower blood pressure, heart rate, stress, anxiety, discomfort, and hormone levels associated with pain intensity. Following surgery, patients commonly experience anxiety, fear, and depression. These emotional responses activate the sympathetic nervous system, leading to increased secretion of catecholamines, noradrenaline, and norepinephrine, which may subsequently intensify pain perception (4).

Based on preliminary study data collected on December 16, 2024, at Ansari Saleh Hospital, Banjarmasin, the number of hospitalized fracture surgery patients was 160 cases in 2022, 140 cases in 2023, and 137 cases from January to November 2024.

Based on the above findings, the researcher intends to conduct a study entitled “The Effect of Benson Relaxation Therapy on Pain Reduction Among Postoperative Fracture Patients.”

Method

This study employed a pre-experimental design using a one-group pretest–posttest approach. The design involved a single group of participants who were assessed before and after the intervention without the inclusion of a control group. The intervention consisted of Benson relaxation therapy, and pain levels were measured both before and after the intervention to evaluate its effect on postoperative pain reduction.

The study was conducted in the Nilam 3 inpatient ward of dr. H. Moch. Ansari Saleh Regional General Hospital, Banjarmasin, South Kalimantan, Indonesia, from April to June 2025.

The study population consisted of postoperative fracture patients hospitalized during the study period. A total of 34 participants were recruited using an accidental sampling technique. Eligible participants met the following inclusion criteria: (1) postoperative fracture patients, (2) aged 18–60 years, (3) fully conscious and cooperative, (4) willing to participate in the study, (5) experiencing pain with a maximum Numeric Rating Scale (NRS) score of 6, and (6) receiving Benson relaxation therapy 30–60 minutes before the administration of analgesic medication. Patients with fracture-related complications, severe or uncontrolled pain, or those unwilling to participate were excluded from the study.

Benson relaxation therapy was administered once for 10–15 minutes. The intervention was performed 30–60 minutes before the scheduled administration of analgesic medication. Participants were guided to relax in a comfortable position and instructed to focus on repeatedly reciting a calming word or phrase according to their personal beliefs while maintaining regular breathing patterns and a passive attitude toward distracting thoughts.

Data were collected one day after surgery. Baseline pain intensity was assessed before the intervention using the Numeric Rating Scale (NRS). Following the administration of Benson

relaxation therapy for 10–15 minutes, pain intensity was reassessed using the same instrument. The pain scores were recorded on an observation sheet along with participants’ demographic and clinical characteristics, including age, sex, and type of fracture.

Pain intensity was measured using the Numeric Rating Scale (NRS), which ranges from 0 (no pain) to 10 (worst possible pain). The NRS is a widely used and validated instrument for assessing pain severity. For descriptive analysis, pain intensity was categorized as mild (1–3), moderate (4–6), and severe (7–10).

Data were analyzed using descriptive and inferential statistics. Descriptive statistics were used to summarize participants’ characteristics, including age, sex, and fracture type, and were presented as frequencies and percentages. The effectiveness of Benson relaxation therapy in reducing pain intensity was evaluated using the Wilcoxon Signed Rank Test because the data were paired and measured on an ordinal scale. Statistical significance was set at $p < 0.05$.

This study received ethical approval from the Ethics Committee of Universitas Muhammadiyah Banjarmasin. Ethical clearance was granted on March 10, 2025 (Approval No. 108/UMB/KE/III/2025). All participants received complete information regarding the study objectives and procedures and provided written informed consent prior to participation. Participant confidentiality and anonymity were maintained throughout the study by using identification codes instead of personal names.

Results and Discussion

Results

Table 1. Distribution of Respondents by Age (n = 34)

Age Group (Years)	n	%
18-30	11	32.4
31-40	10	29.4
41-50	3	8.8
51-60	10	29.4
Total	34	100

Table 1 presents the distribution of respondents based on age. The majority of respondents were aged 18–30 years, accounting

for 11 respondents (32.4%). Respondents aged 31–40 years and 51–60 years each accounted for 10 respondents (29.4%), while respondents aged 41–50 years accounted for 3 respondents (8.8%).

Table 2. Distribution of Respondents by Gender (n = 34)

Gender	n	%
Male	18	52.9
Female	16	47.1
Total	34	100

Table 2 shows the distribution of respondents based on gender. Most respondents were male, with 18 respondents (52.9%), while female respondents accounted for 16 respondents (47.1%).

Table 3. Distribution of Respondents by Type of Fracture (n = 34)

Type of Fractur	n	%
Radial Fracture	3	8.8
Tibial Fracture	15	44.1
Femoral Fracture	16	47.1
Total	34	100

Table 3 presents the distribution of respondents based on the type of fracture. Femoral fractures were the most common, occurring in 16 respondents (47.1%), followed by tibial fractures in 15 respondents (44.1%) and radial fractures in 3 respondents (8.8%).

