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## Research Article

# The Effect of Distraction Therapy on Pain Levels in Patients with Multiple Lumbar Fractures and Nerve Root Injuries in the Seruni Room at Dr Soebandi Hospital, Jember

Azhar Mintarum<sup>1\*</sup> | Murtaqib Murtaqib<sup>2</sup> | Nur Widayati<sup>3</sup> |  
Eka Yufi Septiana Candra<sup>4</sup>

<sup>1</sup>Nursing Professional Students, Faculty of Nursing Universitas Jember, Jember, Indonesia

<sup>2</sup>Department of Medical and Sargaical Nursing, Faculty of Nursing Universitas Jember, Jember, Indonesia

<sup>3</sup>Department of Medical and Sargaical Nursing, Faculty of Nursing Universitas Jember, Jember, Indonesia

<sup>4</sup>Head of Outpatient Installation, RSD dr Soebandi, Jember, Indonesia

### \*contact

mintarumazhar@gmail.com

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### Abstract

**Aims:** Lumbar fractures increased from 46.8% to 56.0% between 2009 and 2019, causing severe pain and discomfort, a critical nursing issue requiring attention to enhance patient care quality.

**Methods:** the study was conducted in the Seruni Surgical Room, RSUD dr. Soebandi Jember, focusing on a patient with multiple lumbar fractures and nerve root injury. The patient was selected based on inclusion criteria and pain complaints. The researchers provided a distraction technique, involving listening to classical music and imagining positive things to alleviate pain.

**Results:** the research results showed that there was a difference between the pain scale from the first day to the third day. This distraction technique is given according to the patient's needs when the pain felt by the patient appears.

**Conclusions:** Acute pain is a major nursing issue in patients with multiple fractures and nerve injuries, requiring pain management interventions like music distraction therapy to address physical, psychological, cognitive, and social needs. Researchers hope that nurses can apply therapy independently to patients who have pain.

### Keywords:

**Distraction, Lumbar Fracture, Pain, Pain Scale**

## INTRODUCTION

Most traffic accidents in the world can result in death. This has become a topic in health problems that continues to increase to this day (1). The impact of this traffic accident that can occur is a fracture. Fracture or fracture is a condition where the continuity of the bone is damaged which can be caused by a large external pressure on the bone compared to the absorbing pressure of the bone. Fractures that occur can also cause multiple fractures. Multiple

fractures are a condition where bone tissue experiences loss of continuity in more than one fault line. This fracture condition can occur in the spine, especially the lumbar region. Fractures in the lumbar spine occur when the spine is in the lower position. This injury can result in fractures in the spinal cord area, ligament damage, blood vessel damage and even ischemia in the spinal cord (2).

Several causes of lumbar fractures are based on literature reported in Physiopedia,

namely age and gender. Age is common in elderly people aged 65 years and over and in women (3). Other risk factors that often occur are not only characteristic factors but also several factors from poor traffic safety systems as well as for example in developing countries with a lack of self-awareness, especially among those of mature age, in preventing accidents such as the behavior of not using a seat belt, secure children when driving from a position where there is a risk of falling or not wearing a helmet as a safety measure (1)(3)(4).

Data in 2018 shows that there were more than 5.6 million cases of people dying due to traffic accidents. (5). Basic Health Research Data (RISKESDAS) in 2018 recorded the incidence of bone fractures in Indonesia at 5.5% of accident cases. The highest yield was in Bangka Belitung 9.1% and the lowest was in East Kalimantan 3.5%. The fracture rate in West Java is 6.4% (2). Cases in the anatomical section with data on findings regarding the distribution of fractures that occur in the vertebral bones, there are several localizations including fractures in the lumbar section, namely with the number increasing from 2009 to 2019, namely from 56.0% to 46.8% (4). Fractures, especially in the lumbar region, cannot be separated from disturbances in comfort, especially severe pain.

