



MUSIC THERAPY AND SPIRITUAL TREATMENT TO REDUCE PAIN IN PATIENTS WITH SEVERE BURNS

Ganjar Wisnu Budiman¹, Cecep Eli Kosasih², Aan Nuraeni³

ganjar21001@mail.unpad.ac.id

1. Student post graduate program, Faculty of Nursing, Padjadjaran University, Indonesia

2. Associate Professor, Faculty of Nursing, Padjadjaran University, Indonesia.

3. Lecture, Faculty of Nursing, Padjadjaran University, Indonesia

Corresponding Email: * ganjar21001@mail.unpad.ac.id

About the Author

1. 1st Author : Ganjar Wisnu Budiman, S.Kep.,Ners
Affiliation : Faculty of Nursing Padjdjaran University/ Hasan Sadikin Hospital.
Mailing address : Pesona Bali Residence Blok C1 RT 3/RW18 Kelurahan Bojongsoang Kabupaten Bandung
Email of author : (ganjar21001@mail.unpad.ac.id)
Orcid ID : 0000-0002-8574-3000
Google Scholar URL: https://scholar.google.com/scholar?hl=id&as_sdt=0
Phone number : +62 8112239696
- 2nd Author : Cecep Eli Kosasih, Skp., MNS.,Ph.D
Affiliation : Faculty of Nursing Padjdjaran University
Mailing address : Bandung
Email of author : cecep.e.kosasih@mail.unpad.ac.id
Orcid ID : [0000-0001-7524-3910](https://orcid.org/0000-0001-7524-3910)
Google Scholar URL : <https://scholar.google.com/citations?hl=id&user=B-mD-Q0AAAAJ>
Phone number : +62 81320941727
- 3rd Author : Aan Nuraeni, Skp., M.Kep
Affiliation : Faculty of Nursing Padjdjaran University
Mailing address : Bandung
Email of author : aan.nuraeni@mail.unpad.ac.id
Orcid ID : [0000-0003-1466-7394](https://orcid.org/0000-0003-1466-7394)
Google Scholar URL : <https://scholar.google.com/citations?hl=id&user=BMaF8TAAAAAJ>
Phone number : +62 85624217606

ABSTRACT

Introduction: Pain is a problem experienced by patients with burns. Pain reduction is the main focus in the management of burn patients. Non-pharmacological treatment options with music therapy and spiritual care approaches are part of nursing care. **Objective:** The study was conducted to identify the effectiveness of music therapy and spiritual care in reducing pain during dressing changes for burn patients. **Materials and methods:** The study used a quasi experiment pre-post test method on 30 burn patients with the music therapy and other with spiritual care intervention. Samples were taken using accidental sampling. Patients were measured for pain level using Numeric rating scale (NRS). Data were analysed using univariate analysis, dependent t-test and an independent t-test to compare between music therapy and spiritual care. **Result:** Music therapy and spiritual care have a significant effect on the measurement results before and after the intervention resulting in a value of ($P=0.000$) $p < \alpha$ (0.005). While the mean difference between music therapy and spiritual care after after dressing change ($P=0.000$) and ($t=5.875$). **Conclusion:** There is an effect of music therapy intervention and spiritual care on reducing pain in burn patients undergoing dressing change procedures. Spiritual care had a higher average reduction than music therapy.

Keyword : Burn, Music Therapy, Spiritual care, Pain, dressing

ABSTRAK

Pendahuluan: Nyeri adalah masalah yang dialami oleh pasien dengan luka bakar. Pengurangan nyeri merupakan fokus utama dalam penatalaksanaan pasien luka bakar. Pilihan pengobatan non-farmakologis dengan terapi musik dan pendekatan perawatan spiritual merupakan bagian dari asuhan keperawatan. **Tujuan:** Penelitian ini dilakukan untuk mengetahui efektivitas terapi musik dan perawatan spiritual dalam mengurangi nyeri saat penggantian balutan pada pasien luka bakar. **Bahan dan metode:** Penelitian ini menggunakan metode quasi eksperimen pre-post test pada 30 pasien luka bakar yang diberikan terapi musik dan yang lainnya diberikan intervensi perawatan spiritual. Sampel diambil dengan menggunakan accidental sampling. Pasien diukur tingkat nyerinya dengan menggunakan Numeric rating scale (NRS). Data dianalisis menggunakan analisis univariat, uji t dependen dan uji t independen untuk membandingkan antara terapi musik dan perawatan spiritual. **Hasil:** Terapi musik dan perawatan spiritual memiliki pengaruh yang signifikan terhadap hasil pengukuran sebelum dan sesudah intervensi yang menghasilkan nilai ($P=0,000$) $p < \alpha$ (0,005). Sedangkan perbedaan rerata antara terapi musik dan spiritual care sesudah dilakukan pergantian balutan ($P=0,000$) dan ($t=5,875$). **Kesimpulan:** Terdapat pengaruh intervensi terapi musik dan perawatan spiritual terhadap penurunan nyeri pada pasien luka bakar yang menjalani prosedur ganti balutan. Perawatan spiritual memiliki rata-rata penurunan yang lebih tinggi daripada terapi musik.

