

Nursing case report: acute pain in a P1A1 patient post-ERACS cesarean section at PKU Muhammadiyah Gamping Hospital

Fahrunisa Ayu Amalia, Sarwinanti*

Study Program of Nursing, Faculty of Health Sciences, Universitas Aisyiyah Yogyakarta, Indonesia

Email: fahrunisa220402@gmail.com, sarwinantisamsudin@yahoo.com

Abstract

Cesarean section surgery (C-section) is a major surgical procedure and one of the delivery methods used to deliver a baby through an incision made in the abdomen (laparotomy) and the uterine wall (hysterotomy). This procedure is typically performed when vaginal (normal) delivery is no longer possible due to certain medical indications. Post-cesarean section patients often experience various discomforts, with one of the most common being pain caused by the abdominal incision. Therefore, effective management strategies are needed to reduce this discomfort. One such strategy is non-pharmacological pain management through foot massage therapy using olive oil. The aim of this case study is to examine the effect of foot massage using olive oil in reducing pain levels in a post-ERACS cesarean section patient. This study employed nursing care case study method involving a single patient, Mrs. C, a 29-year-old female who experienced premature rupture of membranes and a transverse fetal position (oblique lie), for which an ERACS cesarean section was performed. Data collection methods included interviews, observation, pre-test, intervention, and post-test. This study was conducted from January 2 to 3, 2025, in the Firdaus VK Ward of PKU Muhammadiyah Gamping Hospital. The results of the case study showed that the patient's pain scale decreased on average after receiving foot massage therapy with olive oil. Based on these findings, it can be concluded that foot massage using olive oil has a significant effect in reducing pain levels in post-ERACS cesarean section patients.

Keywords: cesarean section; foot massage; pain

1. Introduction

Childbirth is the process of delivering a baby and placenta that begins from the open cervix through the birth canal (uterus) (Lestari, 2023). Childbirth consists of normal/vaginal delivery, induced delivery, and cesarean section delivery. Cesarean section (C-section) is a major surgery that is one of the techniques of delivery performed to extract the fetus through an incision on the abdomen (laparotomy) and the uterine wall (hysterectomy) (Zuleikha et al., 2022). Cesarean section is performed as an alternative delivery method when vaginal delivery can no longer be performed due to several medical indications. Delivery using the cesarean section method is conducted based on medical indications according to the condition of the mother and fetus, such as abnormal presentation or position of the fetus, placenta previa, disproportionate fetal-pelvic size, history of cesarean section, preeclampsia, fetal distress, hypertension, and premature rupture of membranes (Nisak et al., 2023).

In addition, pregnant women tend to prefer cesarean section over vaginal delivery because vaginal delivery is considered a difficult and dangerous process, leading to an increase in public interest in cesarean section, which also causes an increase in post-operative services (Tika et al., 2022). According to the World Health Organization (WHO), cesarean section operations worldwide increased from 7% in 1990 to 21% in 2021, and according to the Indonesian Demographic and Health Survey (SDKI), the increase in cesarean births from 1991 to 2017 was 1.2 to 6.8% (Zuleikha et al., 2022).

ERACS (Enhanced Recovery After Cesarean Surgery) is a recovery program after cesarean section surgery that involves a series of preoperative, intraoperative, and postoperative care until the patient is discharged quickly (Tika et al., 2022). ERACS can help reduce the length of hospital stay, accelerate recovery, limit opioid use, and decrease maternal morbidity and mortality (Prayanangga & Nilasari, 2022). The difference between conventional cesarean section and ERACS cesarean section lies in the management of each procedure, namely education before, during, and after the surgical procedure (Zuleikha et al., 2022).

In conventional cesarean section, patients must fast for a full night before the procedure, whereas with the ERACS method, patients may eat 6 hours before surgery and drink 2 hours before surgery. In conventional cesarean section, patients may eat if bowel function has returned, indicated by passing gas or having a bowel movement post-surgery, while with the ERACS method, patients may eat 2 hours

after surgery, starting with clear liquids. In cesarean section with the ERACS method, patients may mobilize earlier gradually, starting with active turning, standing, and even walking on the first day after surgery. In conventional cesarean section, patients can initiate early breastfeeding (IMD) skin-to-skin after the effects of anesthesia wear off, while with the ERACS method, patients can perform skin-to-skin contact sooner after being in the recovery room and can provide breast milk 1 hour after surgery.

