



## Non-Pharmacological Interventions For Pain Management In Post-Section Casearea Mothers: Literature Review

***Lilis Mamuroh<sup>1</sup>, Sukmawati<sup>2</sup>, Furkon Nurhakim<sup>3</sup>***

*<sup>123</sup> Fakultas Keperawatan Universitas Padjadjaran*

*Corresponding Email: \* [lilis.mamuroh@unpad.ac.id](mailto:lilis.mamuroh@unpad.ac.id)*

### About the Author

- 1st Author : Lilis Mamuroh, S.Pd., S.Kep., Ners., M.MKes  
Affiliation : Department of Maternity Nursing, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia  
Mailing address : Jln Delima Blok A 15 Suci Permai, RT06/RW07, Kelurahan Suci Kaler, Kecamatan Karangpawitan, Kabupaten Garut, Jawa Barat, 44182  
Email of author : [lilis.mamuroh@unpad.ac.id](mailto:lilis.mamuroh@unpad.ac.id)  
Orcid ID : <https://orcid.org/0000-0002-4545-065X>  
Google Scholar URL : [LILIS MAMUROH - Google Scholar](#)  
Phone number : 081312716260
- 2nd Author : Sukmawati, S.Sos., S.Kep., Ners., M.Kes  
Affiliation : Department of Maternity Nursing, Faculty of Nursing, Universitas Padjadjaran, Bandung Indonesia  
Mailing address : Kp Cigadog RT 01/RW 02, Desa Padamukti, Kecamatan Pasirwangi, Kabupaten Garut, Jawa Barat, 44161  
Email of author : [sukmawati@unpad.ac.id](mailto:sukmawati@unpad.ac.id)  
Orcid ID : <https://orcid.org/0000-0003-4968-3570>  
Google Scholar URL : [SUKMAWATI - Google Scholar](#)  
Phone number : 089512479032
- 3st Author : Furkon Nurhakim, S.Pd., S.Kep., Ners., M.MKes  
Affiliation : Department of Fundamental Nursing, Faculty of Nursing, Universitas Padjadjaran, Bandung, Indonesia  
Mailing address : Jl. Muhamadiyah Gg. Toto Ahmad No138B RT.02 RW03 Kel. Regol Kec. Garut Kota Kab. Garut Jawa Barat 44114  
Email of author : [furkon.nurhakim@unpad.ac.id](mailto:furkon.nurhakim@unpad.ac.id)  
Orcid ID : <https://orcid.org/0000-0002-7151-4303>  
Google Scholar URL : [Furkon Nurhakim - Google Scholar](#)  
Phone number : 08122087685

## ABSTRACT

*Background: Pain is an unpleasant emotional and sensory experience associated with potential and actual tissue damage. Postpartum mothers can also feel pain after caesarean section (SC). There are various ways to relieve pain in postpartum mothers after cesarean section, one of which is non-pharmacological methods. Objective: The aim of this evidence-based practice is to compare several non-pharmacological methods in managing pain in mothers after cesarean section. Method: The research design uses a literature review or literature review using international sources. Literature search for data collection using Proquest, Pubmed, Sciencedirect, and Science Publishing Group databases. After going through the selection, 7 articles were obtained which were then selected using PICO, inclusion criteria and exclusion criteria. Results: Management of pain after caesarean section can be done in various ways, including using non-pharmacological methods using lavender aromatherapy, reiki applications, Benson relaxation techniques, and massage techniques that can reduce the level of pain in mothers after caesarean section. Conclusion: The pain management techniques used are effective in reducing pain levels in mothers after caesarean section.*

