


**COMPARISON OF SATISFACTION LEVELS BETWEEN POST-OPERATIVE SECTIO CAESARIA PATIENTS FOLLOWED BY THE ERACS PROTOCOL TAP BLOCK ANALGESIA METHOD AND IV PATIENT CONTROLLED ANALGESIA: A LITERATURE REVIEW**

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ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 30 June 2023</p> <p><b>Accepted</b> 28 September 2023</p> <p><b>Keywords:</b></p> <p>Sectio Caesarea; ERACS; Patient Satisfaction; TAP Block Analgesia Method; IV Patient Controlled Analgesia.</p> <div data-bbox="172 1059 480 1305" style="text-align: center;">  </div>	<p><b>Purpose:</b> This paper aims to examine the results of the past ten years of research related to the satisfaction levels of postoperative sectio cesarea patients followed by the ERACS protocol TAP block analgesia method and IV patient-controlled analgesia.</p> <p><b>Theoretical framework:</b> Cesarean section is one of the most common methods of delivery in the world. The enhancement of public interest in the cesarean section has also increased perioperative services. In order to increase the clinical benefits of cesarean section, enhanced recovery care is an effective way to do it. ERACS (Enhanced Recovery After Caesarian Surgery) is a fast recovery program after a cesarean section in the form of a series of treatments to improve post-surgical recovery. These conditions make expectations related to patient comfort and satisfaction during treatment.</p> <p><b>Design/Methodology/Approach:</b> The method used in the preparation of a literature review is to search for several articles by searching through science direct, google scholar, and Pubmed.</p> <p><b>Findings:</b> The results of 20 previous research articles showed that Enhanced recovery after surgery (ERAS) in cesarean section showed the results that standardizing postoperative patient care, improving patient outcomes, reducing the postoperative length of stay, and optimizing patient satisfaction.</p> <p><b>Research, Practical &amp; Social implications:</b> In postoperative management of the ERAS method, there are various methods, including regional block analgesia and patient-controlled analgesia. TAP block and PCA effectively relieve postoperative pain after cesarean section.</p> <p><b>Originality/Value:</b> This paper shows a large number of alternatives and the choice of post-cesarean section analgesic methods and drugs with the ERACS protocol means that pharmacology and anesthesia must be accompanied by aspects of patient satisfaction surveys which play a role in selecting the most effective drug or analgesic method.</p> <p>Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i10.3384">https://doi.org/10.26668/businessreview/2023.v8i10.3384</a></p>

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## COMPARAÇÃO DOS NÍVEIS DE SATISFAÇÃO ENTRE OS DOENTES DA SEÇÃO PÓS-OPERATÓRIA DE CESARIA SEGUIDOS PELO PROTOCOLO ERACS TAP BLOCK ANALGESIA MÉTODO E IV PACIENTE CONTROLADO ANALGESIA: UMA REVISÃO DA LITERATURA

### RESUMO

**Objetivo:** O presente artigo tem como objetivo examinar os resultados dos últimos dez anos de pesquisa relacionada aos níveis de satisfação dos pacientes da cesárea da seção pós-operatória seguidos pelo método de analgesia de bloco TAP do protocolo ERACS e pela analgesia controlada por paciente IV.

**Estrutura teórica:** A cesariana é um dos métodos mais comuns de entrega no mundo. O aumento do interesse público na cesariana também aumentou os serviços perioperatórios. Para aumentar os benefícios clínicos da cesariana, o cuidado de recuperação aprimorado é uma maneira eficaz de fazê-lo. ERACS (Enhanced Recovery After Caesarian Surgery) é um programa de recuperação rápida após uma cesariana na forma de uma série de tratamentos para melhorar a recuperação pós-cirúrgica. Estas condições fazem expectativas relacionadas com o conforto e satisfação do paciente durante o tratamento.

**Design/Methodologia/Abordagem:** O método usado na preparação de uma revisão de literatura é procurar vários artigos pesquisando através da Science Direct, Google Scholar e Pubmed.