Although cesarean section is highly favored by pregnant women, it does not rule out the possibility that the cesarean section method has risks for both the mother and fetus. There are several issues often faced by pregnant women with cesarean section delivery, such as pain, anxiety, and mobility disturbances that cause discomfort for the mother post-cesarean section (Nisak et al., 2023). Cesarean section has a physical impact that causes pain in the surgical abdomen area, which is higher at 27.3% compared to vaginal delivery with a pain level of 9% (Zuleikha et al., 2022). The pain experienced by mothers post-cesarean section originates from the incision or surgical cut located in the abdomen, with the level of pain depending on the psychological and physiological condition of the mother (Nisak et al., 2023).

Nursing care for post cesarean section ERACS patients that can be performed is pain management. Pain management has two methods, namely pharmacological and non-pharmacological. One effort to address pain post cesarean section ERACS non-pharmacologically is through massage. Massage is a technique of light touch that can create relaxation and comfort through the skin surface and reduce pain because massage can stimulate the body to release endorphins (Sari et al., 2024). There are several types of massage that can be used for pain management, namely hand massage, effleurage, foot massage, and deep back massage (Savitri et al., 2023). Foot massage is a massage on the foot area that causes energy flow through foot points, thus able to alleviate pain in post cesarean section patients (Ismiati & Rejeki, 2023). In addition, olive oil is also used as a material for massage because olive oil is easily obtained, has oleocanthal content that can reduce pain and swelling (Nasrullah et al., in Amalia et al., 2024). Based on research conducted by Amalia et al., (2024) that foot massage using olive oil applied to post cesarean section patients has been proven effective in reducing pain levels. Gianina & Syahruramdhani (2023) explain that foot massage can provide a pain-reducing effect because the massage given creates stimuli that reach the brain faster than the pain felt. Therefore, the purpose of this research is to provide nursing care for post cesarean section ERACS patients with acute pain nursing problems through foot massage using olive oil.

2. Method

This research uses a descriptive case study design with a nursing process approach on post cesarean section ERACS patients. The approach used is a nursing care approach that includes assessment, nursing diagnosis, planning, implementation, and evaluation on post cesarean section ERACS clients H+0. This case study was conducted on January 23, 2025, at Firdaus VK Ward RS PKU Muhammadiyah Gamping.

The data collection process began with an assessment using a postnatal assessment format and physical examination. The nursing care process was carried out through data collection via interviews and observations of patients, data analysis, establishing nursing diagnoses, planning nursing interventions, and implementing nursing care according to SDKI, SLKI, SIKI, and evidence-based standards. The implementation stage began 10 hours post cesarean section by conducting a BUBBLE HE examination, which includes examination of the breast, uterus, bladder, bowel, lochia, episiotomy, Homan sign, and emotional status. Then, pain measurement was conducted using the Numeric Rating Scale (NRS). Subsequently, foot massage intervention using olive oil was performed for 20 minutes, with each foot receiving 10 minutes. After that, pain scale measurement was conducted again 30 minutes after the foot massage intervention using olive oil. The foot massage intervention using olive oil was performed for 2 days. Documentation studies were also conducted by examining report data, laboratory results, medical and nursing records of patients, as well as information from health workers in Firdaus VK Ward RS PKU Muhammadiyah Gamping.

3. Results and Discussion

3.1. Results

Based on the case management that has been carried out according to the nursing process sequence starting from assessment to evaluation, several things were obtained to establish the diagnosis nursing, nursing intervention plan, and nursing implementation, as well as evaluation or patient response after nursing actions have been taken for 2 days.

3.1.1. Assessment

Assessment is the initial step in the nursing process that consists of the collection, verification, organization, interpretation, and documentation of data in a structured manner. Nursing assessment aims to identify actual or potential health problems of the client, understand the functional abilities of the client, and build a trusting relationship between the nurse and the client (Ekaputri et al., 2024). The assessment conducted on post-cesarean section ERACS patients uses a postnatal assessment format that includes general biodata, complaints upon hospital admission, main complaints, pregnancy history, delivery history, gynecological history, and general health data. This case study was conducted in the Firdaus VK Ward of RS PKU Muhammadiyah Gamping. The client is identified as Mrs. C, aged 29, and female. Mrs. C has a high school education and works as a private employee. Mrs. C came to the hospital on January 1, 2025, with complaints of amniotic fluid leakage on December 31, 2024, at 11:00 PM, experiencing intermittent abdominal tightness for 7 hours, and has gestational diabetes, anemia, and an oblique fetal position (transverse lie). The assessment was conducted on January 2, 2025, with the patient's complaints being post-cesarean section ERACS pain H+0 with a scale of 5, persistent pain, the patient also stated feeling tired after giving birth and that breast milk is still coming out in small amounts, difficulty sleeping due to noise disturbances from the next room, and itching all over the body that has occurred since the third trimester.