Keywords: pain management, post-cesarean, post partum mothers

## ABSTRAK

*Latar Belakang: Nyeri merupakan pengalaman emosional dan sensorik yang tidak menyenangkan terkait dengan kerusakan jaringan potensial dan aktual. Nyeri juga dapat dirasakan oleh ibu post partum pasca operasi caesar (SC). Ada berbagai cara meredakan nyeri pada ibu post partum pasca operasi caesar yang bisa dilakukan salah satunya dengan cara non farmakologi. Tujuan: Tujuan dari praktik berbasis bukti ini adalah untuk membandingkan beberapa metode non-farmakologis dalam manajemen nyeri pada ibu pasca operasi caesar. Metode: Desain penelitian menggunakan tinjauan literatur atau tinjauan pustaka dengan menggunakan sumber-sumber internasional. Pencarian literatur untuk pengumpulan data menggunakan database Proquest, Pubmed, Sciencedirect, dan Science Publishing Group. Setelah melalui seleksi diperoleh 7 artikel yang kemudian diseleksi menggunakan PICO, kriteria inklusi, dan kriteria eksklusi. Hasil: Penatalaksanaan nyeri pasca operasi caesar dapat dilakukan dengan berbagai cara antara lain dengan menggunakan aromaterapi lavender, aplikasi reiki, teknik relaksasi benson, dan teknik pemijatan yang dapat menurunkan tingkat nyeri pada ibu pasca operasi caesar. Kesimpulan: Teknik manajemen nyeri yang digunakan efektif menurunkan tingkat nyeri pada ibu pasca operasi caesar.*

Kata Kunci : penatalaksanaan nyeri, pasca operasi caesar, ibu nifas

## INTRODUCTION

According to the International Association for the Study of Pain (IASP), pain is an unpleasant emotional and sensory experience associated with potential and actual tissue damage. Fundamentally, the pain mechanism is based on three events of transduction, transmission, and modulation when noxious stimuli are present (Yam et al., 2018). In preparing a post-operative pain relief programme, knowledge about pain is very necessary, one of which is measuring the degree of pain. There are many ways to measure the degree of pain, for example, through patient behaviour, the Verbal Rating Scale (VRS), and the most common and frequently used is the Visual Analogue Scale (VAS) (Herdiani & Wibisono, 2014). Pain is a sensation of discomfort that postpartum mothers often complain about. Postpartum pain can occur due to various reasons, including uterine contractions during the uterine involution period, breast swelling due to inadequate lactation, injury to the birth canal, and surgical incision injuries to the mother post-caesarean section (SC). Since 1985, the World Health Organization has set the average standard for caesarean sections in a country at 10–15%. Since then, the caesarean section rate has increased in both developed and developing countries (WHO, 2015).

Sectio caesarea, commonly known as a caesarean section, is the most common major operation performed throughout the world. More than 1 million caesarean section procedures are performed in the United States each year. Caesarean section has become one of the first surgical procedures that can be performed independently by residents of obstetrics and gynaecology (“Textbook of Caesarean Section,” 2017). In Indonesia, caesarean sections are also very common. Based on 2018 Riskesdas

data, the prevalence of caesarean sections in childbirth in Indonesia is 17.6%, with DKI Jakarta as the region with the highest prevalence (31.3%) and Papua as the region with the lowest prevalence (6.7%) (Sulistianingsih & Bantas, 2019).

A Caesarean section is one of the options for women who want to undergo labor in the presence of medical and non-medical infections. The process of a caesarean section involves severing the tissue continuity or connection with the incision to remove the baby and leaving pain receptors in the incision wound, and the pain increases when the anesthetic or anesthesia wears off (Metasari & Sianipar 2018).

Postoperative pain is a stressor that can cause stress and financial tension. Individuals can respond biologically to behaviors that cause physical and psychological responses (Ferinawati, 2019).

The pain experienced by the mother must be treated immediately with simple and safe interventions (Bening, Faozy, and Kusnanto 2020). These interventions are in the form of pharmacological and non-pharmacological interventions (Mayasari 2020). Pharmacological intervention is very effective in controlling pain, but this method has side effects on the body. Therefore, several non-pharmacological therapies are needed that can reduce pain (Fevianti and Machmudah, 2021).

In caesarean section procedures, there are quite large hormonal and emotional changes related to pregnancy and birth of the baby, which can negatively influence postoperative pain considering that this procedure is multidimensional (Borges et al., 2017). Estimates show that the incidence rate of pain after a caesarean section is 77.4% with high-intensity pain (Sng et al., 2009). There are many factors that influence pain after a caesarean section, such as age, nutritional status, complications during pregnancy, and childbirth (Shembekar et al., 2019). Another factor that can cause postoperative pain with the highest percentage is inadequate surgical analgesia, with an incidence approaching 50% (De Carvalho Borges et al., 2016).