Pain that occurs both acutely and chronically is one of the most important nursing problems that must be handled to improve the quality of care for patients. The pain caused has levels found, namely the first level or severe pain with a total of 80% and for pain that can still be tolerated or moderate pain amounting to 75% (6). The impact of this pain can worsen the patient's condition, such as disturbed comfort, disturbed sleep patterns and also immobility in the patient. The pain caused affects the patient's comfort level by the mechanism of the incision between tissues due to the surgical procedure that has been carried out, which is closely related to the

body's adaptive process in the healing mechanism that occurs in the area where the operation has been carried out (7). The pain management efforts that are prioritized in providing it are non-pharmacological management which can be an effective therapy for patients, one of which is distraction therapy.

Distraction therapy is given as a comfort nursing effort for patients during their treatment, not only focused on reducing discomfort in the form of pain, but also as an effort to maintain mental resilience or stability such as preventing anxiety (8). The distraction activity carried out is also a therapy in an effort to divert the patient's focus, namely initially being pain-centered, becoming diverted to things that can reduce the pain felt (9). This distraction technique treatment can significantly reduce the pain experienced by patients during treatment (10).

Based on this background, patients who were diagnosed with multiple lumbar fractures at Dr Soebandi Hospital in the Seruni Room as well as the orthopedic surgery treatment room were shown to have clinical manifestations that were visible in patients with lumbar fractures and nerve injury, the main one being post-operative pain. Therefore, researchers implemented interventions in the form of distraction techniques to lower the pain threshold level in patients in order to increase patient comfort during hospital treatment.

## METHODS

This research was conducted in the Seruni Surgical Room, RSUD dr. Soebandi Jember. The research was carried out for 3 consecutive days. The research time was divided into 2 patient conditions, namely the first 2 days in the patient's condition before surgery and the next 1 day in the patient's condition after surgery. The sampling technique in this study used consecutive sampling, that is, only 1 subject was used as a sample to be given the

intervention. The selected subject was Mrs. S, aged 52 years, the patient's medical diagnosis was multiple lumbar fractures and nerve root injury. This research procedure was carried out in stages starting from the researcher who first gave permission to the head of the room to conduct research in the Seruni surgical room. After the head of the room agreed to carry out the research, the researcher continued to select patients who matched the criteria desired by the researcher. Researchers looked for research samples according to the inclusion criteria set by the researchers, namely adult patients with multiple lumbar fractures and nerve root injuries, had pain complaints on a scale > 3, and patients were willing to be respondents. Meanwhile, the exclusion criteria are: pediatric patients, not having multiple fractures, pain scale < 3, and

patients not willing to be respondents. Then the researchers began providing distraction technique interventions to help reduce the patient's main complaint, namely pain. The distraction technique was given for 3 days. The distraction technique provided by the researcher focuses on asking the patient to listen to classical music according to the patient's preferences, then the patient is directed to imagine positive things that can lift the patient's spirits. The intervention was provided in accordance with the SOP previously prepared by the researcher. Before the intervention is carried out, the patient has first measured the pain scale they feel, then after using the distraction technique, the researcher will re-evaluate the patient's pain scale. Next, the researchers assessed the success of providing distraction technique intervention.