**Constatações:** Os resultados de 20 artigos de pesquisa anteriores mostraram que a recuperação melhorada após a cirurgia (ERACS) na cesariana mostrou os resultados que padronizaram o atendimento pós-operatório do paciente, melhorando os resultados do paciente, reduzindo a duração pós-operatória da permanência e otimizando a satisfação do paciente.

**Investigação, Implicações práticas e Sociais:** Na gestão pós-operatória do método ERACS, existem vários métodos, incluindo a analgesia em bloco regional e a analgesia controlada pelo doente. Bloqueio de TAP e PCA efetivamente aliviam a dor pós-operatória após a cesariana.

**Originalidade/Valor:** Este artigo mostra um grande número de alternativas e a escolha de métodos e medicamentos analgésicos pós-cesariana com o protocolo ERACS significa que a farmacologia e a anestesia devem ser acompanhadas por aspectos dos inquéritos de satisfação do paciente que desempenham um papel na seleção do medicamento ou método analgésico mais eficaz.

**Palavras-chave:** Seção Cesareia, ERACS, Satisfação do Paciente, Método de Analgesia por Bloco TAP, IV Analgesia Controlada por Paciente.

## COMPARACIÓN DE LOS NIVELES DE SATISFACCIÓN ENTRE LOS PACIENTES CON CAESARIA EN EL POSTOPERATORIO SEGUIDO DEL PROTOCOLO ERACS MÉTODO DE ANALGESIA CON BLOQUEO TAP Y ANALGESIA IV CONTROLADA POR EL PACIENTE: UNA REVISIÓN DE LA LITERATURA

### RESUMEN

**Objetivo:** El objetivo de este trabajo es examinar los resultados de los últimos diez años de investigación relacionados con los niveles de satisfacción de pacientes postoperados de cesárea, seguidos por el protocolo ERACS, el método de analgesia por bloqueo TAP y la analgesia IV controlada por el paciente.

**Marco teórico:** La cesárea es uno de los métodos de parto más comunes en el mundo. El aumento del interés público en la cesárea también ha aumentado los servicios perioperatorios. Con el fin de aumentar los beneficios clínicos de la cesárea, una mejor atención de recuperación es una manera eficaz de hacerlo. ERACS (Enhanced Recovery After Caesarian Surgery) es un programa de recuperación rápida después de una cesárea en forma de una serie de tratamientos para mejorar la recuperación postquirúrgica. Estas condiciones generan expectativas relacionadas con la comodidad y satisfacción del paciente durante el tratamiento.

**Diseño/Methodología/Enfoque:** El método utilizado en la preparación de una revisión bibliográfica es buscar varios artículos mediante búsqueda a través de science direct, google scholar y Pubmed.

**Hallazgos:** Los resultados de 20 artículos de investigación previos mostraron que la recuperación mejorada después de la cirugía (ERACS) en la cesárea mostró los resultados que estandarizan la atención posoperatoria del paciente, mejoran los resultados del paciente, reducen la duración de la estancia posoperatoria y optimizan la satisfacción del paciente.

**Investigación, Implicaciones prácticas y Sociales:** En el manejo postoperatorio del método ERACS, existen varios métodos, incluyendo la analgesia regional en bloque y la analgesia controlada por el paciente. El bloqueo del TAP y el PCA alivian eficazmente el dolor posoperatorio después de la cesárea.

**Originalidad/Valor:** Este trabajo muestra un gran número de alternativas y la elección de los métodos y fármacos analgésicos post-cesárea con el protocolo ERACS significa que la farmacología y la anestesia deben ir acompañadas de aspectos de las encuestas de satisfacción del paciente que juegan un papel en la selección del fármaco o método analgésico más eficaz.

**Palabras clave:** Sección Cesárea, ERACS, Satisfacción del Paciente, Método de Analgesia por Bloqueo de TAP, Analgesia IV Controlada por el Paciente.