The results of the assessment indicated that the patient reported experiencing bleeding in the first trimester, a pinched nerve in the second trimester, and gestational diabetes, anemia, an oblique position, and itching in the third trimester. The vital signs examination showed blood pressure of 114/62 mmHg; pulse 64 x/minute; temperature 36.4°C; oxygen saturation 97%; and respiration 22 x/minute. In the BUBBLE HE examination, the breasts were found to be hard with dark brown areola and prominent nipples, fundal height was 2 fingers below the umbilicus with firm contractions, bowel sounds were 10 x/minute, no distension in the bladder, lochia rubra with a liquid consistency and a fishy odor, and there were blood clots, no signs of hemorrhoids, and human sign. The examination also found no signs of REEDA (redness, edema, ecchymosis, discharge, and approximation of wound edges).

3.1.2. Nursing Diagnosis

Based on the assessment results, the nursing diagnosis that can be established for the patient is acute pain related to physical injury agent (ERACS cesarean section procedure) characterized by the patient reporting post-SC ERACS pain H+0 scale 5 at the SC wound site, persistent pain (P: post-cesarean section ERACS, Q: stabbing, R: abdomen post-cesarean section ERACS, S: 5, T: persistent).

The SDKI DPP PPNI team (2016) defines acute pain as a sensory or emotional experience related to actual or functional tissue damage, with sudden or gradual onset and ranging from mild to severe intensity lasting less than 3 months, with signs and symptoms including patient complaints of pain, appearing grimacing, protective behavior, restlessness, increased pulse frequency, and difficulty sleeping. According to the author, in post-cesarean section ERACS patients.

With a nursing diagnosis of acute pain, the signs and symptoms obtained are sufficient to validate the nursing diagnosis with a minimum of 80% of the signs and symptoms appearing in the patient. The nursing diagnosis of acute pain is related to physical injury agents (ERACS cesarean section procedure) prioritized because the acute pain experienced by the patient post-ERACS cesarean section can interfere with the patient's daily activities, such as mobilization, breastfeeding, and other activities that are useful for patient selection. In addition, uncontrolled pain can cause stress, anxiety, and even psychological disturbances in the mother, which can affect breast milk production.

3.1.3. Nursing Interventions

After the nursing diagnosis is established, nursing interventions are then formulated. Nursing interventions or planning is a form of therapy or actions taken by nurses based on knowledge and clinical assessment aimed at achieving the expected outcomes, serving as a guide for nurses in formulating nursing actions, and improving the quality of nursing care (Ekaputri et al., 2024). The nursing action plan for Mrs. C is formulated with the goal that after nursing actions are performed for 3x24 hours, the pain level is expected to decrease with the criteria of pain complaints and grimacing decreasing. The nursing interventions carried out include pain management, which consists of identifying the pain level (location, characteristics, duration, frequency, quality, intensity, and scale), providing and teaching non-pharmacological techniques to reduce pain (foot massage using olive oil) so that the patient can manage pain independently, controlling the environment that exacerbates pain (temperature, light, sound) to enhance comfort, and facilitating sleep rest to meet the patient's rest needs.

Nursing interventions or planning are formulated according to theory and the patient's condition in this case. In addition, nursing interventions or planning are formulated according to one specific problem, namely acute pain related to physical injury agents (post-ERACS cesarean section procedure) in Mrs. C.

3.1.4. Implementation and Evaluation

Nursing implementation is a series of activities carried out by nurses to assist clients with health status issues to achieve better health status and reach the expected goals (Ekaputri et al., 2024). The implementation carried out for the patient is in accordance with the plan or interventions that have been formulated, namely pain management for patients post-ERACS cesarean section with foot massage therapy using olive oil. Foot massage is one of the non-pharmacological therapies that creates relaxation in the body by providing stimulation through massage on the feet, thereby improving blood circulation and enhancing metabolism (Henniwati et al., 2022).

