

Effect of Benson Relaxation Therapy on Postoperative Pain among Patients with Fractures

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ABSTRACT/ ABSTRAK

ABSTRACT. Postoperative pain is one of the most common clinical problems experienced by patients with fractures and may delay recovery. Benson Relaxation Therapy is a non-pharmacological intervention that may help reduce pain intensity. This study aimed to examine the effect of Benson Relaxation Therapy on postoperative pain among patients with fractures. A pre-experimental study with a one-group pretest–posttest design was conducted involving 34 patients with fractures recruited using accidental sampling. Pain intensity was assessed using a pain scale before and after the intervention and analyzed using the Wilcoxon Signed Rank Test. Before the intervention, most participants experienced moderate pain (91.2%), whereas after the intervention the majority reported mild pain (76.5%). The Wilcoxon Signed Rank Test demonstrated a significant difference in pain intensity before and after the intervention ($p = 0.001$). Benson Relaxation Therapy had a significant effect on reducing postoperative pain among patients with fractures.

ABSTRAK. Nyeri pasca operasi merupakan salah satu masalah utama yang dialami pasien fraktur dan dapat menghambat proses pemulihan. Terapi Relaksasi Benson merupakan salah satu intervensi nonfarmakologis yang digunakan untuk membantu mengurangi intensitas nyeri. Penelitian ini bertujuan menganalisis pengaruh Terapi Relaksasi Benson terhadap nyeri pasca operasi pada pasien fraktur. Penelitian ini menggunakan desain pre-eksperimental dengan pendekatan one-group pretest–posttest. Sebanyak 34 pasien fraktur dipilih menggunakan teknik accidental sampling. Intensitas nyeri diukur menggunakan skala nyeri sebelum dan sesudah intervensi, kemudian dianalisis menggunakan Wilcoxon Signed Rank Test. Sebelum intervensi, sebagian besar responden mengalami tingkat nyeri sedang (91,2%), sedangkan setelah intervensi mayoritas mengalami tingkat nyeri ringan (76,5%). Hasil Wilcoxon Signed Rank Test menunjukkan perbedaan yang bermakna antara intensitas nyeri sebelum dan sesudah intervensi ($p = 0,001$). Terapi Relaksasi Benson berpengaruh terhadap penurunan intensitas nyeri pasca operasi pada pasien fraktur.

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INTRODUCTION

Fractures are musculoskeletal injuries characterized by disruption of bone continuity due to forces exceeding bone strength and frequently require surgical intervention to restore bone function and stability (Putri Meliana & Wahyu Setyo Budi, 2024). In Indonesia, fractures remain a major public health problem, primarily resulting from road traffic accidents, falls, and physical injuries, and are associated with substantial physical and psychological consequences that may delay recovery (Ahmad et al., 2025). In South Kalimantan Province, the high incidence of road traffic accidents further contributes to the increasing number of fracture cases requiring hospital care (Tamsir & Nompo, 2021; BPS, 2024).

Postoperative pain is one of the most common clinical problems experienced by patients with fractures following surgery because of tissue injury during the surgical procedure. Uncontrolled pain may delay early mobilization, increase physiological and psychological stress responses, reduce patient comfort, and prolong recovery (Susihar et al., 2019; Transyah et al., 2021). Therefore, effective management of Postoperative Pain is a fundamental component of nursing care for patients with fractures.

Management of Postoperative Pain generally combines Pharmacological Therapy and Non-pharmacological Therapy. Although analgesics effectively reduce Pain Intensity, pharmacological treatment may be associated with adverse effects, highlighting the need for safe and complementary interventions that enhance patient comfort (Sandra et al., 2020). Benson Relaxation Therapy is a non-pharmacological intervention that integrates the relaxation response with an individual's beliefs through the repetition of calming words or phrases. This intervention is believed to suppress sympathetic nervous system activity, promote relaxation, and reduce Pain Intensity (Atmojo et al., 2019; Morita et al., 2020; Nurhayati et al., 2022).

Previous studies have demonstrated that Benson Relaxation Therapy reduces Pain Intensity in various postoperative conditions, including fracture surgery and cesarean section (Sari et al., 2025; Morita et al., 2020). However, evidence regarding its application among postoperative patients with fractures in referral hospitals in South Kalimantan remains limited. Preliminary data from Dr. H. Moch. Ansari Saleh Regional Hospital, Banjarmasin, showed that the number of fracture surgeries remained relatively high, with 160 cases in 2022, 140 cases in 2023, and 137 cases between January and November 2024. These findings indicate the need to evaluate Benson Relaxation Therapy as a complementary intervention for managing Postoperative Pain among patients with fractures. Therefore, this study aimed to examine the effect of Benson Relaxation Therapy on Postoperative Pain among Patients with Fractures.