Kata kunci: Luka bakar, Terapi Musik, Perawatan spiritual, Nyeri, Balutan

INTRODUCTION

The incidence of burn trauma in Indonesia is one of the causes of death, in one of the Central Hospitals in West Java In the span of January 2021-October 2022 there were 165 patients who needed treatment and 30 of them died < 48 hours (RSHS, 2022). In fact, burns are the fourth most common type of trauma in the world (Peck, 2011).

The impact of burn trauma can be fatal as patients can go into hypovolemic shock in the acute phase. In addition, burns often cause nursing problems such as pain, physical disability, and psychological problems. Burns are the most painful trauma that a person can experience because the skin as the body's outermost defense has been damaged (McLatchie et al., 2013). Similarly, the treatment of burns has been often a painful and stressful experience, although the pain response is often considered to be a part of the wound that is still good in terms of sensory function (Yuxiang et al., 2012).

The process of treating burn patients should focus on reducing the pain response first. Therefore, various methods of reducing pain have been studied, which is a major challenge in burn health care (Kipping et al., 2012). Pharmacological measures have been implemented in several large hospitals with the use of painkillers to relieve the pain of burn patients, pain reduction is still a major challenge (Mendoza & Noldin, 2016; Small et al., 2015). However, despite these medications, the level

of pain produced during wound care procedures is in the moderate to severe range (Hsu et al., 2016). Therefore, painkillers are not the only method that can be used. Non-pharmacological methods, which have lower risks, can also be applied alongside medical methods to relieve pain in a more efficient manner (Hinkle & Cheever, 2018).

Many non-pharmacological interventions have been developed and implemented as alternative interventions including music therapy, relaxation therapy, and even spiritual approaches. The American Psychological Association recommends that doctors approach their patients religiously and spiritually. This recommendation is based on the idea that the care that should be provided to a patient goes beyond curing the patient but can fulfill their basic spiritual needs (Sheini-Jaberi et al., 2014). Spiritual care is a health care program that seeks to improve quality of life and enhance feelings of well-being, and thus reduce patients' disillusionment and loss of hope (Ettun et al., 2014). At an international conference on this subject, spirituality was defined as an aspect of humanity that refers to the way individuals seek and express meaning and purpose, and the way they experience interconnectedness in the present moment, self, others, nature, and the sign or the sacred. Religious factors are also an important aspect of spirituality (Yoon et al., 2018).

Apart from the spiritual aspect, burn patients in the treatment phase need an atmosphere that makes them relaxed and calm. One of the therapies to make them calm and comfortable is music therapy. Listening to music can provide sensory stimulation input, which can activate nerve impulses to close the gate to increase the pain threshold and reduce pain signals sent to the brain, thereby reducing the pain experience. The disorder or learned behavior applies gate control theory; music can attract their attention, reduce pain or reaction, fatigue, and redistribute pain and anxiety (James & Jowza, 2017).

The tones and melodies of music can cause vibrations that affect the hypothalamus and the interaction of the reticular activating system. This stimulates emotions and affects the autonomic nervous system and muscular system function. When accompanied by musical pitch adjustments, rhythms can cause physiological changes in blood pressure, heart rate, and respiratory rate. When music stimulates the hypothalamus and limbic system, the resulting imagery stimulates autonomic nervous reactions and the propagation of nerve impulses to the midbrain and higher centers stimulates the secretion of endorphins; this offsets negative emotions, elicits feelings of pleasure, and reduces pain (Allred et al., 2010). On this basis, it is necessary to treat burn patients in addition to the provision of pain medication. This study aims to look at the effectiveness of pain reduction using spiritual approaches, and music therapy.