The patient is given pain management foot massage using olive oil for a duration of 20 minutes, with each foot receiving 10 minutes. The room condition has been ensured to be comfortable and quiet during the therapy, and the patient's family, in this case, the husband, observes and practices the foot massage technique using olive oil that is given to the patient, with the hope that the patient's family can perform foot massage independently at home when the patient is discharged.

Table 1. Pain scale of post cesarean section patients ERACS before and after foot massage therapy using olive oil

Day-	Scale	
	Before	After
1	5	4
2	3	2

Source: Primary Data

Based on Table 1, the results show that at the first meeting of foot massage therapy using olive oil on January 2, 2025, at 16:00, before the intervention, a pain scale measurement was conducted using the NRS. The patient reported pain at a scale of 5. Then, foot massage therapy using olive oil was given for 20 minutes. After the intervention, a pain scale measurement was conducted again using the NRS, and the patient reported pain at a scale of 4.

At the second meeting on January 3 at 14:00, the second foot massage therapy using olive oil was given. Before the intervention, a pain scale measurement was conducted using the NRS. The patient reported pain at a scale of 3. Then, foot massage therapy using olive oil was given for 20 minutes. After the intervention, a pain scale measurement was conducted again using the NRS, and the patient reported pain at a scale of 2. This proves that the provision of foot massage therapy using olive oil for post cesarean section ERACS patients can significantly reduce the patient's pain level at each meeting. The patient also reported feeling more relaxed after receiving foot massage therapy using olive oil.

3.2. Discussion

Based on the implementation results after foot massage therapy using olive oil, a decrease in the pain scale was obtained in patients before and after the intervention. On the first day, before foot massage therapy using olive oil was given, the patient's pain scale was 5, and after the intervention, the pain scale became 4. Then on the second day, the pain scale felt by the patient before foot massage therapy using olive oil was 3, and after the therapy, the pain scale became 2.

Foot massage has become one of the non-pharmacological pain management therapy options for post-abdominal surgery because there are many nerves in the feet connected to internal organs (Savitri et al., 2023). Foot massage therapy has advantages over other non-pharmacological pain management methods, such as being simple, easy to perform, and can be learned quickly, not requiring special tools or preparations, not needing a special room (like relaxation, distraction, guided imagery), and not requiring special skills like hypnotherapy (Raharja & Sulastri, 2025).

In addition, foot massage can improve blood circulation, reduce pain and fatigue, and release endorphins that are beneficial for relaxing the body (Muliani et al., 2020). There are 5 types of foot massage therapy techniques used in this study, namely effleurage, petrissage, tapotement, friction, and vibration. These five techniques were performed for 20 minutes over 2 days of treatment. The effleurage technique is a technique with manipulation movements on the tissue by applying lubricant (olive oil) to the entire surface of the foot below the knee to warm it up and create a smooth relaxation flow. The petrissage technique is.

Techniques of lifting, twisting, squeezing, and stretching tissues repeatedly so as to improve blood flow. The tapotement technique is a technique of striking repeatedly with force and firmness on the tissue. The friction technique is a technique of massaging by making a rubbing or friction movement using fingers or palms to release muscle tension. The vibration technique is a technique of massaging by creating vibrations using fingers or palms to stimulate the body's soft tissues, thereby reducing muscle tension and facilitating blood flow. The muscles referred to are the tibialis anterior and posterior, gastrocnemius, soleus, extensor digitorum longus, peroneus brevis, and peroneus longus muscles that work together with the gastrocnemius muscle to perform plantar flexion and work together with the peroneus tertius and peroneus brevis muscles to produce eversion movement in the foot. (Salamah & Astuti, 2022).

Foot massage after abdominal surgery is given to patients in a supine position (lying on their back) with minimal abdominal movement to reduce pain (Rumandani & Haniyah, 2023). Foot massage has an influence that can relieve pain due to stimulation reaching the brain faster than the pain felt, so the effect that occurs can stimulate the release of endorphin hormones and provide a sense of relaxation as well as help eliminate anxiety in the body due to decreased sympathetic nerve activity (Amalia et al., 2024). According to research conducted by Baishya & Ridhwaanah (2022), it was found that foot massage is more effective in reducing pain in post-cesarean section patients compared to hand massage. The foot massage therapy used to reduce pain in post-cesarean section patients is performed for about 15-20 minutes for two days to achieve effective results (Amalia et al., 2024). In research conducted by Masadah et al. (2020), it was proven that foot massage therapy has a significant effect on reducing pain intensity caused by incision wounds post-cesarean section. In addition to being a pain reliever, foot massage can also improve the Apgar score in newborns at the first and fifth minutes, reduce maternal anxiety during labor, and reduce postpartum bleeding (Nia et al., 2019 in Gianina & Syahruramdhani, 2023).