Regardless of the cause and whatever the level, pain is one of the nursing problems that must be addressed by nurses. Non-pharmacological methods for reducing pain in mothers after a caesarean section have been widely developed. Several methods that can be used include the influence of lavender aromatherapy oil, reiki application, Benson relaxation techniques, and massage techniques. The use of evidence-based practice methods provides more opportunities for nurses to think critically in order to make decisions and take appropriate action according to the problem. The aim of this evidence-based practice is to compare several non-pharmacological methods for pain management in mothers after a caesarean section.

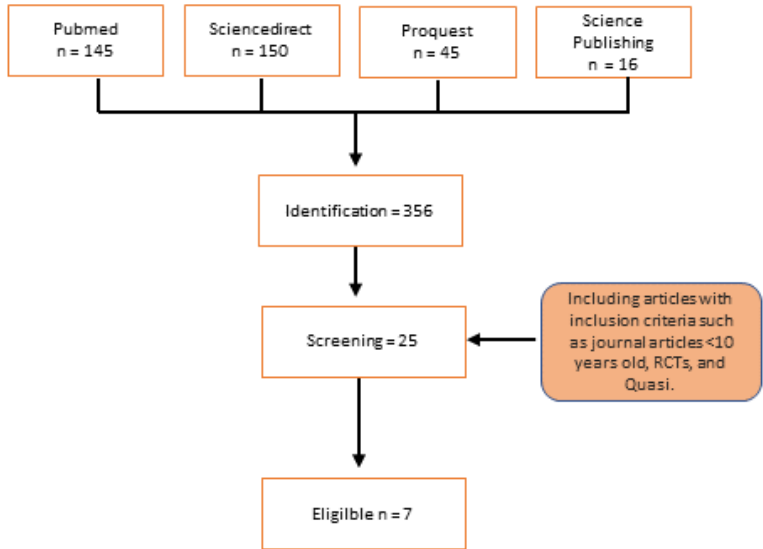
## **METHOD**

The research design carried out was a literature review or literature review using international sources. According to Arlene Fink (2014), a literature review study is an activity that involves surveying books, scientific articles, and other sources related to a particular problem, a field of research, or a theory so that it can produce a description, summary, or evaluation of these sources that are relevant to the study. research problem being investigated (Fink, 2014).

The search was carried out through the Proquest, Pubmed, Sciencedirect, and Science Publishing Group databases with the keywords "Caesarean Section OR Post Caesarean" AND "Aromatherapy" AND "Massage" AND "Pain Management OR Reduce Pain OR Relaxation" to obtain a total of 356 journals. The selection used PICO, where P = post-caesarean, I = pain management, C = none, and O = reduce pain, or pain is reduced or resolved. This search is limited by inclusion criteria such as

articles: journals <10 years, RCT, Quasi. Meanwhile, the exclusion criteria are articles on pharmacological pain management.

