VIVA MEDIKA
Jurnal Kesehatan, Kebidanan, dan Keperawatan

Homepage: http://ejournal.uhb.ac.id/index.php/vm
P-ISSN: 1979-2026 E-ISSN: 2656-1034
DOI: 10.35960/vm.v18i2.1803

Impact of Eracs on Post-Caesarean Pain: A Study at Pelni Hospital, Jakarta

Tantri Wenny Sitanggang[1] , Mira Suminar [2*], Irma Rahmania [3]
[1,2,3]Universitas Ichsan Satya, Jl. Raya Bintaro No.41, Jombang, Kota Tangerang Selatan, 15414, Indonesia
[1]tantrisitanggang2@gmail.com; [2]Miranuryawan@gmail.com*; [3]mylife_rahmania@ymail.com

ABSTRACT

Background: Data from the WHO Global Survey On Maternal And Perinatal Health shows that 46.1% of all births are performed by SC method. The WHO states that the incidence of chronic pain after SC delivery is as high as 18% and more than 80% of patients undergoing post-cesarean recovery experience pain, with approximately 75% of these patients describing moderate, severe or very severe pain. Enhanced recovery care methods are an effective way to do this. This can lead to an earlier rehabilitation and discharge process and in SC patients is known as Enhanced Recovery After Caesarian Surgery (ERACS). Research Objective: To determine the relationship between ERACS method and pain level after sectio caesarian (SC) at Pelni Hospital Jakarta in 2024. Research Methodology: Quantitative research with case control research design. The study population was all post partum mothers with SC at Pelni Hospital Jakarta in January 2024, which was 148 people and the sample obtained was 66 people. Bivariate analysis was performed with chi square test. Research Results: Univariate analysis found that most of the age is not at risk (age 20 - 35 years) as many as 54 people (81.82%), most of them have high school education, namely 40 people (60.61%), most of the mothers work, namely 36 people (55.54%). Bivariate analysis found that there is a relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta p value (0.000) and with an OR value: 1.435 which means there is a 1.435 times chance of experiencing pain in Non Eracs labour compared to the ERACS method. Conclusion: There is a relationship between ERACS method and pain level after Sectio Caesaria (SC) at Pelni Hospital Jakarta. Suggestion: For hospitals to be able to help facilitate and prepare the necessary media for each room in organising activities.

Keywords: *Eracs, Post-Cesarean Pain, Faster recovery, Perioperative care*

1. INTRODUCTION

SC delivery rates have been increasing worldwide and exceed the World Health Organization (WHO) recommended range of 5-15%. Data from the WHO Global Survey on Maternal and Perinatal Health shows that 46.1% of all births are by SC method. Statistics of SC cases compiled by Peel and Chamberlain with 3,509 cases, indications for SC are pelvic fetal disproportion 21%, fetal distress 14%, placenta previa 11%, previous SC 11%, fetal abnormality 10%, pre eclampsia and hypertension 7%. In China, the incidence of SC increased dramatically from 3.9% to 39.3% in 2010 (WHO, 2019).

SC action will break the continuity or continuity of tissue due to incisions that will release pain receptors so that patients will feel pain, especially after the effects of anaesthesia disappear (Sembiring, 2022). Pain can cause stressors to which individuals respond biologically in the form of physical and psychological behavioural responses (Metasari and Sianipar, 2018). Pain is one of the most frequently used reasons for an individual to

*** Tantri Wenny Sitanggang**
Tel.: -
Email: tantrisitanggang2@gmail.com

seek health care. Someone who feels pain will feel depressed and also suffer so that they will try to find ways to relieve pain. Pain is a subjective trait that each individual chooses a different taste or sensation. (Berkanis et al., 2020).

Post-cesarean section mothers will experience pain originating from the incision wound under the abdomen. The severity of pain felt by each post-SC mother will be different and depends on the psychological, physiological state and also tolerance to pain or pain threshold. (Whaley, 2015). Pain is a subjective sensation caused by discomfort due to actual or potential tissue damage. Pain is also defined as an unpleasant condition due to physical stimulation or from nerve fibers in the body to the brain, and is followed by physical, physiological and emotional reactions (Padila, 2014). Psychological aspects that can arise as a result of untreated pain such as anxiety, fear, personality changes, behavior and sleep disturbances. As for the physiological aspects that can arise such as changes in mood or bad mood in the mother which as a result can cause postpartum blues or baby blues which are often experienced by mothers after the delivery process (Wardani, 2017).