## RESULTS

### Respondent Characteristics

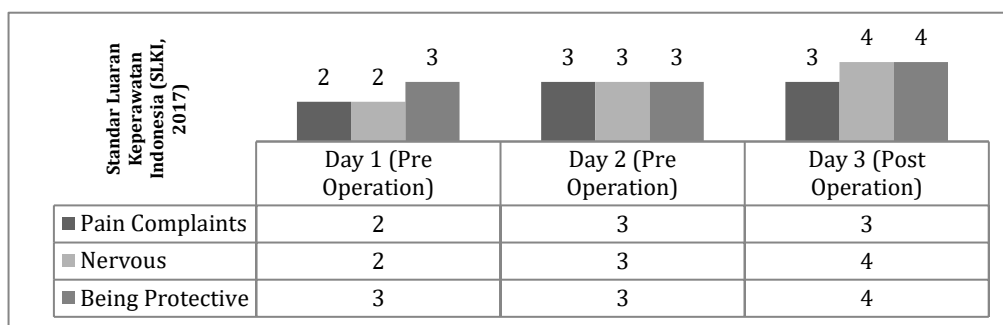
**Tabel 1. Respondent Characteristic**

Respondent Characteristics (N=1)	
Age	52 years old
Gender	Female

Based on table 1, the number of respondents was 1 respondent. The characteristics of the respondents in the table above explain the characteristics of age and gender. The research respondent was 52 years old, while the gender of the research respondent was female.

### Assessment of Patient Pain Response

**Tabel 2. Assessment of Patient Pain Response**



Based on diagram 1, it explains the assessment of the patient's pain level response during 3 days of providing evidence-based nursing with distraction techniques. Data presentation is presented in scale form. The results of the patient's pain level response include complaints of pain, anxiety and protective behavior. The results in the diagram above can be concluded that the patient's complaint of pain during the first day of assessment was on a scale of 2 and increased after the distraction technique was carried out to scale 3. Meanwhile, the response to the level of pain in the form of the patient's restless attitude during the first day of the assessment was on a scale of 2 and increased after the distraction technique was carried out to a scale of 4. And the pain level response in the form of being protective of the patient when the assessment on the first day was on a scale of 3 and increased after the distraction technique was carried out to a scale of 4.

### Respondent Pain Scale

**Tabel 3. Respondent Pain Scale**

Characteristic	Pre Operation				Post Operation	
	Day 1 (29 Mei 2023)		Day 2 (30 Mei 2023)		Day 3 (31 Mei 2023)	
	Pre	Post	Pre	Post	Pre	Post
<b>Pain Scale (NRS)</b>	5	4	5	4	4	3

Based on table 4, it shows the results of the pain scale before and after the distraction technique was carried out. The patient's pain level scale on the first day before the procedure was given was at 5 NRS pain scale and after being given the distraction technique was at 4 NRS scale. Furthermore, on the second day the distraction technique was given before the action was given, it was on a pain scale of 5 NRS and after the distraction technique was given, it was on a 4 NRS scale. On the last day the distraction technique was given before the action was given, it was on a pain scale of 4 NRS and after the distraction technique was given, it was on a 3 NRS scale.

## DISCUSSION

### Respondent Characteristics

#### a. Age

Based on research, the patient is 52 years old. According to the Indonesian Ministry of Health in Hakim's (2021) research, this age is included in the early elderly category, namely 46 – 55

years old. At this age, a person will enter a transitional period into old age which will experience a decline in the function of organs and hormones in the body. Someone who is 60 years old has the possibility of organ function in their body like a 50 year old person, or conversely someone who is 50 years old has the possibility of organ function in their body like a 60 year old person (11). This is in line with research by Widhiyanto, et al. (2019), where the data obtained was that the most patients who experienced vertebral fractures were in the age group 51 - 60 years, namely 101 patients (12).

As we get older, there will be many changes in the body, one of which is that when we approach old age there will be a decrease in physical capacity which is marked by a decrease in muscle mass and strength. As we approach the elderly, we will experience muscle weakness which will have an impact on the body's balance in carrying out daily activities. The decline



in muscle strength will begin when a person is 40 years old and the process of decreasing muscle strength will accelerate after a person is 75 years old. Muscle mass will decrease by 3-8% after the age of 30 years. Someone approaching old age will experience functional mobility problems which can cause the risk of falls and become dependent in carrying out daily activities (13). Researchers have an assumption that the age of the respondents is in the elderly category, where this age usually experiences decreased organ function and decreased muscle mass so that the risk of injury is much higher compared to other age groups.