## INTRODUCTION

Sectio Caesarea or cesarean section is a medical procedure to give birth to a baby through an incision in the abdominal wall and uterus (Oxom & Forte, 2010). A cesarean section can be performed due to medical indications for problematic pregnancies. According to the World Health Organization (WHO), in 2017, births using cesarean sections increased from 10% to 15%. As a developing country, Indonesia's carrying out deliveries by cesarean section has increased relatively high, reaching 17.6%. (Kurniawaty, 2020)

Caesarean section tends to be preferred by pregnant women compared to the vaginal delivery method. The process of vaginal delivery is considered a labor process that is difficult and tends to be dangerous. Increased public interest in a cesarean section has also increased perioperative services. Enhanced recovery care is an effective way to increase the clinical benefits of cesarean section. This can lead to a push for the rehabilitation process and early discharge of patients. (Moris Baluku, et all)

Enhanced Recovery After Surgery (ERAS) was introduced by Kehlet in 1997 and is used to shorten the length of hospital stay in sigmoid resection patients. ERAS is a multidisciplinary approach to optimize perioperative management and surgical outcomes. ERAS aims to reduce the surgical stress response, enhance functional recovery, and speed recovery.

ERACS (Enhanced Recovery After Caesarian Surgery) is a fast recovery program after a cesarean section in the form of a series of treatments starting from pre-operative preparation and intraoperative and postoperative care until the patient's discharge. The ERACS concept is a development of the Enhanced Recovery After Surgery (ERAS) concept, where the ERAS concept was initially used in digestive surgery. Caesarean section is the most common major abdominal operation performed on women worldwide.

## THEORETICAL FRAMEWORK

In postoperative management of the ERAS method, there are various methods, including regional block analgesia and patient-controlled analgesia. Regional blocks useful for cesarean sections include truncal blocks (Transversus Abdominus Plane Blocks/TAP, Quadratus Lumborum Blocks/QL) or wound infusions. Regional blocks are helpful when

neuraxial morphine cannot be administered as a management technique for severe pain or for patients at high risk for severe pain. (Khoo et al., 2007; Patel & Zakowski, 2021) Meanwhile, patient-controlled analgesia (PCA) has been used since the early 1970s to relieve various categories of pain, including acute, postoperative, or labor pain, or chronic, such as palliative care or cancer pain. The goal of PCA is to efficiently deliver pain relief at the patient's preferred dose and schedule by enabling them to administer predetermined bolus doses of medication on demand at the push of a button. The bolus may be given alone or in combination with a continuous background opioid infusion using a special pump. (Ebnesahidi et al., 2012; Motamed, 2022)

A large number of alternatives and the choice of post-cesarean section analgesic methods and drugs with the ERACS protocol means that pharmacology and anesthesia must be accompanied by aspects of patient satisfaction surveys which play a role in selecting the most effective drug or analgesic method.

Patient satisfaction is an important phenomenon that recognizes the need for patients to improve the healthcare system. Patients who report satisfaction with their health care are more likely to report better health. Patient responses to healthcare services are one way to gain information about patient views on the perceived quality of healthcare services and to build strong patient engagement. Patients who report higher satisfaction are more likely to benefit from their treatment. Several experts have used these factors, including pharmaceutical services, physical services, doctor-patient communication, and laboratory services, to access continuity of health services by paying attention to patient satisfaction. (Hussain et al., 2019; Jabid et al., 2023; Suhartono et al., 2023)

## **METHODOLOGY**

### **Search Strategy**

A literature review through a review of articles to compare the satisfaction levels between postoperative sectio caesaria patients followed by the ERACS protocol TAP block analgesia method and IV patient-controlled analgesia. The inclusion criteria used were articles on the satisfaction level of postoperative sectio caesaria patients followed by the ERACS protocol, and using TAP block analgesia method keywords, IV patient-controlled analgesia, and sectio caesarea. The exclusion criteria were articles that could not be downloaded in full text (1650 articles were excluded). Search for articles accessed from the database: ScienceDirect, PubMed, and google scholar. Articles that met the inclusion criteria were

collected and examined systematically. The literature search was published from 2013 to 2023. The search process for articles found 21 articles that met the inclusion and exclusion criteria requirements.