Foot massage performed on patients uses olive oil, which facilitates the massage while reducing friction between skin and skin. Nasrullah et al. (2021) state that olive oil contains oleocanthal, which has benefits similar to ibuprofen, namely anti-inflammatory properties. In addition, olive oil contains vitamin E, which serves as protection from UV rays, reduces wrinkles and fine lines, and prevents skin damage (Amalia et al., 2024).

4. Conclusion

Based on the results of the research in this case study, it can be concluded that the pain scale of post-cesarean section ERACS patients on average decreases after being given foot massage therapy using olive oil. There is a significant effect of foot massage using olive oil on the reduction of the pain scale in post-cesarean section ERACS patients. It is hoped that nurses can implement foot massage using

olive oil as one of the non-pharmacological pain management nursing interventions to reduce the pain scale in post-cesarean section ERACS patients. In future research, it is expected to conduct with a larger sample and with different variables.

5. Acknowledgements

The researcher expresses gratitude to all the staff at the Firdaus VK Ward of RS PKU Muhammadiyah Gamping who have allowed the researcher to conduct the research and to the patients who have kindly agreed to be respondents and took the time for the researcher. In addition, thanks to the supervising lecturer of the scientific work who has provided input and suggestions during the process of compiling this scientific work.

References

- Amalia, P., Hermayanti, Y., & Sukmawati. (2024). Foot Massage Therapy Menggunakan Minyak Zaitun Untuk Mengurangi Nyeri Post Sectio Caesarea: Case Report. *Sentri: Jurnal Riset Ilmiah*, 3(9), 4359--4369. ejournal.nusantaraglobal.or.id/index.php/sentri
- Baishya, P., & Ridhwaanah, S. (2022). A Comparative Study to Assess the Effectiveness of Hand Massage and Foot Massage on Pain Reduction among Post Cesarean Mothers at Gauhati Medical College & Hospital Guwahati Assam. *International Journal of Science and Research*, 11(3), 714–721. <https://doi.org/10.21275/SR22311100545>
- Ekaputri, M., Susanto, G., Paryono., Kusumaningtyas, D. P. H., Aisyah., Farisi, M. F. A., Naryati., Nur, S., & Kosim, M. Y. (2024). Proses Keperawatan: Konsep, Implementasi, dan Evaluasi. In Tahta Media (Ed.), *Tahta Media Group* (1st ed.). Tahta Media. <https://tahtamedia.co.id/index.php/issj/article/download/989/1002/3701>
- Gianina Sindi M, & Syahruramdhani Syahruramdhani. (2023). Penerapan Teknik Relaksasi Foot Massage Untuk Mengurangi Nyeri Pada Pasien Post Sectio Caesarea Di Bangsal Firdaus PKU Gamping. *Jurnal Sains Dan Kesehatan*, 7(1), 93–102. <https://doi.org/10.57214/jusika.v7i1.283>
- Henniwati, H., Dewita, D., & Idawati, I. (2022). Pengaruh Foot Hand Massage Terhadap Nyeri Post Sectio Caesarea Di Blud Rsud Kota Langsa. *Femina: Jurnal Ilmiah Kebidanan*, 1(2), 30. <https://doi.org/10.30867/fjk.v1i2.781>
- Ismiati, I., & Rejeki, S. (2023). Terapi foot massage menurunkan intensitas nyeri pasien post sectio caesarea. *Ners Muda*, 4(3), 330. <https://doi.org/10.26714/nm.v4i3.13658>
- Lestari, M. D. P. (2023). Penerapan Foot Massage Dalam Menurunkan Nyeri Setelah Operasi Sectio Caesarea Pada Ibu Nifas Di Rsud Dr. Moewardi Surakarta. *Jurnal Kesehatan Kartika*, 18(2), 59–62. <https://doi.org/10.26874/jkkes.v18i2.276>
- Masadah, et al. (2020). Pengaruh Foot Massage Therapy terhadap Skala Nyeri Ibu Post Op Sectio Cesaria di Ruang Nifas RSUD Kota Mataram. *Jurnal Keperawatan Terpadu*, 2(1), 64–70. <http://jkt.poltekkes-mataram.ac.id/index.php/home/index%0A>ISSN:
- Muliani, R., Rumhaeni, A., & Nurlaelasari, D. (2020). Pengaruh Foot Massage terhadap Tingkat Nyeri Klien Post Operasi Sectio Caesarea. *Journal of Nursing Care*, 3(2), 73–80. <https://doi.org/10.24198/jnc.v3i2.24122>
- Nasrullah, D., Rahayu, E., Hadi, S., Ari, N., & Sukadiono, S. (2021). Pengaruh Terapi Olesan Krim Minyak Zaitun dan Perasan Jahe terhadap Penurunan Intensitas Nyeri pada Lansia Rheumathoid Arthritis. *JHeS (Journal of Health Studies)*, 5(1), 34–42. <https://doi.org/10.31101/jhes.1483>
- Nisak, A. Z., Kusumastuti, D. A., & Munawati, M. (2023). Perbedaan Metode Konvensional Dan Eracs Dengan Tingkat Nyeri Pada Pasien Post Sectio Cesarea. *Jurnal Ilmu Keperawatan Dan Kebidanan*, 14(1), 261–268. <https://doi.org/10.26751/jikk.v14i1.1689>
- PPNI (2016). *Standar Diagnosis Keperawatan Indonesia: Definisi dan Indikator Diagnostik*, Edisi 1, Jakarta: DPP PPNI.
- PPNI (2016). *Standar Intervensi Keperawatan Indonesia: Definisi dan Tindakan Keperawatan*, Edisi 1, Jakarta: DPP PPNI.
- PPNI (2016). *Standar Luaran Keperawatan Indonesia: Definisi dan Kriteria Hasil Keperawatan*, Edisi 1, Jakarta: DPP PPNI.