The International Association of Pain Studies (IASP) defines chronic post-surgical pain (CPSP) as persistent pain that is continuous or intermittent for more than 3 months after surgery. The incidence of CPSP for various common surgical procedures ranges from 10 to 50%. The incidence of chronic pain in mothers with SC delivery, based on 18% (WHO, 2019). In 1,288 women in New York State after 36 hours of SC, moderate to severe pain accounted for 10.9%. In the study of Murray et al (2016) in China stated that post-SC pain with a 3-month post-cesarean period reached 18.3%, a 6-month post-cesarean period reached 11.3% and a 12-month post-cesarean period reached 6.8% with an average higher pain intensity when moving within 24 hours postoperatively.

One way to improve the clinical benefits of caesarean section is to provide better recovery care. This can lead to improved rehabilitation and faster discharge. Enhanced Recovery After Surgery (ERAS) was first introduced by Kehlet in 1997 and used to shorten the length of hospital stay in sigmoid resection patients. ERAS is a multidisciplinary approach to optimise perioperative management and surgical outcomes. ERAS aims to reduce surgical stress response, improve functional recovery, and accelerate recovery. ERAS has been used in various surgical sciences such as colorectal, urological, hepatobiliary and gynaecological surgery (Meng et al., 2021).

ERACS (Enhanced Recovery After Caesarian Surgery) is one of the rapid recovery programs after cesarean section in the form of a series of treatments starting from preoperative preparation, intraoperative, postoperative care to patient discharge. The ERACS concept is a development of the ERAS concept, which was originally used in digestive surgery and then developed for surgery, one of which is obstetric surgery (Meng et al., 2021). ERACS is expected to blunt the response to surgical stress through optimization during patient care and a team of professionals who can work well together during the perioperative period. (Mullman et al., 2020).

The ERACS method from several studies that have been conducted found that this method has advantages over conventional methods of care in cesarean section, including a reduction in hospital stay, a decrease in the incidence of complications, and faster functional recovery (Liu, Du and Yao, 2020). An optimal recovery process can help mothers be more ready and able to prepare themselves to care for their babies. Optimising postoperative care with the ERACS method has a major impact on many factors, namely the length of treatment time, cost efficiency, and speed in patient recovery (Corso et al., 2017). Tika et al., (2022) stated that most respondents who underwent surgery with the ERACS method did not feel pain (62.7%).

Preliminary studies conducted by researchers in December 2023 found that the number of SC deliveries at Pelni Hospital for the last 2 years, namely in 2021 there were 1862 SC patients, in 2022 there were 1668 SC patients, in 2023 there were 1867 SC patients. SC. Researchers conducted a preliminary study on 10 mothers post SC with the non-eracs method, from the results of interviews with 10 mothers who underwent surgery with the non-eracs method post SC 4 hours in the treatment room, it was found that there were 4 mothers who said the pain scale was 9 (severely

controlled), 5 mothers had a pain scale of 6 (moderate), and 1 mother had a pain scale of 3 (mild). Based on the above phenomenon, the authors are interested in conducting research on 'Differences in ERACS and Non ERACS Methods with Post Sectio Caesaria (SC) Pain Levels at Pelni Hospital Jakarta in 2024'.

2. METHODS

This type of research is analytical observational using a case control study design. This design is based on the incidence of existing diseases so that it is possible to analyse two specific groups, namely the case group that suffers from the disease or is affected by the effect under study, compared to the control group or the group that does not suffer or is not affected (Siyoto and Sodik, 2015).

The ethical feasibility of this research has been approved by the Health Research Ethics Commission of Pelni Hospital Jakarta with Number:PI.01/K.07/KP.01.1/KE.SP/05.08.012 /2024. After obtaining a research permit from Ichsan Satya University, the researcher submitted the research letter to the Pelni Hospital Jakarta. Continued to select respondents who entered the research inclusion criteria. Respondents who meet the inclusion criteria are then carried out research by showing the ethical principles applied in research activities including providing consent forms, maintaining data confidentiality by not including names and filling out questionnaires.

The population in this study were all postpartum mothers with SC at Pelni Hospital Jakarta in January 2024, namely 148 people, with the calculation of the number of samples using the Lemeshow hypothesis formula as many as 30 respondents. To overcome the drop out sample, the number of samples was increased by 10% of the minimum sample size so that the number of samples in this study was 33 respondents in each case group and control group so that the total sample was 66 respondents. The sampling technique used in this study was purposive sampling which considers the suitability of individuals to the case group based on the inclusion criteria.