#### b. Gender

Based on data from the nursing care assessment in this study, the patient was female. Patients with vertebral fractures who came to the emergency room at RSUD dr. Soetomo Surabaya was mostly men (77%) out of 341 patients compared to only women (23%) (12). In lumbar level fractures from a total of 153 patients, 114 patients were men (75%) and 39 patients were women (25%).

However, based on the level of pain from a disease, women can experience higher levels of pain than men. A study in Europe said that pain levels were higher in women compared to men (14). Women can express pain more exaggeratedly than men, and women can show higher levels of depression and anxiety when experiencing pain compared to men (15). Researchers have an assumption that the gender of the respondent is female, where lumbar fractures occur mostly in men, but a woman who experiences a lumbar fracture usually has a higher response to pain and a range of levels of depression and anxiety than men.

#### Assessment of Patient Pain Response

 <https://doi.org/10.33755/jkk>

The intervention that will be carried out in patients with acute pain is providing pain management (I.08238). Pain management is an action carried out to identify and manage sensory or emotional experiences related to tissue or functional damage with sudden or slow onset and mild to severe and constant intensity (16). The nursing care actions that will be carried out to overcome acute pain nursing problems are divided into observation, therapeutic, educational and collaboration actions with other health workers. Observation is an action carried out by nurses to identify clinical changes in patients. Observation measures in pain management based on guidelines are as follows: identifying location, characteristics, duration, frequency, quality, intensity of pain, pain scale, nonverbal pain responses, and factors that can aggravate pain (16).

The action of pain management nursing care by administering therapeutics is an action carried out independently by the nurse. Providing therapeutic measures and providing health education can be carried out simultaneously. When providing therapeutic pain management, the action that can be taken according to (SIKI PPNI, 2018) is to provide and teach non-pharmacological techniques to reduce pain. The specific non-pharmacological technique in this research was that the researcher provided distraction technique therapy in the form of music. When the recording enters the hearing, the vibrational energy that enters the ear will be converted into electrochemical messages which will then be carried by the auditory nerve to the brain and will be interpreted as a perception that calms and reduces pain (17).

#### Respondent Pain Scale

The implementation stage is the stage of implementing interventions that have previously been prepared by the nurse. The patient received music distraction technique therapy for 3 days and action evaluation was carried out before and after the patient was given therapy. The research

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results showed that patient complaints decreased after being given non-pharmacological therapy and collaboration with pharmacological therapy. The best therapy for dealing with pain is pain management in the form of a combination of pharmacological and non-pharmacological therapy (18).

Musical distraction technique therapy is the provision of therapy to patients in the form of providing music which is used to overcome problems from various aspects such as physical, psychological, cognitive and social needs of individuals who are experiencing physical disabilities. The provision of music distraction technique therapy is carried out with the aim of helping patients to express feelings, assisting physical rehabilitation, providing a positive influence on mood and emotions, helping patients to improve memory and providing unique opportunities for patients to interact and build emotional closeness (19).

Music distraction therapy will stimulate an increase in endorphins, which are morphine-like substances that are supplied by the body. Then this will cause when peripheral pain neurons send signals to the synapse, a synapse will occur between the peripheral neuron and the neuron that goes to the brain, where substance P should produce impulses. Due to the release of endorphins by music, endorphins will block the release of substance P from sensory neurons, this will cause the sensation of pain to be reduced (20).

This was confirmed by other researchers who explained that respondents who were given distraction therapy would produce endorphin and enkaphalin production, pain could be modulated by music therapy. In the theory of hormonal changes, it is stated that the body will naturally produce endorphins which act as substances or neurotransmitters similar to morphine. The presence of endorphins at nerve cell synapses can result in a decrease in the sensation of pain (20). Therefore, this therapy will help patients to overcome pain

and relieve pain. In this study, it was found that the patient's pain scale complaints were reduced, so it can be concluded that providing distraction technique therapy had an impact on reducing the patient's pain.