Figure 1. Flow Chart in Searching for Research Articles



## RESULTS AND DISCUSSION

No	Author (Year)	Design	Sample	Intervention	Instrument	Results
1	Solehati, T., & Rustina, Y. (2015).	<i>Quasi experimental with pre and post test design.</i>	Women after cesarean section ,experimental group (n=30) or control group (n= 0).	Women in the experimental group received the Benson relaxation technique, and those in the control group received regular care from health workers. The severity of the outcome pain was measured with a visual analogue scale.	Pain intensity was measured with a visual analogue scale and analysed using statistics for Social Sciences version 10.0 (SPSS Inc., Chicago, IL, USA). The Kolmogorov-Smirnov z test was performed to assess the normality of the distribution. Analysis was carried out using chi square, independent t test, dependent t test, repeated measures ANOVA, and multiple linear regression. The Kolmogorov-Smirnov z test was performed to assess the normality of the distribution.	The average pain score before intervention in the CG (control group) was 4.43 cm. It was lowered to 4.40 cm (1 minute), 4.27 cm (12 hours), 4.10 cm (24 hours), 4.00 cm (36 hours), 3.93 cm (48 hours), 3.83 cm (60 hours), 3.67 cm (72 hours), and 3.51 cm (84 hours). Meanwhile, the IG (Intervention Group) measures 4.97 cm. It was revealed to be 4.90 cm (1 minute), 4.23 cm (12 hours), 3.57 cm (24 hours), 3.03 cm (36 h), 2.77 cm (48 h), 2.73 cm (60 h), 2.67 cm (72 h), and 2.63 cm (84 h). This study found a significant difference comparing pain intensity before and after CG and IG intervention (P = 0.001), but pain was reduced in IG more than CG.
2	Midilli, T. S., & Eser, I. (2015).	<i>a randomized , controlled clinical trial</i>	90 patients were hospitalised between February and July 2011 in the Obstetrics Unit at Odemis General Hospital, divided into the Reiki group and the control group.	Patients in the Reiki group received treatment for 10 identified areas of the body for 3 minutes each once a day for 2 days (in the first 24 and 48 hours) within 4–8 hours of the postoperative Reiki application in the patient's room.	Pain intensity was measured using a horizontal VAS starting from 0–10, with higher numbers meaning greater pain intensity. The VASE was used to measure the intensity of pain experienced by the patient before and after the application. Anxiety. Anxiety was measured using the State-Trait Anxiety Inventory (STAI), developed by Spielberger in collaboration with Gorsuch et al. in 1968 and 1977. SAI is used to measure the value of anxiety experienced by patients before and after Reiki application.	Reiki application reduces pain intensity, anxiety values, and breathing rate, as well as the need for and amount of analgesics. However, it does not affect blood pressure or pulse rate. Reiki application as a nursing intervention is recommended as a pain reliever and method of relieving anxiety in women after caesarean delivery.
3.	Metawie, M. A. H., Amasha, H. A. R., Abdraboo, R. A., & Ali, S. E. (2015)	<i>quasi experiment.</i>	There were 100 post-CS mothers divided into 2 groups (study and control). Inclusion criteria: age 21–35 years, full term, after six hours of surgery, spinal anaesthesia, and not suffering from medical and/or gynaecological health problems.	50 mothers in the experimental group inhaled 1 cc of lavender essential oil through a facemask and used it for three minutes, while 50 participants in the control group were given a placebo. The level of pain was assessed after half an hour using the Visual Analogue Scale (VAS) and Johanson Modification Pain-O-Metre (MJPOM).	The Visual Analogue Pain Scale (VAS) was used to assess the degree of pain, and the Modified Version of the Johansson Pain-O-Metre (MJPOM) (1996) was used to measure the intensity and affective components of pain. The Modified Johansson Pain-O-Metre (MJPOM), developed by Johansson (1996), is commonly used to measure the intensity of the sensory and affective components of pain, where the mother's choice of words is taken into account to determine the intensity of the pain. One to three indicates mild pain, four to six indicates moderate pain, seven to nine indicates severe pain, and finally, 10 indicates the most severe pain.	This study shows a relationship between pain intensity according to the visual analogue scale and parity. A highly statistically significant difference was found between the effect of lavender oil and parity (p < 0.001). Lavender oil was more effective with multiparas than primiparas.