Table 4. Pain Level Before Benson Relaxation Therapy (n = 34)

Pain Level	n	%
Mild	3	8.8
Moderate	31	91.2
Severe	0	0
Total	34	100

Table 5. Pain Level After Benson Relaxation Therapy (n = 34)

Pain Level	n	%
Mild	26	76.5
Moderate	8	23.5
Severe	0	0
Total	34	100

Table 4 shows the pain levels of post-operative fracture patients before receiving Benson relaxation therapy. Most respondents experienced moderate pain, with 31 respondents (91.2%), while 3 respondents (8.8%) experienced mild pain. No respondents reported severe pain.

Table 5 presents the pain levels after the administration of Benson relaxation therapy. Following the intervention, most respondents experienced mild pain, accounting for 26 respondents (76.5%), while 8 respondents (23.5%) experienced moderate pain. No respondents reported severe pain.

Table 6. Comparison of Pain Scores Before and After Benson Relaxation Therapy (n = 34)

Variable	N	Min	Max	Mean	SD
Pre	34	3	6	4.88	1.008
Post	34	1	5	2.88	1.038
p-value = <0.0001					

Table 6 shows the comparison of pain scores before and after the intervention. Before the intervention, the mean pain score was 4.88 (SD = 1.008), with a minimum score of 3 and a maximum score of 6. After Benson relaxation therapy, the mean pain score decreased to 2.88 (SD = 1.038), with a minimum score of 1 and a maximum score of 5. The mean difference between pre- and post-

Table 7. Distribution of Pain Levels Before and After Benson Relaxation Therapy (n = 34)

Intervention	Pain Level						Σ	%
	Mild		Moderate		Severe			
	F	%	F	%	F	%		
Pre	3	8.8	31	91.2	0	0	34	100
Post	26	76.5	8	23.5	0	0	34	100
(Wilcoxon) = 0.001								

intervention pain scores was 2.00. Statistical analysis using the Wilcoxon Signed Rank Test showed a p-value of <0.001 , indicating a statistically significant reduction in pain levels after the intervention.

Table 7 demonstrates the distribution of pain categories before and after Benson relaxation therapy. Prior to the intervention, 3 respondents (8.8%) experienced mild pain and 31 respondents (91.2%) experienced moderate pain. After the intervention, the number of respondents experiencing mild pain increased to 26 respondents (76.5%), while those experiencing moderate pain decreased to 8 respondents (23.5%).

The Wilcoxon Signed Rank Test revealed a p-value of 0.001 ($p < 0.05$), indicating a statistically significant difference in pain levels before and after Benson relaxation therapy. These findings suggest that Benson relaxation therapy was effective in reducing pain among post-operative fracture patients in Nilam 3 Ward at RSUD dr. H. Moch. Ansari Saleh Banjarmasin.

Discussion

This study found that most post-operative fracture patients experienced moderate pain before receiving Benson relaxation therapy. The majority of respondents were aged 18–30 years, male, and diagnosed with femoral fractures. Several factors may influence pain perception, including age, gender, and type of fracture.

The findings showed that the largest age group was 18–30 years, accounting for 32.4% of respondents. Age is considered an important factor influencing pain tolerance and perception. Increasing age is often associated with better emotional control and coping mechanisms in managing pain. This finding is consistent with the study by Nurhanifah and Sari (2022), who explained that developmental stages affect how individuals perceive and express pain. Children generally have more difficulty understanding and verbally expressing pain compared to adults, whereas adults tend to report pain only when it becomes severe or pathological (5).

In terms of gender, male respondents slightly predominated in this study (52.9%). This result is consistent with previous findings reported by Desiartama and Aryana (2017), who found that males constituted the majority of fracture patients. Although men and women generally do not differ significantly in physiological pain responses, women tend to express pain more openly than men. Previous studies have also demonstrated

differences in pain management between genders. Women frequently report higher pain intensity; however, opioid prescriptions are not always adjusted accordingly, suggesting the possibility of under-treatment or differences in analgesic effectiveness and pain expression between men and women. Hormonal differences, including estrogen, progesterone, and testosterone, as well as variations in immune and inflammatory responses, may also influence pain perception and bone healing after fractures (12).

Regarding the type of fracture, femoral fractures were the most common diagnosis among respondents (47.1%), followed closely by tibial fractures. Pain in post-operative fracture patients is primarily associated with tissue and bone damage caused by surgery, which stimulates nociceptors and activates pain pathways within the nervous system. According to Rejeki (2020), pain signals originate from peripheral nerve endings and are transmitted through afferent spinal pathways to the central nervous system, resulting in varying pain intensities among individuals (8). Lower extremity fractures, such as femoral and tibial fractures, are generally associated with higher acute and chronic pain burdens compared with upper extremity fractures. However, pain perception is multifactorial and may also be influenced by fracture stability, fixation methods, and rehabilitation programs.