The inclusion criteria of this study are:

a. Case Sample
   1) Postpartum mothers with SC ERACS at Pelni Hospital Jakarta
   2) Healthy audio, visual, sensory
   3) Willing to be a respondent, as evidenced by signing a statement of willingness to be a respondent

   While the case group exclusion criteria are as follows namely post partum mothers with SC ERACS at Pelni Hospital Jakarta who are in an unhealthy / sick condition.

b. Control Samples
   1) Post partum mothers with non-ERACS SC in Pelni Hospital Jakarta.
   2) Healthy audio, visual, sensory
   3) Willing to be a respondent, as evidenced by signing a statement of willingness to be a respondent

   While the exclusion criteria for the control group are as follows namely Postpartum mothers with non-ERACS SC at Pelni Hospital Jakarta who are in an unhealthy/ sick condition.

The types of data used in this study are primary data and secondary data. Primary data were obtained by researchers using data collection methods using questionnaire sheets to determine the pain scale, while secondary data were obtained by researchers from administrative data of Pelni Hospital Jakarta, namely data on the number of SC patients, age, occupation of patients with ERACS and non-ERACS methods.

The independent variable in this study is the ERACS method while the dependent variable is the Pain Level. Research instruments for the Eracs method using observation sheets based on hospital medical records and for pain levels using the Numerical Rating Scale (NRS). NRS is used to determine various changes on the pain scale, and also assess the patient's pain response to the therapy provided (Mubarak et al., 2018). Numeric Rating Scale (NRS) was administered to mothers with post caesarean (SC) starting 3-4 hours after surgery in both control and case groups.

Data analysis involved editing, coding, tabulation, entry, and cleaning, followed by univariate and bivariate analyses. Data analysis using the Chi Square method, this method was chosen because the two variables are categorical variables. The principle of Chi Square testing is to compare the frequency of occurrence (observation) with the expected frequency (expectation).

3. RESULT AND DISCUSSION

3.1 The characteristics of respondents

The characteristics of respondents in this study include: Age, Education and Employment status.

Table 1. Frequency Distribution of Age of Post SC Mothers in Pelni Hospital Jakarta

Characteristic	Category	*f*	%
Age	< 20 years and > 35 years	12	18,18
	20-35 tahun	54	81,82
	Jumlah	66	100,0
Education Level	≤ 9 years	6	9
	>9 years	60	91
	Jumlah	66	100,0
Employment status	Work	36	54,54
	Not working	30	45,45
	Jumlah	66	100,0

The results showed that Post SC mothers with the age category of 20-35 years were more than the age category <20 years and >35 years, namely 54 people (81.82%), had the most education level with >9 years of education, namely 60 people (91%) and with working status, namely 36 people (54.54%).

3.2 Univariate Analysis

The frequency distribution table of pain levels is shown in Table 2.

Table 2. Frequency Distribution of Post SC Pain Intensity with Eracs and Non Eracs Methods at Pelni Hospital Jakarta

Level Pain	NON ERACS		ERACS	
	f	%	f	%
No Pain	0	0	10	30,3
Mild pain	1	3	17	51,5
Moderate pain	2	6,1	4	12,1
Severe pain controlled	6	18,2	2	6,1
Severe uncontrolled pain	24	72,7	0	0
Total	33	100	33	100

Based on table 2, it was found that the level of post-SC pain in the control group, namely SC patients with the non-eracs method, mostly had a level of Post-SC pain in the uncontrolled pain category, namely 24 respondents (72.7%). Whereas in the case group, most of them were in the mild pain category, namely 17 respondents (51.5%).

3.3 Bivariate Analysis

Bivariate data analysis was used to determine the relationship between two variables, namely whether there is a relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta which is presented in Table 3.

Table 3. Results of the Cross Distribution of the relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta

Level Pain	NON ERACS		ERACS		TOTAL		p-value
	f	%	f	%	N	%	
No Pain	0	0	10	30,3	10	15,2	0,0001
Mild pain	1	3	17	51,5	18	27,3	
Moderate pain	2	6,1	4	12,1	6	9,1	
Severe pain controlled	6	18,2	2	6,1	8	12,1	
Severe uncontrolled pain	24	72,7	0	0	24	37,4	
Total	33	100	33	100	66	100	

In Table 3, Based on the results of the study, it was found that the level of post SC pain in the control group, namely SC patients with non-eracs methods, namely 1 person (3%) felt mild pain, 2 people (6.1%) felt a little pain, 14 people (42.4%) felt more pain, and the remaining 10 people (30.3%) felt very painful. In the case group, namely SC patients with the eracs method, 10 people (30.3%) felt no pain, 17 people (51.5%) felt mild pain, 4 people felt a little pain (12.1%), and the remaining 2 people (6.1%) felt severe pain. The results of statistical tests obtained P value = 0.0001 means p value < α (0.05) so it can be concluded that there is a relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta.