4.	Saatsaz, Sussan, Rozita Rezaei, Abbas Alipour, Zahra Beheshti (2016)	randomized clinical trial	156 women who underwent caesarean sections were divided into 3 groups: 52 people who had foot massage, 52 people who had hand and foot massage, and 52 people who were not given elective intervention (the control group)..	After the analgesic dose was finished in the body, the research assistant measured the intensity of pain in the three groups. In the intervention group, massage was given without special tools by a massage therapist. Pain intensity was measured again 90 minutes after the intervention was given to determine the duration of massage effectiveness. In the control group, only routine ward care was given; within the 90-minute duration, no group was given analgesics.	VAS is a measuring tool to assess the intensity of pain at a distance of 10 cm in rows, with one end marked "no pain" and the other end marked "worst imaginable pain." The reliability and validity of this pain measurement tool have been confirmed (28–30). score 1-3 mild pain, 4–7 moderate pain, and 8–10 severe pain.	There was a significant reduction in pain intensity immediately and 90 minutes after massage ( $p < 0.001$ ). Apart from that, changes in physiological parameters, namely blood pressure and respiration rate, had significant results after massage ( $p < 0.001$ ).
5.	Abbaspoor, Zahra; Akbari, Malibe; Najar, Shanaz (2014)	randomized controlled trial	80 pregnant women who received a post-caesarean were divided into two groups. Massage therapy group = 40 people, and control group = 40 people.	Foot and hand massage begins 1.5–2 hours after spinal anaesthesia treatment. Hand massage is applied to each hand for 5 minutes. After hand massage, the patient's legs are raised by supporting them with a pillow, and each foot is massaged for 5 minutes. In total, each patient received 20 minutes of massage. The patient's pain intensity is measured and recorded after the massage. The measurement was repeated 90 minutes after the intervention to determine the duration of efficacy.	The Numeric Rating Scale (NRA) is used to assess pain intensity using 11 points on a scale of 0 (no pain) to 10 (very severe pain). Statistical analysis uses SPSS and the chi square test to compare the characteristics of the two groups.	Pain intensity was found to be reduced after the intervention compared to the intensity before the intervention ( $p < 0.001$ ). In addition, there was a significant difference between groups in terms of pain intensity accompanied by analgesic requests ( $p < 0.001$ ). There was also a significant difference in pain scores after the intervention and 90 minutes later in the intervention group. A decrease of 3.47 points is indicated for women in the foot and hand massage group (premessage score: 7.05 plus minus 0.83, 90 minutes after massage: 3.58 plus minus 0.64).
6.	Hanan, A., Kamilia, R., Ahmed, R., & Amina, M. (2014).	Intervention study design	150 women were divided into two groups: 75 control groups and 75 intervention groups.	The control group received post-caesarean section routine hospital care (analgesics) for pain relief measures, and their pain measures were measured at 6, 12, and 18 hours after surgery. Meanwhile, the intervention group received foot and hand massage for 20 minutes, 5 minutes each hand, and then 5 minutes each foot. Foot and hand massage was carried out three times: at 5:40, 11:40, and 17:40 after giving birth. Researchers measured the level of	<ol style="list-style-type: none"> <li>1. A structured interview questionnaire sheet containing general characteristics</li> <li>2. A numerical rating scale, namely a rating scale with fixed scale steps, a linear line with marks 1 cm apart, starting from 0 (no pain) to 10 (the most severe pain imaginable). It is widely preferred by national and international researchers for its applicability and clarity in determining patient pain intensity.</li> <li>3. Modified McGill pain questionnaire, short form:</li> </ol>	The results showed statistically significant differences in mean pain levels between the study groups at 6, 12, and 18 hours after delivery ( $p * 0.00$ ). There was also a statistically significant difference between the mean pain scores before and after massage, immediately and one hour after massage. In light of these results, research supports the effectiveness of foot and hand massage in relieving post-caesarean section pain.

				pain before the massage session, immediately after the massage, and one hour after the massage.	this scale is used by researchers to assess pain characteristics.	
7	Güney, E., & Uçar, T. (2021)	randomized controlled trial	The sample consisted of 162 women who had undergone a caesarean section (81 in the experimental group and 81 in the control group).	In the clinic where the study was conducted, the hours of massage application were determined, taking into account the applied analgesic treatment protocol. After the first massage was carried out at the 10th hour after the caesarean section, the same massage was repeated at the 22nd hour. An explanation of the procedure was given to each woman before the application. DTM was performed in the patient's room, and visitors were excluded to ensure privacy. During DTM, care is taken to make the room comfortable, relaxing, and spacious. Each woman was placed in a side-lying position. The upper leg is positioned to be bent 90° from the knee and hip. The bent leg is supported by a pillow. Generally, every woman is positioned to feel comfortable. DTM was applied to women in the experimental group for approximately 15–20 minutes.	VAS is used to assess the severity of pain. VAS was first described in 1921, and the scale was created in the range 0–100 mm. According to the scale, a score of 0 mm implies that the pain is not at all severe, while a score of 100 mm indicates the most severe pain. The Postpartum Comfort Questionnaire (PPCQ) was developed by Karakaplan and Yıldız (2010) to measure the level of comfort. In this case, the highest score on the scale is 170, and the lowest score is 34. The increase in the average score obtained from the scale shows that the level of comfort is also increasing. In the present study, the Cronbach's alpha reliability coefficient of the scale was found to be 0.85.	According to measurements, the average VAS score of mothers in the experimental group was lower than the control group ( $17.51 \pm 6.15$ ; $56.16 \pm 9.53$ ; respectively), and the mean scores of PPCQ total and sub-dimensions were found to be statistically significant in favour of the experimental group ( $p < 0.001$ ).