- Prayanangga, K., & Nilasari, D. (2022). Enhanced Recovery After Cesarean Surgery (ERACS): Analisis Berbasis Bukti. *JAI (Jurnal Anestesiologi Indonesia)*, 14(3), 274–287. <https://doi.org/10.14710/jai.v0i0.50022>
- Raharja & Sulastri. (2025). Terapi Foot Massage Untuk Mengurangi Skala Nyeri Pada Pasien Post Sectio Caesarea: Studi Kasus. *Jurnal Ners Universitas Pahlawan*, 9(2), 1403–1409. <http://journal.universitaspahlawan.ac.id/index.php/ners>
- Rumandani, N. B., & Haniyah, S. (2023). Terapi Foot Massage untuk Mengurangi Nyeri Post Partum Sectio Caesaria di Ruang Flamboyan RSUD Prof. Dr. Margono Soekarjo. *Menara Journal of Health Science*, 2(2), 276–283. <https://jurnal.iakmikudus.org/index.php/mjhs>
- Salamah, U., & Astuti, Y. (2022). Effect of Hand and Foot Massage Toward Pain Level in Postpartum Mother with Sectio Caesarea. *Sehat Rakyat: Jurnal Kesehatan Masyarakat*, 2(2), 206–210. https://myklass-fkik.ums.ac.id/pluginfile.php/171307/mod_resource/content/1/Effect_of_Hand_and_Foot_Massage_Toward_Pain_Level_in_Postpartum_Mother_with_Sectio_Caesarea_Case_Report.pdf
- Sari, V. F., Listyorini, D., Pendidikan, S., Ners, P., Kesehatan, F. I., Studi, P., Keperawatan, S., & Kesehatan, F. I. (2024). Penerapan Foot Massage terhadap Tingkat Nyeri Klien Post Operasi Sectio Caesarea di RSUD Kartini Karanganyar. 3.
- Savitri, N. A., Khasanah, S., Putri, A. D., Prof, R., Margono, S., Purwokerto, J., & Tengah, I. (2023). Penerapan Foot Massage Pada Asuhan Keperawatan Nyeri Akut Pada Pasien Post Sectio Caesarea (Sc). *Journal of Nursing and Health (JNH)*, 8 Nomor 3, 240–246.
- Tika, T. T., Sidharti, L., Himayani, R., & Rahmayani, F. (2022). Metode ERACS Sebagai Program Perioperatif Pasien Operasi Caesaragus. *Jurnal Medika Utama*, 03(02), 2386–2391.
- Zuleikha, A. T., Sidharti, L., & Kurniawaty, E. (2022). Efek Samping Sectio Caesarea Metode ERACS (Literature Review). *Medula*, 11(1), 34.