Table 4. Table Dummy

Level Pain	NON ERACS		ERACS		TOTAL		p-value	OR	95% CI
No Pain	0	0	10	30,3	10	15,2	0,0001	1,435	1,146 – 1,797
Pain	33	100	23	69,7	56	84,8			
Total	33	100	33	100	66	100			

Table 4, shows the results of statistical tests obtained P value = 0.0001 means p value < α (0.05) so it can be concluded that there is a relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta From the results of the analysis, the OR value is 1.435, meaning that if the respondent delivers the Non ERACS SC method, there is a chance of 1.435 times experiencing pain compared to the ERACS method with 95% CI (1.146-1.797).

3.4 Discussion

It is known from the results of the lower study that almost half of them are 26-35 years old, namely as many as 30 people (45.45%), this shows that in this age range, the number of mothers who do the delivery method with SC occurs a lot. The ideal age for women to get pregnant is around 20 years old to 35 years old. When entering the age of more than 35 years, the fertility rate of women generally decreases, affecting the number and quality of eggs produced. The results of this study are in line with research conducted by Nisak (2023), where 66.7% of patients who underwent SC were aged 20-35 years. Another study by Karyawano (2023) found that the majority (76%) of patients who performed the SC ERACS delivery method were productive age.

The results showed that most of the respondents who gave birth using the SC method at Pelni Hospital Jakarta were working mothers, namely 36 people (54.54%). Someone who chooses to work means someone who chooses to spend their time working, but working can provide experience and increase knowledge. Being in the work environment can form a knowledge from the exchange of information between friends in the work environment (Notoatmodjo, 2018). This study is in line with research conducted by Novianti, et al (2022) entitled about the determinants of ERACS and Non ERACS cesarean delivery which states that there is a significant relationship between work and ERACS cesarean delivery. Mothers who live in big cities and work tend to choose to deliver by cesarean, this is because working mothers have a specified time to return to work after giving birth (Sihombing et al., 2017).

It is known that most of the respondents whose method of delivery SC in Pelni Hospital Jakarta with high school education level as many as 40 people (60.61%). Education is one of the factors that influence the formation of a person's attitude, including in terms of information seeking that can increase a person's knowledge and insight into the outside world. The higher the education, the higher the knowledge. Health information is also needed to increase understanding so that it can improve a person's health status (Notoatmodjo, 2018) So that knowledge also affects the mother in choosing her decision in choosing the type of delivery she will have. A person's education can affect his intellectual ability in determining a decision among the choices he faces, including determining the delivery process he will undergo. In this study, the respondents with tertiary education were considered to have the highest intellectual level. The results showed that the number of respondents with a college education background who chose SC ERACS (60%) is expected that the decision that has been taken is a decision that has passed through long thinking and considering several risk factors.

Based on the results of the study, it is known that the level of pain in the control group, namely non-ERACS SC mothers, most of them have a pain level in the category of uncontrolled post-SC pain, namely 24 respondents (72.7%) while in the case group, namely ERACS SC mothers, most of them have a pain level in the mild pain category, namely 17 respondents (51.5%). Pain is an unpleasant sensory and emotional experience resulting from subjective tissue damage. The duration of pain can last for 24 to 48 hours, but can last longer depending on the patient's ability and adaptation to pain, as well as the patient's perception of pain itself (Ripamonti, 2012). In sectio caesarea surgery, there are seven layers of the abdomen that must be cut and then sutured. In the incision area, pain will occur and it is very disturbing and uncomfortable (Yiwa, 2022).Pain is individualised and then expressed differently according to cultural background, age, level of education, and type of work as well as in the

surgical process given anaesthetic drugs so that patients do not feel pain (Sartika, 2023). However, after the operation is completed and the patient begins to wake up, the effect of the anaesthetic drug has begun to wear off and will cause pain in the incision area which makes it very disturbing.