After conducting a search regarding nursing interventions to reduce pain using various types of pain management that have been proven to reduce pain after a caesarean section, Lavender Aromatherapy, research conducted in the postpartum unit at the Suez Canal University Hospital, Ismailia City, Egypt, between October 2013 and January 2014. It showed a relationship between pain intensity according to the visual analogue scale and parity. A significant difference was found between the effect of lavender oil and parity ( $p < 0.001$ ). Lavender oil was more effective with multiparas than primiparas. Aromatherapy is a non-pharmacological method for relieving pain, and lavender has analgesic properties. However, lavender oil is usually used in aromatherapy so that the aroma of the essential oil from the flowers is inhaled. Lavender oil is used to reduce pain by controlling labour pain. The results of the current study are in line with other studies stating that there is a significant reduction in the level of postoperative caesarean section pain after inhaling lavender essence.

Reiki Application, In a study conducted in the obstetrics unit at Odemis Hospital, Turkey, between February and July 2011, The results of the study showed statistically significant differences in the two groups that were given therapeutic intervention through the application of reiki, but there were no significant differences in demographic or clinical characteristics between the two groups ( $p > 05$ ).

According to the results obtained in this study, the application of Reiki was effective in relieving pain associated with caesarean birth. This result can be explained by Ki theory (Chang, 2001, 2003). Reiki is based on the assumption that touch accesses the human body's energy system and facilitates energy circulation and physical comfort, thereby increasing the body's vitality and improving health (Chang, 2001).

Benson Relaxation Technique, In research conducted by Solehati, T., and Rustina, Y. (2015), which was carried out at Cibabat Cimahi Regional Hospital and Sartika Asih Hospital, Indonesia, Benson relaxation is a combination of relaxation response techniques with individual belief systems or faith factors (focusing on certain forms of expression of the name of God or words that have a calming meaning to the client), which are said repeatedly in a regular rhythm with submission. The intervention group (respondents to RSUD Cibabat Cimahi) were given the Benson relaxation technique by being advised to take a certain form of expression in the name of God or a word that has a calming meaning for the participants, repeatedly said in a regular rhythm with resignation. They were advised to take a deep breath through the nose and exhale with the lips. while saying the names of God or words that have a calming meaning, while the control group (respondents at Sartika Asih Hospital) were only given normal care by health workers. The results of this study showed that the average pain intensity in the control group before the intervention was 4.43 cm, decreasing to 3.51 cm after the intervention period (84 hours), and the difference in pain intensity was 0.93. In the intervention group, the average pain intensity before Benson relaxation was 4.97 cm, decreasing to 2.63 cm after intervention (84 hours), and the difference in pain intensity was 2.34 cm. There was a significant difference in the mean pain intensity in CG and IG before and after the intervention period ( $P < 0.005$ ,  $\alpha = 0.05$ ). Benson's relaxation can reduce the intensity of pain in women after a caesarean section.

The results of research (Rasubala et al., 2017) show that there is an influence of the Benson Relaxation technique on the postoperative pain scale of patients using a one-group pre-post test design with a sample size of 16 ( $p = 0.000$ ). Thus, the research results show that Benson relaxation has an effect on reducing the pain scale.