METHOD

Participant characteristics and research design

This study used a quasi-experimental design in patients who needed treatment for burns at the Burn Center of Hasan Sadikin Central General Hospital Bandung.

Sampling procedures

The sampling technique used was accidental sampling because patient visits with burn diagnoses could not be predicted. The research time span is a benchmark for the number of samples used as research subjects. To maintain the homogeneity of the sample and to focus the study, the researcher made sample criteria taken, including: (a) Burns within 24 hours of admission and is over 15 years old with an expected hospital stay of more than five days; (b) can communicate clearly without hearing loss; (c) has no acute or chronic psychiatric disorders, (d) is not in critical condition without the use of a ventilator.

Sample size, power, and precision

The number of patients obtained during the study period from June to December 2022 was 34 patients, but only 30 patients met the criteria and participated in the program, then the patients were grouped into two groups, namely the group with music therapy intervention, as well as the group with spiritual care intervention.

This study used as a numerical rating scale (NRS) instrument from a point range of 0-10 to measure pain intensity. 0 represents no pain or anxiety, and 10 represents unbearable pain. NRS as a pain or anxiety assessment tool has been used in many articles with good reliability and validity.(Lalehgani et al., 2014; Mazlom et al., 2015).

The first group was given nursing intervention using music therapy. After the patient agreed to the intervention procedure explained, the patient listened to music in the form of classical music with a range of 50-70 decibels 15 minutes before the dressing change was carried out until 30 minutes after the dressing change was completed. As soon as the dressing change begins, the patient is measured for pain intensity using the NRS instrument. After the old dressing is opened during the wound care process, pain intensity is evaluated using the NRS. Then the last pain scale is evaluated with the NRS 30 minutes after the dressing change is complete. On average, patients listened to music for 60-90 minutes during the intervention process.

Group Two was given an intervention with the concept of spiritual care. The intervention procedure starts from 15 minutes before changing the dressing the patient will be measured on the pain scale using NRS. The second measurement is carried out during the dressing change with the patient's activity while listening to the holy Quran verse according to the patient's choice, and the third pain scale assessment is carried out after changing the dressing and resting for 30 minutes with the closest family present to provide motivation.

Table 1. Pain Measurement Time using Numeric Rating Scale (NRS)

Group	15 minutes before dressing change	Before Dressing Change	During Dressing Change	30 minutes after dressing change
Music therapy	Music	Music +NRS	Music +NRS	NRS
Spiritual care	Spiritual care preparation	Spiritual care+ NRS	Spiritual Care+ NRS	NRS

Data analysis

Data were analyzed statistically with several stages including data analyzed using univariate analysis to see central tendency, then data were tested for normality of data for the basis for choosing the bivariate analysis used. Then the data was tested bivariate using paired t-test, then to determine the effectiveness between the two interventions, an independent t-test was conducted. Under the conditions of 80% sample strength and statistical significance of $p < .05$ (two-sided test), basic patient information, demographic data, and pain NRS.

RESULTS AND DISCUSSION

The results showed that the characteristics of the female patients were slightly more, totaling 16 patients who were divided into the music therapy intervention group 11 patients and the spiritual care intervention group 5 patients. Meanwhile, when viewed in table 2, most of the burns suffered by

patients were in grade 3, in the music therapy intervention group 12 patients and in the spiritual care intervention group 13 patients.

Table 2. Data Demografik

Characteristics	Music Therapy		Spiritual care	
	n(%)	Mean/SD/Range	n(%)	Mean/SD/Range
Gender				
- Female	11(73,3)	-	5(33,3)	-
- Male	4 (26,7)		10(66,7)	
Age		34,73/13.83/14-57		42,46/20.96/10-76
Burn Injury				
Grade	1 (6,7)	-	0(0)	-
- 1	2 (13,3)		2(13,3)	
- 2	12 (80)		13(86,7)	
- 3				

In Table. 3 shows that both interventions have a significant effect if we look at before and after the action, although the intervention group of patients with spiritual care has a higher mean value.