Based on the results of data processing obtained in the study, the p value is 0.0001 (p value <0.05), which means that the correlation coefficient meets the significant requirements. This means that there is a relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta. From the results of the analysis also obtained an OR value of 1.435, meaning that if the respondent gave birth with the Non ERACS SC method, there was a 1.435 times chance of experiencing pain compared to the ERACS method. Physical and psychological reactions will arise as a result of postoperative pain in postpartum women including impaired mobilization, lazy activities, difficulty sleeping, lack of appetite, and reluctance to take care of the baby so that there needs to be a way to control pain so that the mother can adapt to postoperative sectio caesarea pain. In addition to the psychological effects mentioned above, pain can also cause increased blood pressure, palpitations, decreased activity to disability (Potter & Perry, 2017).

In the case group, it is also known that there are laboring women with the eracs method feeling great pain at 6.1%. Tilley (2016) states that pain response can be influenced by biological factors, namely age, existing medical conditions, medication, and genetics. The results of this study are in line with the results of Nisak's research (2023) which says that in the eracs method, the level of severe pain is 13.3% while the non-eracs method is 36.7%, there is a difference between conventional and Eracs methods with Pain Levels in Post Sectio Cesarea (SC) Patients. The difference between the eracs and non-eracs methods is the difference in the type of anesthesia used, the eracs method uses bupivacaine spinal anesthetic drugs with lower doses than non-eracs with additional anti-pain drugs such as morphine and fentanyl. Meanwhile, the non-eracs method uses spinal bupivacaine at a higher dose than eracs with the addition of fentanyl.

This is in line with the results of research conducted by Metasari (2018) entitled the effect of early mobilisation on postoperative pain sectio cessarea Eracs method in Bengkulu hospital that there is an effect of early mobilisation with a decrease in the intensity of postoperative pain SC Eracs method with a P value of 0,000. This shows that with the eracs method, post-SC mothers can immediately mobilise which can help reduce the pain experienced by the mother, besides that early mobilisation shows that the pain experienced by post-SC mothers with eracs is minimal.

This is similar in another study which showed that ERACS had significantly less postoperative pain and complications compared to conventional SC. Based on Pan's research (2020), pain assessment after surgery was lower in the ERACS group than in the control group at rest and movement. In the ERACS group the onset of nausea was significantly lower compared to the control group. This post-cesarean section pain affects the mother's postpartum period, for example, it can reduce the quality of breastfeeding, postpartum depression and duration (Pan et al., 2020). This study is also in line with Zumrotun et al, (2023) which according to his research obtained the results of the mean range value in the ERACS group 23.75 while in the conventional method group 37.25 with a p value of 0.002 <0.05, this indicates that the Eracs method has a lighter postoperative pain level than the conventional method (Zumrotun Nisak & Andriani Kusumastuti, 2023).

The limitations in this study are that the observation period is too short, so the sample is small and the results obtained are less generalised.

4. CONCLUSION

The results of the bivariate test obtained a p-value of 0.0001 which means the p value < α (0.05) so it can be concluded that there is a relationship between the ERACS method and the level of pain after Sectio Caesaria (SC) at Pelni Hospital Jakarta. ERACS is an evidence-based standard of care provided during theperioperative period, with various benefits that are useful for managing maternal pain, accelerated mobilisation, improved emotional bonding of mother and baby, decreased opioid drug consumption, and shorter length of

hospital stay. In the ERACS method, neuraxial techniques including epidural, spinal, and combined spinal-epidural are recommended for most cesarean section case management.

ADVISE

Suggestions for the research site are expected that the results of this study as input to Pelni Hospital Jakarta to help facilitate and prepare the necessary media for each room in conducting routine health education activities for laboring women about the SC ERACS method. The hospital can help provide media for health education such as leaflet distribution, poster pasting or procurement.

Suggestions for further researchers can be used as information for further research and develop further research on various factors that affect pain levels in SC ERACS patients such as parity factors, family support, economic status, beliefs etc (Metasari et al., 2018).

REFERENCES

Berkanis, A.T. et al. (2020) „Pengaruh Mobilisasi Dini Terhadap Intensitas Nyeri pada Pasien Post Operasi di RSUD S.K. Lerik Kupang Tahun 2018", CHM-K Applied Scientifics Journal, Vol. 3(1), pp. 1–8.

Corso, E. et al. (2017) „Enhanced recovery after elective caesarean : a rapid review of clinical protocols ,and an umbrella review of systematic reviews", pp.1–10.