Massage Techniques, Based on a search for massage techniques for mothers after giving birth with a caesarean section, there are four types of massage techniques. However, before the massage technique is carried out, the patient is given analgesics for 6–18 hours after surgery. There is a measuring tool to assess pain intensity called the VAS. VAS is a measuring tool to assess the intensity of pain at a distance of 10 cm in rows, with one end marked “no pain” and the other end marked “worst imaginable pain.” The reliability and validity of this pain measurement tool have been confirmed (28–30). score 1-3 mild pain, 4–7 moderate pain, and 8–10 severe pain. In research conducted by Hanan, A., Kamilia, R., Ahmed, R., & Amina, M. (2014) and Abbaspoor, Zahra; Akbari, Malibe; and Najar, Shanaz (2014), patients were given a massage technique on the hands and feet for 20 minutes by lifting the patient's feet with pillows and massaging the feet and hands for 5 minutes each. Then, based on research conducted by Güney, E., and Uçar, T. (2021), which was carried out in a Turkish clinic, patients received the first massage at the 10th hour after the caesarean section, and the same massage was repeated at the 22nd hour. Then the mothers were given deep tissue massage (DTM) by placing each mother in a side-lying position. The upper leg was positioned to be bent 90° from the knee and hip, and the bent leg was supported by a pillow. Then there was research conducted by Saatsaz, Sussan, Rozita Rezaei, Abbas Alipour, and Zahra Beheshti (2016). Patients are given massage without special tools by a massage therapist. Pain intensity was re-measured 90 minutes after the intervention was given to determine the duration of massage effectiveness. Based on the results of the research above, it shows that there is a significant reduction in pain intensity in patients ( $p < 0.001$ )

## CONCLUSIONS

Based on the results of the literature review carried out by the author, it can be concluded that: Pain management that nurses can do for mothers giving birth after a caesarean section to reduce pain is done with massage techniques, Benson relaxation techniques, Reiki applications, and lavender aromatherapy. Pain intensity was measured using a visual analogue scale, and parity improved after the patient was given lavender aromatherapy. Lavender aromatherapy is used to reduce pain in labour by inhaling lavender essence. The Reiki application is effective for relieving pain after a section. This Reiki application can relieve pain with touch that accesses the human body's energy system and facilitates energy circulation and physical comfort, so that postpartum pain is reduced. The combination of relaxation techniques and individual confidence in Benton relaxation techniques can reduce the pain intensity of post-section case area patients after being given the intervention compared to before it was given. One of the measuring tools for assessing pain intensity is the VAS. Massage techniques, whether used with or without massage aids, can help mothers who have had a section feel less pains. Suggestions for future researchers are that they hope to continue research in depth and that health service workers can apply the results of this research.

## REFERENCES

- Abbaspoor, Z., Akbari, M., & Najar, S. (2014). Effect of foot and hand massage in post- cesarean section pain control: a randomized control trial. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, 15(1), 132–136. <https://doi.org/10.1016/j.pmn.2012.07.008>
- ARISA PUTRI, A. A., Mafiana, R., & Martadiansyah, A. (2020). Perbandingan Persepsi Nyeri Pascaoperasi Sectio Casearea Pertama dan Berulang Menggunakan Anestesi Spinal dengan VAS Score di RSUP Dr. Mohammad Hoesin Palembang (Doctoral dissertation, Sriwijaya University).
- Bening , A,H, Faaogy,F & Kusnanto,K. (2022) Efektifitas Kombinasi Terafi relaksasi Benson dan Aromaterapi etrhadap Intensitas nyeri Insersi AV Fistula pasien Hemodialisa. *ASJN ( Aisyiyah Surakarta Journal of nursing)*.3(2), 76-82
- Febianti, N, & Machmudah, M (2021) Penurunan nyeri pasie post section Caesaria menggunakan terafi tehnik relaksasi BensonNers Muda ,2(2),31.<https://doi.org/10.26714/nm,v2i2.6239>
- Ferinawati R, H (2019) Hubungan mobilisasi dini post section caesarea dengan penyembuhan luka operasi Di RSU Avicena Kecamatan Kota Juang kabupaten Bireuen The Relationship of Early Post Sectio Caesarea Mobilization With Surgical Wound Healing In the Nursing Room Of Avicentia Ho In *Jurnal of Healthcare Technology and Medicine ( Vol 5, Issue2)*
- Fink, A. (2014). *Conducting Research Literature Reviews: From the Internet to Paper* (4th ed.). SAGE Publications.
- Güney, E., & Uçar, T. (2021). Effects of deep tissue massage on pain and comfort after cesarean: A randomized controlled trial. *Complementary Therapies in Clinical Practice*, 43(January), 101320. <https://doi.org/10.1016/j.ctcp.2021.101320>