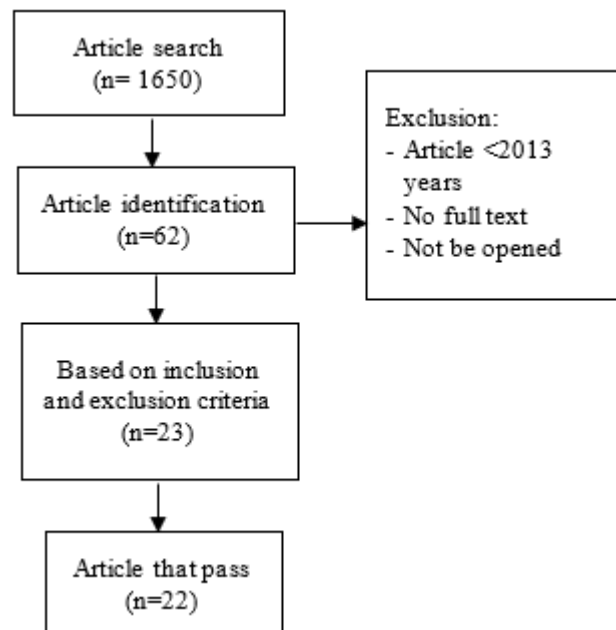
## RESULTS AND DISCUSSION

Based on the search results, 21 articles were deemed suitable for the study and then screened whether the titles of the articles were the same or not.

After the screening, the same title was not obtained. These 21 articles were screened based on eligibility according to the inclusion and exclusion criteria, and the articles were obtained for further review.

The proper research consists of several studies conducted in different countries. The analysis of 22 articles shows that all articles use quantitative designs, 11 use an RCT design, 1 uses a clinical trial design, 1 uses Experimental Quasi, 8 use a literature review, and 1 uses qualitative study. After assessing the quality of the study, the 22 articles could be categorized as good. Data extraction was done by analyzing the data based on the author's name, title, objectives, methods, and research results.

Diagram 1. Study consort diagram



Source: Authors' Findings

Based on the analysis of 22 articles, it was found that Enhanced recovery after surgery (ERAS) involves changes to multiple aspects of perioperative care to standardize postoperative patient care, improve patient outcomes, reduce the postoperative length of stay, and optimize

patient satisfaction. Teigen's research (2020) showed that Enhanced recovery after surgery at cesarean delivery was not associated with an increase in the number of women discharged on postoperative day 2, but that may have been related to factors other than patients' medical readiness for discharge. Evidence that enhanced recovery after surgery at cesarean delivery may potentially improve outcomes such as the day of discharge is suggested by the observed reduction in overall postoperative length of stay, improved patient satisfaction, and an increase in breastfeeding rates. The patient satisfaction rate explained in Laronche's study (2017) were that their bond with the baby was higher during the first 24 h postoperative, and they had a significantly greater positive mood at day 1 and 3. Also, exclusive breastfeeding was observed more often in the Enhanced recovery after surgery (ERAS) group.

Meanwhile, in Pan, et al. (2020), research explained that patient satisfaction rated as per the VAS was significantly higher in the ERAS group than in the control group (traditional protocol of cesarean section). The total length of stay, postoperative length of stay, and the cost of anesthesia in both groups were comparable. Further, the average daily hospitalization cost was significantly lower in the ERAS group than in the control group.

Effective postoperative pain treatment reduces surgical stress and directly impacts morbidity, especially in the perioperative care of cesarean section. There are many various methods to control postoperative pain, and several techniques have been used, including transversus abdominis plane (TAP) block and IV patient-controlled analgesia (PCA) (Erbabacan et al., 2015) (Salem et al., 2021). According to this study, Transversus abdominis plane block is effective as IV morphine-PCA in postoperative pain therapy in lower abdominal surgery when given in a 30-mL volume. It may be preferable to IV-PCA, as the analgesic effect starts earlier and decreases the systemic effect of the morphine used in PCA. This research is also in line with other studies that showed that both TAP block and PCA are effective in postoperative pain relief after cesarean section. However, PCA is superior, especially for visceral pain.

Nevertheless, TAP block has the privilege of avoiding the systemic action of opioids used in PCA. PCA can easily be applied, while TAP block requires more training and an intraoperative ultrasound machine. Complications and side effects of both were minimal when adjusting the doses. Besides that, it was also found that PCIA with sufentanil alone or combined with TAPB can be safely and effectively used for postoperative analgesia after cesarean section. PCIA combined with TAPB had better analgesic effects and lower incidence of side effects while reducing the dose of opioids.