Table 3 Result paired t-test

	Mean	SD	t	p
Music Therapy Before-After	3,27	.961	13,16	.000
Spiritual care Before- After	4.77	.594	30.88	.000

The results of the t-independent analysis showed that there was an effect of the two interventions on pain reduction in each phase, both phases before dressing change, during dressing change, or after dressing change.

Table 4 Result Independent T-Test

	Group	Mean	SD	t	p
Before	- Music Therapy	8.07	.704	-.271	0.788
	- Spiritual care	8.13	.640		
During	- Music Therapy	6.73	.799	2.323	0.028
	- Spiritual care	6.00	.926		
After	- Music Therapy	4.80	.775	5.875	0.000
	- Spiritual care	3.40	.507		

The results showed that the majority of patients who received music therapy and spiritual care interventions had grade 3 burns. The average pain response before the intervention ranged from 8.07 - 8.13. this is due to grade 3 burns experiencing damage to the epidermis and even part of the dermis. The results also show that between the two therapies, both music therapy and spiritual care have a significant effect in reducing pain according to the comparison of mean values before and after intervention. Both interventions are pharmacological therapies that have often been used as a companion to analgesic pharmacological therapy. The similarity of the two interventions is to make the body relax so that it can reduce the dominance of the hormone cortisol when pain, it agrees with the results of research on the application of music therapy according to (Ortega et al., 2019).

Music with appropriate tunes can stimulate the limbic system of the right brain, which regulates emotions, feelings and sensory centers to produce sedative effects and enhance patients' negative emotions. When patients listen to comfortable and sweet-sounding music, they generate pleasant associations, which can create a comfortable mood and a contented mood to relieve anxiety (Dai et al., 2020). This is reinforced by several studies conducted stating that music therapy can relieve pain in various conditions such as in patients with mechanical ventilation assistance, music therapy performed on preoperative patients can effectively relieve acute pain associated with surgery, and other studies show that music therapy can help reduce anxiety, pain and opioid use during surgical dressing changes in burn patients (Ernsten et al., 2019; Rohilla et al., 2018). Music therapy can also have a beneficial effect in stabilizing the patient's heart rhythm and maintaining hemodynamic balance (Ortega et al., 2019). The music used should have an appropriate tune in order to produce a significant effect. The music should use soft and lyrical melodies, simple chords, soft tones and a musical rhythm of 60 to 80 beats/minute. (Nilsson, 2008).

In addition to music therapy, researchers intervened with other types of spiritual care in an effort to reduce pain responses in burn patients during dressing changes. Spiritual care in recent years, has been widely developed in the application of holistic medicine. (Keivan et al., 2019). Thus, attention to spirituality has been recognized as part of holistic nursing care that can improve patients' quality of life. In the phase before dressing change, there was no significant difference in the average pain scale using both music therapy and spiritual care interventions. Whereas in the phase when the dressing was changed, there was a significant difference in the average pain scale using both music therapy and spiritual care interventions, although the average pain did not look much different with the results of the average pain scale performed by spiritual care being slightly lower than those using music therapy. Whereas in the phase after dressing change, there was a significant difference between the two interventions, and spiritual care therapy had a lower mean pain scale compared to music therapy. This is because for patients facing persistent pain, the use of positive spiritual care interventions, such as asking God for strength and support, can help patients adjust better to pain and have much better mental health (den Hollander et al., 2020; Siddall et al., 2015).

Various studies around the world have shown that religion is a supportive force that helps reduce psychological distress and increase life satisfaction. In a study investigating the effectiveness of meditation, the positive effects of meditation depended on the spiritual focus. Participants were divided into groups that used either secular relaxation and meditation or spiritual meditation that included the use of phrases with spiritual (but not necessarily religious) content. The group that used meditation with spiritual content showed significantly greater improvements in mood and spiritual well-being, and pain tolerance increased to almost double that of the other groups. The use of spiritual practices in medicine is more often associated with increased tolerance to acute and chronic pain than reduced pain intensity. However, a review of studies using mindfulness-based interventions that often include a meditation component found that some studies also reported a reduction in pain intensity (Keivan et al., 2019).

Booker's research on pain, humans need spiritual interventions to control and cope with their pain. However, despite the increasing interest in spirituality and its widespread application by some parts of the health profession such as palliative care, spirituality has received little attention in the field of pain management in particular. Therefore, through a concrete approach, this study has attempted to measure the effect of religious and spiritual care on pain intensity and satisfaction with pain control at the time of dressing change in burn patients experiencing severe pain. The results showed a decrease in pain intensity and an increase in patient satisfaction with pain control after the experimental intervention (Booker, 2015).