- Hanan, A., Kamilia, R., Ahmed, R., & Amina, M. (2014). Investigate the Utilization of Natural Measures on relieving Post Cesarean Incision Pain. *Asian Journal of Nursing Education and Research*, 4(4), 388–393.
- Helmi, N., & Rasyid, Z. (2020). Determinan Persalinan Sectio Caesarea Pada Ibu Bersalin Di Rumah Sakit X Pekanbaru Tahun 2019. *Jurnal Kesehatan Komunitas*, 6(1), 115–121. <https://doi.org/10.25311/keskom.vol6.iss1.403>
- Mayasari,C,D (2020) Pentingnya Pemahaman Manajemen nyeri non farmakologi bagi seorang perawat,Jurnal Wawasan Kesehatan,1 (1), 35-42 <https://stikessantupaulus.e->
- Metasari, D. Sianipar , B,K. (2018), Faktor- Faktor yang Mempengaruhi Penurunan Nyeri Post Operasi Sectio Caesarea Di Rs Raflessia Bengkulu, *Journal of nursing and Public Health*, 6(1), 1-7, <https://doi.org/10.37676/jnph.v6i1,488>
- Metawie, M. A. H., Amasha, H. A. R., Abdraboo, R. A., & Ali, S. E. (2015). Effectiveness of aromatherapy with lavender oil in relieving post caesarean incision pain. *J Surg*, 3(2-1), 8-13.
- Midilli, T. S., & Eser, I. (2015). Effects of Reiki on Post-cesarean Delivery Pain, Anxiety, and Hemodynamic Parameters: A Randomized, Controlled Clinical Trial. *Pain Management Nursing*, 16(3), 388–399. <https://doi.org/10.1016/j.pmn.2014.09.005>
- Mulyawati, I., Azam, M., & Ningrum, D. N. (2011). Faktor tindakan persalinan operasi sectio caesarea. *Kemas*, 7(1), 14–21. Retrieved from <http://journal.unnes.ac.id/index.php/kemas>
- Putra, ida B. G. S., Wandia, M., & Harkitasari, S. (2021). Indikasi Tindakan Sectio Caesarea di RSUD Sanjiwani Gianyar Tahun 2017-2019. *Aesculapius Medical Journal*, 1(1), 63–64.
- Rasubala, G,F,Kumat,L,T Muladi (2017) Pengaruh Tehnik relaksasi Benson terhadap Skala Nyeri Pada Pasien Post Operasi Di RSUP Prof DR RD Kandou dan RS TK III RW Mongisidi Manado
- Rohmah, N. (2011). Manajemen Nyeri Non Invasive Pada Ibu Post Partum Dengan Pendekatan Evidence Based Practice. *Jurnal Ners*, 6(2), 201–209.
- Saatsaz, S., Rezaei, R., Alipour, A., & Beheshti, Z. (2016). Massage as adjuvant therapy in the management of post-cesarean pain and anxiety: A randomized clinical trial. *Complementary Therapies in Clinical Practice*, 24, 92–98. <https://doi.org/10.1016/j.ctcp.2016.05.014>
- Solehati T, Rustina Y. Benson Relaxation Technique in Reducing Pain Intensity in Women After Cesarean Section. *Anesth Pain Med*. 2015 Jun 22;5(3):e22236. doi: 10.5812/aapm.22236v2. PMID: 26161315; PMCID: PMC4493735
- WHO Maternal Mortality, World Health Organization 2015