In addition to the service aspect in terms of providing analgesic methods, another thing that needs to be considered in measuring the level of patient satisfaction is the aspect of handling anxiety in cesarean section. Based on Madiana and Rosa research about Effectiveness of Patient Centered Care in Reduce Anxiety Level and Improve Satisfaction on Patient Post Cesarean Section shows that Patient Centered Care for Patient Post Cesarean Section has an effective result in reduce anxiety level and improve satisfaction. Patient Centered Care (PCC) is a form of service that prioritizes the needs and desires of patients. As well as giving patients an understanding and support for making decisions about the treatment received. This requires a good relationship between doctor, patient and family. The essence of PCC is holistic health care and is a development of traditional care. PCC is a form of service that prioritizes the needs and desires of patients, and gives patients understanding and support to make decisions about the treatment received. There is a shift regarding the focus of Patient Centered Care from time to time. Patient Centered Care improves the quality of care for patients because the focus of care no longer lies in the completion of tasks but personal adjustment. This requires a good relationship between doctor, patient and family. Research also shows that applying Patient Centered Care can improve patient outcomes and patient satisfaction (Sjarifudhin and Maria Rosa, 2018).

In the terms of analyzing the level of patient satisfaction, cannot be separated from the aspect of patient safety. in terms of analyzing the level of patient satisfaction, cannot be separated from the aspect of patient safety medication errors and drug side effects linearly related to the level of patient satisfaction. Patient safety is a critical component of the quality of health services. Patient safety is a critical component of the quality of health services. Through the application of a patient safety culture, there is a decrease in cases of medical errors and diagnostic errors. Based on the article from Aini (2020) showed that the patient safety behavior model had a good level of goodness of fit. The culture of patient safety had a positive influence on patient safety behavior. Patient safety attitudes also had a positive influence on patient safety behavior. These findings from the article confirm that enhancing patient safety culture, and the attitude of patient safety from nurses and doctors in providing health services in hospitals could improve patient safety behavior (Aini, 2020).

## CONCLUSION

Enhanced Recovery After Surgery (ERAS) in cesarean section showed the results of standardizing postoperative patient care, improving patient outcomes, reducing the

postoperative length of stay, and optimizing patient satisfaction. In postoperative management of the ERAS method, there are various methods, including regional block analgesia and patient-controlled analgesia. TAP block and PCA effectively relieve postoperative pain after cesarean section.

Table 1. Syntetic Grid

No	Author/Sear	Title	Purpose	Research Method	Results
1	Erbabacan, S., Kendigelen, P, Köksal, G. M., Tütüncü, C., Ekici, B. B., Şeker, T. B., Kaya, B., Altındaş, F. (2015)	Comparison of Transversus Abdominis Plane Block and IV Patient-Controlled Analgesia after Lower Abdominal Surgery	Compare the first 24-hour Post-operative analgesic efficiency of ultrasound (USG)-assisted transversus abdominis plane (TAP) block to IV morphine patient-controlled analgesia (PCA) in patients undergoing lower abdominal surgery	Randomised, Prospective Clinical Study	No difference was observed between groups in terms of VAS, HR, values in the within-group comparison, but Group 1 (TAP-block) HR values were lower compared to Group 2 (IV PCA) ( $p < 0.01$ ). No difference was observed in additional analgesic need at any times. Nausea-vomiting score was higher in Group 2 in the between-group comparison at the 30th minute ( $p < 0.04$ ), but no difference was observed after the 1 <sup>st</sup> hour.
2	Salem, S.M., Abdel-Rasheed, M., Gouda, M.A., Salama, S. (2021)	The new trending pain-free cesarean section: TAP block versus IV PCA	Compare the efficacy of ultrasound-assisted transversus abdominis plane (TAP) block versus IV patient-controlled analgesia (PCA) in the first 24 h Post-operative in women who underwent cesarean section	Cross-sectional Study	The degree of pain was significantly lower in “group B (PCA)” than in “group A (TAP block)” in all time intervals ( $p < 0.001$ ). Heart rate was significantly higher in women in “group B” compared to those in “group A” only at 2 and 4 h Post-operative ( $p < 0.001$ ). Nausea and vomiting were also significantly higher in women in “group B” compared to those in “group A” ( $p$ value 0.03 and 0.04,