Pain management in post-operative fracture patients commonly involves both pharmacological and non-pharmacological approaches. Pharmacological therapies, such as analgesics, are widely used but may lead to adverse effects if administered continuously, including gastrointestinal disturbances and kidney dysfunction. Therefore, non-pharmacological interventions are increasingly recommended because they are relatively inexpensive, easy to implement, and have minimal side effects.

The results of this study demonstrated that pain intensity decreased significantly after the administration of Benson relaxation therapy. Before the intervention, most respondents experienced moderate pain, whereas after the intervention, the majority reported mild pain. Benson relaxation therapy combines breathing relaxation techniques with spiritual or belief-based components. Patients

are encouraged to repeat calming words or spiritual phrases rhythmically while maintaining a relaxed state. According to Atmojo et al. (2019), this technique integrates physical relaxation with individual belief systems, thereby enhancing psychological comfort and emotional stability (1).

The effectiveness of Benson relaxation therapy in reducing pain can be explained through neurophysiological mechanisms. Relaxation stimulates the parasympathetic nervous system, decreases sympathetic nervous activity, reduces muscle tension, and promotes the release of endorphins, which act as natural analgesics. Additionally, relaxation decreases the production of stress hormones such as catecholamines, thereby reducing the body's fight-or-flight response and lowering pain perception. This explanation is supported by previous findings from Morita et al. (2020) and Fatikha and Nurmawati (2023), who reported that relaxation techniques effectively reduce anxiety, stress, and pain intensity (4,6).

Statistical analysis using the Wilcoxon Signed Rank Test demonstrated a significant reduction in pain scores following Benson relaxation therapy ($p < 0.001$). The mean pain score decreased from 4.88 before the intervention to 2.88 after the intervention, with a mean difference of 2.00 points. These findings indicate that Benson relaxation therapy had a significant effect on reducing pain in post-operative fracture patients.

The findings of this study are also supported by the Gate Control Theory proposed by Melzack and Wall (1965), which explains that non-painful stimuli can inhibit the transmission of pain signals to the brain. Activities such as focused breathing and repetition of calming phrases may "close the gate" at the spinal cord level, thereby reducing pain perception.

The present findings are consistent with several previous studies. Research conducted by Sekar et al. (2020) demonstrated that Benson relaxation therapy significantly reduced pain intensity in post-operative fracture patients, with a p -value of 0.001 (11). Similar results were reported by Nurhayati (2022), who found that Benson relaxation effectively reduced pain intensity by inhibiting sympathetic nervous activity and inducing muscle relaxation (6). Another study by Cut Ayuniara (2024) also reported the effectiveness of Benson relaxation therapy in reducing post-surgical pain among fracture patients ($p < 0.05$). Furthermore, Wahyu

(2018) found that Benson relaxation therapy reduced pain intensity among post-cesarean section patients, with 82% of respondents experiencing a reduction from moderate to mild pain (7).

Based on these findings, Benson relaxation therapy can be considered an effective complementary nursing intervention for reducing pain in post-operative fracture patients. The technique is simple, inexpensive, easy to perform independently, and may help patients manage pain during the recovery process. Therefore, Benson relaxation therapy may be recommended as part of non-pharmacological pain management in clinical practice, particularly for post-operative fracture patients.

Conclusion

Based on the findings of this study, Benson Relaxation Therapy was found to have a significant effect on reducing pain levels among post-operative fracture patients in Nilam 3 Ward at RSUD dr. H. Moch. Ansari Saleh Banjarmasin. Prior to the intervention, most respondents experienced moderate pain (91.2%), whereas after the intervention, the majority reported mild pain (76.5%). Statistical analysis showed a significant difference in pain intensity before and after the administration of Benson Relaxation Therapy, with a p -value of 0.001 ($p < 0.05$). These findings indicate that Benson Relaxation Therapy is effective as a non-pharmacological intervention for reducing pain in post-operative fracture patients.

This study is expected to increase knowledge regarding the use of Benson Relaxation Therapy for managing post-operative fracture pain and encourage patients to continue applying the technique as a complementary pain management method. The findings may also serve as a reference for healthcare providers in implementing non-pharmacological interventions for pain management and contribute to the development of nursing knowledge. Furthermore, future researchers are encouraged to conduct similar studies using different research designs and settings to strengthen the scientific evidence regarding the effectiveness of Benson Relaxation Therapy in reducing post-operative fracture pain.

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