RESEARCH METHOD

A pre-experimental study employing a one-group pretest–posttest design was conducted to examine the effect of Benson Relaxation Therapy on postoperative pain among patients with fractures. The study was carried out in Nilam 3 Ward at Dr. H. Moch. Ansari Saleh Regional Hospital, Banjarmasin, South Kalimantan, Indonesia, between April and June 2025.

The study population consisted of all postoperative patients with fractures admitted during the study period, comprising 34 patients. Participants were recruited using accidental

sampling, resulting in 34 eligible participants. The inclusion criteria were postoperative patients with fractures who were willing to participate, fully conscious and cooperative, aged 18–60 years, experiencing a maximum pain intensity equivalent to moderate pain (pain score ≤ 6), and receiving Benson Relaxation Therapy 30–60 minutes before analgesic administration. Patients who declined participation, experienced fracture-related complications, or had uncontrolled severe pain were excluded.

The independent variable was Benson Relaxation Therapy, whereas the dependent variable was pain intensity. The intervention was administered once for 10–15 minutes according to the study's standard operating procedure. Pain intensity was assessed before and after the intervention using the Numeric Rating Scale (NRS) ranging from 0 to 10. Pain intensity was classified as mild (1–3), moderate (4–6), or severe (7–10). The NRS has been reported to demonstrate good validity ($r = 0.90$) and excellent reliability (intraclass correlation coefficient >0.95) (Lin, 2017).

Data collection was performed one day after surgery. Pain intensity was assessed before the intervention, followed by the administration of Benson Relaxation Therapy for 10–15 minutes, after which pain intensity was reassessed using the same instrument. Descriptive statistics were used to summarize participant characteristics, including age, sex, and fracture type. Differences in pain intensity before and after the intervention were analyzed using the Wilcoxon Signed Rank Test, with statistical significance set at $p < 0.05$.

This study received ethical approval from the Ethics Committee of Universitas Muhammadiyah Banjarmasin (Approval No. 108/UMB/KE/III/2025, issued on March 10, 2025). Written informed consent was obtained from all participants before data collection.

RESULTS

Table 1. Participant Characteristics (n = 34)

Characteristic	n	%
Age (years)		
18–30	11	32.4
31–40	10	29.4
41–50	3	8.8
51–60	10	29.4
Sex		
Male	18	52.9
Female	16	47.1
Fracture Type		
Radial	3	8.8
Tibial	15	44.1
Femoral	16	47.1

Table 1 summarizes the demographic and clinical characteristics of the participants. The largest age group was 18–30 years, comprising 11 participants (32.4%), whereas the 41–50 years age group was the smallest, with 3 participants (8.8%). Most participants were male (52.9%), while females accounted for 47.1% of the sample. Regarding fracture type, femoral fractures were the most common (47.1%), followed by tibial fractures (44.1%) and radial fractures (8.8%).

Table 2. Distribution of Pain Level Before and After Benson Relaxation Therapy (n = 34)

Pain Level	Before n (%)	After n (%)
Mild	3 (8.8)	26 (76.5)
Moderate	31 (91.2)	8 (23.5)
Severe	0 (0.0)	0 (0.0)
Total	34 (100.0)	34 (100.0)

Table 2 shows the distribution of Pain Level before and after Benson Relaxation Therapy. Before the intervention, most participants experienced moderate pain, with 31 participants (91.2%), whereas 3 participants (8.8%) reported mild pain. Following the intervention, the number of participants experiencing mild pain increased to 26 (76.5%), while those experiencing moderate pain decreased to 8 (23.5%). No participants reported severe pain before or after the intervention. Overall, the findings demonstrate a descriptive shift in Pain Level from moderate pain to mild pain following Benson Relaxation Therapy.

Table 3. Comparison of Pain Intensity Before and After Benson Relaxation Therapy (n = 34)

Variable	n	Minimum	Maximum	Mean ± SD
Before intervention	34	3	6	4.88 ± 1.008
After intervention	34	1	5	2.88 ± 1.038

Wilcoxon Signed Rank Test: $p < 0.001$

Table 3 compares Pain Intensity before and after Benson Relaxation Therapy. Before the intervention, the mean Pain Intensity was 4.88 ± 1.008 , with scores ranging from 3 to 6. Following the intervention, the mean Pain Intensity decreased to 2.88 ± 1.038 , with scores ranging from 1 to 5. The mean Pain Intensity decreased by 2.00 points after the intervention. The Wilcoxon Signed Rank Test demonstrated a statistically significant difference in Pain Intensity before and after the intervention ($p < 0.001$).