						respectively). Regarding intestinal motility, it was audible in “group A” earlier than in “group B.”
3	Elnasr, N. E. N. A. N., and Elghazaly, M. M. (2015)	Ultrasound-Guided Transverses Abdominis Plane Block Versus Patients Controlled Analgesia as A New Trending Pain-Free Cesarean Delivery	Determine how effective US guidance block as a multimodal pain management technique in full-term parturients undergoing elective cesarean birth under general anesthesia	Randomised Controlled Study		Within 24 hours, when comparing US TAP block group (GA) to the PCA group (GB) We detected a significant decline in cumulative morphine usage (P<0.05). For PCA patients, the time required for the initial morphine dosage to be administered was significantly earlier; To obtain the initial morphine required dose the median time was 1 hour in the PCA group (GB) versus 2 hours in the US TAP block group (GA) (P <0.05). Participants’ satisfactory with alleviation of pain was significantly greater in the TAP block group (GA); the scores of median satisfaction in the US TAP block and PCA groups were 95 and 70 mm, respectively (P <0.05). The VAS pain score varied significantly among the two groups; it was lower in the US TAP block group. (P<0.05). The patient complained of side effects includes nausea, vomiting, itching, and drowsiness. Concerning nausea and vomiting, just one patient have moderate-severe nausea and

						vomiting in the US TAP block group he received antiemetic, while two or three antiemetic dosages were administered to five PCA group (GB) participants during the 24-hour period (P<0.05). Among the two groups, a significant variation in drowsiness was noted. In the US TAP block group, it was significantly lesser (P<0.05). Both groups of patients commonly reported pruritus with no significant difference between both of them.
4	Geng, Z.Y., Zhang, Y., Zhang, D., Li, Z., Jiang, L., Song, L. L., Li, X. Y. (2023)	Addition of Preoperative Transversus Abdominis Plane Block to Multimodal Analgesia In Open Gynecological Surgery: A Randomized Controlled Trial	of Assess the additional analgesic effect of preoperative TAP block when added to MMA protocol in open gynecological surgery.	Prospective, Randomized-Controlled Trial		The Study group had less rescued morphine than the control group within 24h [5 (2–9) vs. 8.5 (5–12.8) mg, P=0.013]. The Study group had lower pain scores at 1h [3 (2–4) vs. 4 (3–5), P=0.007], 2h [3 (2–4) vs. 3.5 (3–5), P=0.010] and 6h [3 (2–3) vs. 3 (2.3–4), P=0.028], lower incidence of nausea at 48h (25.8% vs. 50%, P=0.039), and higher satisfaction score [10 (10–10) vs. 10 (8–10), P=0.041]. The SF-36 bodily pain score on POD 30 was higher in the Study group (59±13 vs. 49±16, P=0.023).
5	Roofthoof, E., Joshi, G.P., Rawal, N, Velde, M. V., and European Society of Regional Anaesthesia and Pain Therapy and supported by the Obstetric	Prospect Guideline For Elective Cesarean Section: Updated Systematic Review And Procedure-Specific Post-operative Pain Management Recommendations	To update the available literature and develop recommendations for optimal pain management after elective cesarean section under	systematic review utilizing procedure-specific Post-operative pain management		A total of 145 studies met the inclusion criteria. For patients undergoing elective cesarean section performed under neuraxial anesthesia,