Distraction technique therapy is carried out for 3 days, once per shift with a duration of 10-20 minutes. Music therapy can ideally be done for approximately 30 minutes to an hour every day, but if you don't have enough time then this therapy can be done for 10 minutes, because 10 minutes helps the respondent's mind rest (12). This is in line with other research which explains that music therapy is listened to for a minimum of 20 minutes to provide a therapeutic effect. Classical music therapy has been proven to be able to activate body cells by converting sound vibrations into waves that are captured by the body, reducing stimulation of pain receptors and providing peace of mind (21).

When giving this therapy, the patient is lying down because the patient cannot sit due to the post-operative pain he is experiencing. Then the patient is asked to close his eyes and relax his muscles. Previously, the patient had been told that when the music was turned on, the patient was asked to imagine a memory that was pleasant for the patient. The music provided is music with calm melodies which will help patients relax and calm down (22). Before administering therapy, researchers first asked the patient about the scale of pain felt. After the therapy was given, the researcher again asked the patient's pain scale and also asked about the patient's feelings after being given the therapy. The pain scale was measured using the Numeric Rating Scale questionnaire. The method states that this therapy can be carried out at least 1 time/shift with 2 evaluation examinations (6).

## CONCLUSION

The characteristics of the respondent are patients aged 52 years who are classified as early elderly. Apart from that, the

respondent is female. The main nursing problem in patients with multiple fractures and nerve injuries is acute pain. Acute pain is a sensory or emotional experience that is related to actual or functional tissue damage in a rapid or slow manner and has a mild to severe intensity and lasts less than three months. Interventions that can be carried out in patients with pain nursing problems are pain management. Pain management is an action to identify and manage sensory and emotional experiences related to tissue or functional damage with sudden or slow onset and mild to severe intensity. One pain management that can be done is music distraction therapy. Where this therapy is a therapy given to patients using music media which functions to overcome problems from various aspects such as physical, psychological, cognitive and social needs of individuals who are experiencing physical disabilities.

## REFERENCES

- Ahmed, S. K., Mohammed, M. G., Abdulqadir, S. O., El-Kader, R. G. A., El-Shall, N. A., Chandran, D., Rehman, M. E. U., & Dhama K. Road Traffic Accidental Injuries and Deaths: A Neglected Global Health Issue. *Heal Sci Reports* [Internet]. 2023;6(5). Available from: <https://doi.org/10.1002/hsr2.1240>
- Rifa'i R. Asuhan Keperawatan Pada Klien Fraktur Lumbal Dengan Neri Akut di Ruang Marjan Atas RSUD dr. Slamet Garut. Universitas Bhakti Kencana; 2020.
- Albaugh, T., Record, E., Hillin, M., & Bales P. Lumbar Spine Fracture [Internet]. 2023. Available from: [Physiotherapy.com](https://www.physiotherapy.com).
- Lang, S., Walter, N., Freigang, V., Neumann, C., Loibl, M., Alt, V., & Rupp M. Increased Incidence of Vertebral Fractures in German Adults From 2009 to 2019 and The Analysis of Secondary Diagnoses, Treatment, Costs, and In-Hospital Mortality. *Sci Rep* [Internet]. 2023;13(1). Available from: <https://doi.org/10.1038/s41598-023-31654-0>
- Badan Pusat Statistik. Jumlah Penduduk Menurut Kelompok Umur dan Jenis Kelamin [Internet]. 2021. Available from: [https://www.bps.go.id/indikator/indikator/view\\_data\\_pub/0000/api\\_pub/YW40a21pdTU1cnJxOGt6dm43ZEdoZz09/da\\_03/1](https://www.bps.go.id/indikator/indikator/view_data_pub/0000/api_pub/YW40a21pdTU1cnJxOGt6dm43ZEdoZz09/da_03/1)
- Walton, L. L., Duff, E., Arora, R. C., & McMillan DE. Surgery Patients' Perspectives of Their Role in Postoperative Pain: A Scoping Review. *Int J Nurs Stud Adv* [Internet]. 2023;5. Available from: <https://doi.org/10.1016/j.ijnsa.2023.10012>
- Ilkafah, & Lestari ID. Nursing Care for Acute Pain in Post-Operation Fractures. *J Vocat Nurs*. 2021; 2(1):57-61.
- Qian, H., Zhou, J., Huang, T., Cao, X., Zhou, C., Yang, M., & Chen Y. Comfort Nursing Can Alleviate Pain and Negative Emotion of Patients After Surgery for LVCFs and Improve Their Living Ability. *Am J Transl Res* [Internet]. 2021;13(4). Available from: [www.ajtr.org](http://www.ajtr.org)
- Arto, D. S. B., Astuti, D., & Dyah Puspasari F. Literature Review Pengaruh Teknik Distraksi Musik Klasik Mozart Untuk Mengurangi Nyeri Pada Pasien Post Operasi Fraktur. *J Nurs Heal*. 2021;6(1):17.
- Mayenti, F., & Sari Y. Efektifitas Teknik Distraksi Musik Klasik Mozart Untuk Mengurangi Nyeri Pada Pasien Post Operasi Fraktur. *J Akad Baiturrahim Jambi* [Internet]. 2020;9(1):98. Available from: <https://doi.org/10.36565/jab.v9i1.193>
- Hakim LN. Urgensi Revisi Undang-Undang tentang Kesejahteraan Lanjut Usia. *Aspir J Masal Sos* [Internet]. 2020;11(1):43-55. Available from: <https://doi.org/10.22212/apirasi.v11i1.1589>
- Widhiyanto, Lukas, I Ketut Martiana, Primadenny Ariesa Airlangga & DP.