DISCUSSION

The present study demonstrated that Benson Relaxation Therapy was associated with a significant reduction in Pain Intensity among patients with fractures following surgery. After the intervention, the mean Pain Intensity decreased from 4.88 ± 1.008 to 2.88 ± 1.038 , accompanied by a shift in Pain Level from predominantly moderate pain to mild pain. These findings indicate that Benson Relaxation Therapy may be considered a beneficial complementary non-pharmacological intervention for the management of Postoperative Pain in patients with fractures. The observed improvement supports the integration of non-pharmacological approaches alongside standard postoperative pain management to optimize patient comfort.

The reduction in Pain Intensity observed in this study may be explained by the physiological mechanisms underlying Benson Relaxation Therapy. According to the concept of the relaxation response, controlled breathing combined with the repetitive recitation of calming words promotes physical and psychological relaxation. This response suppresses sympathetic nervous system activity while enhancing parasympathetic activity, resulting in reduced muscle tension, decreased oxygen consumption, and lower secretion of stress hormones. In addition, relaxation stimulates the release of endogenous endorphins, which contribute to pain modulation and improve the patient's perception of comfort during the postoperative period (Atmojo et al., 2019; Morita et al., 2020; Nurhayati et al., 2022). These

physiological mechanisms provide a plausible explanation for the significant reduction in Pain Intensity observed after the intervention.

The findings of this study are consistent with previous studies evaluating the effectiveness of Benson Relaxation Therapy in postoperative pain management. Sari et al. (2025) reported that Benson Relaxation Therapy significantly reduced pain intensity among patients undergoing fracture surgery. Likewise, Nurhayati et al. (2022) found that the intervention promoted relaxation by inhibiting sympathetic nervous system activity, thereby reducing pain perception. Similar findings were also reported by Fatikha & Nurmawati (2023), who demonstrated the effectiveness of Benson Relaxation Therapy in reducing postoperative pain following fracture surgery. Collectively, these studies consistently indicate that the intervention contributes to lower postoperative pain intensity across patients undergoing fracture-related surgical procedures.

In addition to studies involving patients with fractures, the effectiveness of Benson Relaxation Therapy has also been demonstrated in other postoperative populations. Morita et al. (2020) reported that repetitive calming words used during the intervention helped patients divert their attention away from painful stimuli while enhancing relaxation. Similarly, Desreza et al. (2023) observed a reduction in postoperative pain among women undergoing cesarean section after receiving Benson Relaxation Therapy. Although the surgical conditions differed from those investigated in the present study, both studies demonstrated comparable reductions in postoperative pain, suggesting that the therapeutic effect of Benson Relaxation Therapy may be attributable to its physiological relaxation response rather than to a specific surgical procedure.

The demographic and clinical characteristics of the participants should also be considered when interpreting the findings. Most participants were young adults, male, and had femoral fractures. Although this study did not analyze the relationship between participant characteristics and Pain Intensity, previous literature has indicated that age, sex, and fracture location may influence pain perception through differences in physiological responses, tissue injury, and individual adaptation to pain (Ahmad et al., 2025; Nurhanifah & Sari, 2022). Therefore, these characteristics may have contributed to the variation in Pain Intensity observed among participants before the intervention, although further analytical studies are required to confirm these associations.

From the perspective of nursing practice, the findings support the use of Benson Relaxation Therapy as a complementary non-pharmacological intervention in the management of Postoperative Pain among patients with fractures. The intervention is simple to perform, inexpensive, requires no specialized equipment, and can be implemented together with pharmacological pain management. Consequently, Benson Relaxation Therapy may be considered an appropriate complementary intervention in postoperative nursing care to support pain management.

Several limitations should be acknowledged. This study employed a one-group pretest–posttest design without a control group, limiting the ability to compare outcomes with patients who did not receive the intervention. Furthermore, the relatively small sample size and the single-center setting may limit the generalizability of the findings. Future studies are recommended to include larger sample sizes, multicenter settings, and controlled experimental designs to provide stronger evidence regarding the effectiveness of Benson Relaxation Therapy in reducing Postoperative Pain among patients with fractures.

CONCLUSION

This study demonstrated that Benson Relaxation Therapy was associated with a reduction in Pain Intensity among patients with fractures following surgery. The intervention was followed by a decrease in the mean Pain Intensity from 4.88 ± 1.008 to 2.88 ± 1.038 , accompanied by a shift in Pain Level from predominantly moderate pain to mild pain. The Wilcoxon Signed-Rank Test indicated that this difference was statistically significant ($p < 0.001$). These findings suggest that Benson Relaxation Therapy may be considered a complementary non-pharmacological intervention for the management of Postoperative Pain among patients with fractures.

For nursing practice, Benson Relaxation Therapy may be considered a complementary non-pharmacological intervention alongside pharmacological treatment for the management of Postoperative Pain among patients with fractures. For future research, studies employing controlled experimental designs, larger sample sizes, and multicenter settings are recommended to strengthen the evidence regarding the effectiveness of Benson Relaxation Therapy in reducing Postoperative Pain among patients with fractures.