This can change the mindset of a patient experiencing pain to leave everything to God's help. Both interventions are additional interventions applied to burns because patients with burns are given intravenous opioid drugs as the main choice. Perhaps future research should be able to reveal the extent to which non-pharmacological therapy as a whole can reduce pain in burn patients.

LIMITATION OF THE STUDY

This study has several limitations including intervention treatment which is a little difficult to implement because the various characteristics of different patient responses are a challenge for researchers. Besides that the number of cases of patients with burns cannot be predicted so that sampling takes a long time.

CONCLUSIONS AND SUGGESTIONS

This study can be concluded that pain management using music therapy and spiritual care can significantly reduce pain in burn patients. Spiritual care can reduce the pain scale lower in the phase during dressing change or the phase after dressing change. These two interventions are alternative therapies that can be combined with other pharmacological therapies in treating burn patients.

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ETHICAL CONSIDERATIONS

This research did not receive funding from any party, and has been ethically reviewed by the ethics committee of Hasan Sadikin Central Hospital Bandung, and stated that the researchers have followed the ethical rules of research as stated in decision letter No. LB.02.01/X.6.5/95/2023

AUTHOR CONTRIBUTION

The authors' contributions include,
The chief researcher contributed as a research design maker, research implementation, data processing, and writing the article: Ganjar. Research members Provided statistical advice for the collection, analysis, and randomization of design data, assisted in drafting the article: Aaan Nuraeni and Cecep Eli Kosasih. All authors read, revised, and approved the final article.

CONFLICT OF INTEREST

The authors declared no competing interest.

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References

- Allred, K. D., Byers, J. F., & Sole, M. Lou. (2010). The Effect of Music on Postoperative Pain and Anxiety. *Pain Management Nursing*, 11(1), 15–25. <https://doi.org/https://doi.org/10.1016/j.pmn.2008.12.002>
- Booker, S. Q. (2015). Older African Americans' beliefs about pain, biomedicine, and spiritual medicine. *Journal of Christian Nursing*, 32(3), 148–155.
- Dai, W. S., Huang, S. T., Xu, N., Chen, Q., & Cao, H. (2020). The effect of music therapy on pain, anxiety and depression in patients after coronary artery bypass grafting. *Journal of Cardiothoracic Surgery*, 15(1). <https://doi.org/10.1186/s13019-020-01141-y>
- den Hollander, D., Albertyn, R., & Ambler, J. (2020). Palliation, end-of-life care and burns; practical issues, spiritual care and care of the family – A narrative review II. In *African Journal of Emergency Medicine* (Vol. 10, Issue 4). <https://doi.org/10.1016/j.afjem.2020.07.011>
- Ernsten, L., Hepp, P., Fehm, T., & Schaal, N. K. (2019). Perioperative music-induced analgesia: Comparison of the effect of music on pain between preoperative, intraoperative and postoperative application. In *Schmerz* (Vol. 33, Issue 2). <https://doi.org/10.1007/s00482-018-0338-y>
- Ettun, R., Schultz, M., & Bar-Sela, G. (2014). Transforming Pain into Beauty: On Art, Healing, and Care for the Spirit. *Evidence-Based Complementary and Alternative Medicine*, 2014, 789852. <https://doi.org/10.1155/2014/789852>
- Hinkle, J. L., & Cheever, K. H. (2018). *Brunner and Suddarth's textbook of medical-surgical nursing*. Wolters kluwer india Pvt Ltd.
- Hsu, K.-C., Chen, L. F., & Hsieh, P. H. (2016). Effect of music intervention on burn patients' pain and anxiety during dressing changes. *Burns*, 42(8), 1789–1796. <https://doi.org/https://doi.org/10.1016/j.burns.2016.05.006>
- James, D. L., & Jowza, M. (2017). Principles of Burn Pain Management. *Clinics in Plastic Surgery*, 44(4), 737–747. <https://doi.org/10.1016/j.cps.2017.05.005>
- Keivan, N., Daryabeigi, R., & Alimohammadi, N. (2019). Effects of religious and spiritual care on burn patients' pain intensity and satisfaction with pain control during dressing changes. *Burns*, 45(7), 1605–1613. <https://doi.org/10.1016/j.burns.2019.07.001>
- Kipping, B., Rodger, S., Miller, K., & Kimble, R. M. (2012). Virtual reality for acute pain reduction in adolescents undergoing burn wound care: A prospective randomized controlled trial. *Burns*, 38(5), 650–657. <https://doi.org/https://doi.org/10.1016/j.burns.2011.11.010>
- LALEHGANI, H. A., Esmaili, S., Karimi, M., Moghni, M., & Jivad, N. (2014). *The effect of deep-slow and regular breathing on pain intensity of burn dressing*.
- Mazlom, S. R., Hosseini Amiri, M., Tavoosi, S. H., Manzari, Z. S., & Mirhosseini, H. (2015). Effect of direct transcranial current stimulation on pain intensity of burn dressing. *Evidence Based Care*, 4(4), 35–46.
- McLatchie, G., Borley, N., & Chikwe, J. (2013). *Oxford handbook of clinical surgery*. OUP Oxford.
- Mendoza, A., & Noldin, O. (2016). Divergencia genética entre genotipos de girasol. *Investigación Agraria*, 18, 1–7. http://scielo.iics.una.py/scielo.php?script=sci_arttext&pid=S2305-06832016000100001&nrm=iso
- Nilsson, U. (2008). The Anxiety- and Pain-Reducing Effects of Music Interventions: A Systematic Review. *AORN Journal*, 87(4), 780–807. <https://doi.org/https://doi.org/10.1016/j.aorn.2007.09.013>