- Studi Epidemiologi Fraktur Vertebra di RSUD dr. Soetomo Surabaya pada Tahun 2013 - 2017. *Qanun Med.* 2019;3(1):15-22.
13. Setiorini A. Kekuatan Otot pada Lansia. *JK Unila.* 2021;5(169-74).
  14. Jamal, Fachrul, Teuku Dede Andika & EA. Penilaian dan Modalitas Tatalaksana Nyeri. *J Kedokt Nanggroe Med.* 2022;5(3):66-73.
  15. Hidayati, Hamik Badriyah, Elena Ghentilis Fitri Amelia, Agus Turchan, Nancy Margarita Rehatta, Atika & MH. Pengaruh Usia dan Jenis Kelamin pada Skala Nyeri Pasien Trigeminal Neuralgia. *Aksona [Internet].* 2021;1(2):53-6. Available from: <https://doi.org/10.20473/aksona.vli.2.149>
  16. Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia. *Standar Intervensi Keperawatan Indonesia.* 1st ed. Jakarta: Dewan Pengurus Pusat Persatuan Perawat Nasional Indonesia; 2018.
  17. Jatmika septian emma dwi, Maulana M, Kuntoro, Martini S. *Pengembangan Media Promosi Kesehatan.* Buku Ajar. 2019. 271 p.
  18. Parahita PS, Kurniyanta P, Sakit R, Pusat U DS. Management of Extrimity Fracture in Emergency Department. *e-Jurnal Med Udayana.* 2013;2(9):1597-1615.
  19. Parahita PS, Kurniyanta P, Sakit R, Pusat U, Denpasar S. Management of Extrimity Fracture in Emergency Department. *e-Jurnal Med Udayana.* 2013;2(9):1597-615.
  20. Martini, M., Watiningsih, A. P., & Lisnayan K. Terapi Distraksi (Musik Klasik) Terhadap Penurunan Nyeri Pada Pasien Post Operasi Fraktur Di Ruang Bedah RSUD Kabupaten Buleleng. *J Kesehat Midwinerslion.* 2018;3(2).
  21. Nursalam, Efendi F. *Pendidikan Dalam Keperawatan.* Jakarta: Salemba Medika; 2008.
  22. Notoadmodjo S. *Promosi Kesehatan dan Ilmu Perilaku.* Jakarta: Rineka Cipta; 2007.