REFERENCES

- Ahmad, F., Dzaky, & Abidin, Z. (2025). Penatalaksanaan fisioterapi pada post ORIF fraktur radius 1/3 proximal sinistra dengan infra red dan terapi latihan. *Jurnal Ilmiah Kedokteran dan Kesehatan*. <https://doi.org/10.55606/klinik.v5i1.5624>
- Atmojo, J. T., Putra, M. M., Astriani, N. M. D. Y., Dewi, P. I. S., & Bintoro, T. (2019). Efektifitas terapi relaksasi Benson terhadap tekanan darah pada penderita hipertensi. *Interest: Jurnal Ilmu Kesehatan*, 8(1), 51–60. <https://doi.org/10.37341/interest.v8i1.117>
- Badan Pusat Statistik Provinsi Kalimantan Selatan. (2024). *Provinsi Kalimantan Selatan dalam Angka 2024*. <https://kalsel.bps.go.id/id/publication/2024/02/28/a385e874f0cddcf61d8adea0/provinsi-kalimantan-selatan-dalam-angka-2024.html>
- Desreza, N., Riza, S., & Zarita, N. (2023). The influence of Benson relaxation technique on pain reduction in patients after cesarean section surgery. *International Journal on Advanced Technology Engineering and Information System (IJATEIS)*, 3(2). <https://doi.org/10.55047/ijateis.v3i2.867>
- Fatikha, D., & Nurawati, T. (2023). *The effect of Benson's relaxation on pain in patients post open reduction internal fixation (ORIF) extremity fractures*. <https://doi.org/10.33846/hg1402>
- Morita, K. M., Amelia, R., & Putri, D. (2020). Pengaruh teknik relaksasi Benson terhadap penurunan nyeri pada pasien post operasi sectio caesarea di RSUD Dr. Achmad Mochtar Bukittinggi. *Jurnal Riset Hesti Medan Akper Kesdam I/BB Medan*, 5(2), 106. <https://doi.org/10.34008/jurhesti.v5i2.197>
- Nurhanifah, D., & Sari, R. T. (2022). *Manajemen nyeri nonfarmakologi*. UrbanGreen Central Media. <https://books.google.co.id/books?id=K0ahEAAAQBAJ>
- Nurhayati, N., Marianthi, D., Desiana, D., & Maulita, R. (2022). Pemberian relaksasi Benson terhadap penurunan nyeri pasien post operasi fraktur femur di Rumah Sakit Umum Daerah Meuraxa Banda Aceh. *Journal Keperawatan*, 1(1), 43–53. <https://doi.org/10.58774/jourkep.v1i1.9>
- Putri Meliana, B., & Wahyu Setyo Budi, A. (2024). Pengaruh pemasangan balut bidai dan relaksasi nafas dalam terhadap penurunan skala nyeri pada pasien fraktur. *Jurnal Penelitian Perawat Profesional*, 6, 4–4. <http://jurnal.globalhealthsciencegroup.com/index.php/JPPP>
- Sandra, R., Nur, S. A., Morika, H. D., Sardi, W. M., Syedza, S., & Padang, S. (2020). Pengaruh terapi

musik klasik terhadap tingkat nyeri pasien post op fraktur di Bangsal Bedah RS Dr. Reksodiwiryono Padang. *Jurnal Kesehatan Medika Saintika*, 11(2), 175–183. <https://jurnal.syedzasaintika.ac.id/index.php/medika/article/view/778>

Sari, I. P., Mariyati, M., & Kustriyani, M. (2025). Penerapan terapi Benson untuk mengurangi nyeri pada pasien post operasi fraktur di RSUD Kajen Kabupaten Pekalongan. *Jurnal Riset Ilmu Kesehatan Umum dan Farmasi*, 3(4), 98–108. <https://doi.org/10.57213/jrikuf.v3i4.882>

Susihar, Trisnawati, L., & Setiawati, G. (2019). Penerapan terapi musik klasik terhadap penurunan rasa nyeri pada pasien fraktur di RSUD Kota Jakarta Utara. *JAKHKJ*, 5(1), 39–43.

Tamsir, L. O., & Nampo, R. S. (2021). Pengaruh discharge planning terhadap penurunan kecemasan pada pasien post ORIF fraktur di ruang ortopedi Rumah Sakit Umum Daerah Jayapura. *Sentani Nursing Journal*, 2(2), 45–51. <https://doi.org/10.52646/snj.v2i2.76>

Transyah, C. H. T., Handayani, R., & Aulia Putra, A. (2021). Pengaruh terapi musik klasik terhadap tingkat nyeri pasien post operasi fraktur. *Jurnal Amanah Kesehatan*, 3(2), 160–166. <https://doi.org/10.55866/jak.v3i2.121>