- Ortega, A., Gauna, F., Munoz, D., Oberreuter, G., Breinbauer, H. A., & Carrasco, L. (2019). Music Therapy for Pain and Anxiety Management in Nasal Bone Fracture Reduction: Randomized Controlled Clinical Trial. *Otolaryngology - Head and Neck Surgery (United States)*, 161(4). <https://doi.org/10.1177/0194599819856604>
- Peck, M. D. (2011). Epidemiology of burns throughout the world. Part I: Distribution and risk factors. *Burns*, 37(7), 1087–1100. <https://doi.org/https://doi.org/10.1016/j.burns.2011.06.005>
- Rohilla, L., Agnihotri, M., Trehan, S. K., Sharma, R. K., & Ghai, S. (2018). Effect of Music Therapy on Pain Perception, Anxiety, and Opioid Use during Dressing Change among Patients with Burns in India: A Quasi-experimental, Cross-over Pilot Study. *Ostomy Wound Management*, 64(10). <https://doi.org/10.25270/owm.2018.10.4046>
- RSHS. (2022). *data of burn patients who were hospitalized in May-August 2022*.
- Sheini-Jaberi, P., Zarea, K., Shariati, A., & Moradi, M. (2014). Holistic care as a response to the needs of burn patients: a qualitative content analysis. *Journal of Clinical Nursing and Midwifery*, 3(1), 17–27.
- Siddall, P. J., Lovell, M., & Macleod, R. (2015). Spirituality: What is its role in pain medicine? In *Pain Medicine (United States)* (Vol. 16, Issue 1). <https://doi.org/10.1111/pme.12511>
- Small, C., Stone, R., Pilsbury, J., Bowden, M., & Bion, J. (2015). Virtual restorative environment therapy as an adjunct to pain control during burn dressing changes: study protocol for a randomised controlled trial. *Trials*, 16, 1–7.
- Yoon, S.-H., Maeno, Y., Kawamori, H., Miyasaka, M., Nomura, T., Ochiai, T., Nemanpour, S., Raschpichler, M., Chakravarty, T., & Makkar, R. (2018). Diagnosis and Outcomes of Transcatheter Aortic Valve Implantation in Bicuspid Aortic Valve Stenosis. *Interventional Cardiology Review* 2018;13(2):62–5. <https://doi.org/10.15420/icr.2018:8:2>
- Yuxiang, L., Lingjun, Z., Lu, T., Mengjie, L., Xing, M., Fengping, S., Jing, C., Xianli, M., & Jijun, Z. (2012). Burn patients' experience of pain management: A qualitative study. *Burns*, 38(2), 180–186. <https://doi.org/https://doi.org/10.1016/j.burns.2011.09.006>