Liu, Z., Du, W. and Yao, S. (2020) „Enhanced recovery after cesarean delivery : a challenge for anesthesiologists", 0(5).

Karyawanto, N. (2023) „Perbedaan Nyeri Post Sectio Caesaria Dengan Metode Pembiusan ERACS dan Konvensional".

Meng, X. et al. (2021) „The Clinical Efficacy and Safety of Enhanced Recovery After Surgery for Cesarean Section : A Systematic Review and Meta-Analysis of Randomized Controlled Trials and Observational Studies", 8(August).

Metasari, D. and 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), pp. 1–7.

Mullman, L. et al. (2020) „Improved Outcomes With an Enhanced Recovery Approach to Cesarean Delivery", 136(4), pp. 685–691.

Murray, M., Morgan, G. and Mikhail, M. (2016) Chronic Pain Management and Perioperative Pain Management & Enchanced Outcomes. 5th edn. Edited by M. GE.Clinical Anesthesiology Lange Medical Books McGraw Hill.

Nisak, A.Z., Kusumastuti, D.A. and Munawati (2023) „Perbedaan Metode Konvensional dan ERACS Dengan Tingkat Nyeri Pada PAsien Post Sectio Caesaria", Jurnal Ilmu Keperawatan dan Kebidanan, 14(1), pp. 261–268.

Notoatmodjo, S. (2018) Metodologi Penelitian Kesehatan. Jakarta: PT Rineka Cipta.

Padila (2014) Buku Ajar Keperawatan Maternitas. 1st edn. Yogyakarta: Nuha Medika.

Pan, J., Hei, Z., Li, L., Zhu, D., Hou, H., Wu, H., Gong, C., & Zhou, S. (2020). The advantage of implementation of enhanced recovery after surgery (ERAS) in acute pain management during elective cesarean delivery: A prospective randomized controlled trial. Therapeutics and Clinical Risk Management, 16, 369–378.

Potter, P. and Perry, A. (2015) Buku Ajar Fundamental Keperawatan: Konsep, Proses, dan Praktik. 4 volume 2. Edited by R. Komalasari. Jakarta: EGC.

Ripamonti, C. I. (2012). Pain management. *Annals of Oncology*, *23*(SUPPL. 10).

Sartika, N. L. P. M. (2023). *Hubungan Antara Nyeri Luka Post Sc Terhadap Motivasi Ibu Dalam Pemberian Asi Di Rsu Garbamed*.

Sihombing, N., Saptarini, I., Sisca Kumala Putri, D., & Penelitian dan Pengembangan Upaya Kesehatan Masyarakat, P. (2017). Determinan Persalinan Sectio Caesarea Di Indonesia (Analisis Lanjut Data Riskesdas 2013). *Jurnal Kesehatan Reproduksi*, *8*(1), 63–75. https://doi.org/10.22435/kespro.v8i1.6641.63-75

Sembiring, H. (2022) „Pengaruh Mobilisasi Dini Terhadap Intensitas Nyeri Post Sectio Cessarea (SC) Di Rumah Sakit Patar Asih Kecamatan Beringin Kabupaten Deli Serdang Tahun 2021",

Biologi Education & Technolog, 5(2), pp. 25–30.

Tika, T.T. et al. (2022) „Metode ERACS Sebagai Program Perioperatif Pasien Operasi Caesaragus", Jurnal Medika Hutama, 03(02), pp. 2386–2391.

Tilley, M. (2016) „Pain Biological, Psychological or Social?", Jurnal of health University of Buckingham [Preprint].

Wardani, N.P. (2017) „Manajemen Nyeri Akut", Manajemen Nyeri Akut, pp. 57–69.

Whaley (2015) Buku Ajar keperawatan Pediatrik. 3rd edn. Jakarta: EGC.

World Health Organization (WHO) (2019) „Maternal mortality key fact". Available at: https://www.who.int/news-room/factsheets/detail/maternal-mortality.

Yiwa, O. M. (2022). *Gambaran respon nyeri pasien pasca bedah sectio ceasarea setelah pemberian analgetik ketamin intravena di ruang pemulihan (recorvery room) rs karitas weitabula nusa tenggara timur*.

Zumrotun Nisak, A., & Andriani Kusumastuti, D. (2023). Perbedaan Metode Konvensional Dan Eracs Dengan Tingkat Nyeri Pada Pasien Post Sectio Cesarea. In *Jurnal Ilmu Keperawatan dan Kebidanan* (Vol. 14, Issue 1).