Anaesthetists' Association (2020)	neuraxial anesthesia.	(PROSPECT) methodology	<p>recommendations include intrathecal morphine 50–100 µg or diamorphine 300 µg administered pre-operatively; paracetamol; non-steroidal anti-inflammatory drugs; and intravenous dexamethasone administered after delivery. If intrathecal opioid was not administered, single-injection local anaesthetic wound infiltration; continuous wound local anaesthetic infusion; and/or fascial plane blocks such as transversus abdominis plane or quadratus lumborum blocks are recommended. The Post-operative regimen should include regular paracetamol and non-steroidal anti-inflammatory drugs with opioids used for rescue. The surgical technique should include a Joel-Cohen incision; non-closure of the peritoneum; and abdominal binders. Transcutaneous electrical nerve stimulation could be used as an analgesic adjunct. Some of the interventions, although effective, carry risks, and consequentially were omitted from the recommendations. Some interventions were not recommended due</p>
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						to insufficient, inconsistent, or lack of evidence. Of note, these recommendations may not be applicable to unplanned deliveries or cesarean section performed under general anesthesia.
6	Xue, M., Guo, C., Han, K., Bai, R. (2022)	Analgesia Effect of Ultrasound-Guided Transversus Abdominis Plane Block Combined with Intravenous Analgesia After Cesarean Section: A Double-Blind Controlled Trial	Explore the optimal Post-operative analgesia after cesarean section.	Randomized-Controlled Trial		The dynamic and static VAS scores of the puerperal in group B at T2 and T6 were significantly lower than group A and at T12, T24 and T48 were significantly lower than group C. Compared with group A, the dynamic and static VAS scores of puerpera in group C were lower at T2 and T6 and higher at T12, T24, and T48. The Ramsay score and BCS score of the puerpera in group C at T12, T24, and T48 were significantly lower than those in groups A and B.
7	Gao, Y., Guo, M., Du, C., Zhang, H., Zhang, H. (2019)	Clinical study of ultrasound-guided transversus abdominis plane block for analgesia after cesarean section	Compare the efficacy and side effects of TAPB (Transversus Abdominis Plane Block) and PCIA (Patient-controlled intravenous analgesia) in analgesia after cesarean section.	Randomized-Controlled Trial		No significant differences were found in the VAS scores between the groups ( $P>.05$ ). However, the incidence of Post-operative complications in the TAPB grup was significantly lower than that in the PCIA group ( $P<.05$ ). Furthermore, patient satisfaction in the TAPB grup was significantly higher than that in the PCIA grup ( $P<.05$ ).

8	Dereu, Savoldelli, Mercier, Combescure, Mathivon, and Rehberg, B. (2019)	D., G. L., Y., C., S., and B. (2019) The impact of a transversus abdominis plane block including clonidine vs. intrathecal morphine on nausea and vomiting after cesarean section	Test the hypothesis that a TAP block including clonidine reduces the incidence of PONV (Post-operative nausea and vomiting) after cesarean section when compared with ITM (Intrathecal morphine).	Randomised, Controlled, Double-Blinded Study	A TAP block with clonidine and local anaesthetic does not reduce significantly the incidence of PONV compared with ITM. We confirm the superiority of ITM on acute postcesarean section analgesia compared with a TAP block, even with clonidine as an adjunct.
9	Abdallah, F. W., Laffey, J. G., Halpern, S. H., dan Brul, R. (2013)	Duration of analgesic effectiveness after the posterior and lateral transversus abdominis plane block techniques for transverse lower abdominal incisions: a meta-analysis	Examines the duration of analgesia associated with posterior and lateral TAP blocks in the first 48 h after lower abdominal transverse incision surgery.	Meta-Analysis	Twelve RCTs including 641 patients were analyzed. Four trials examined the posterior technique and eight assessed the lateral technique. Compared with the control, the posterior TAP block reduced Post-operative morphine consumption during the 12–24 h and 24–48 h intervals by 9.1 mg (95% CI: 216.83, 21.45; P=0.02) and 5 mg (95% CI: 29.54, 20.52; P=0.03), respectively. It also reduced rest pain scores at 24, 36, and 48 h, and also dynamic pain scores at 12, 24, 36, and 48 h. Differences were not significant with the lateral TAP block
10	Kanta, B., Sonali, D., Gazala, P., Yunus, K., Kiran, K. (2021)	A randomized comparative study of transversus abdominis plane block with or without intravenous diclofenac sodium as a component of multimodal regimen for post-operative analgesia following	Evaluate the analgesic efficacy of the transversus abdominis plane (TAP) block combined with intraoperative diclofenac aqueous for post-operative analgesia in cesarean	Prospective Randomised Double-Blind Study	The difference in a visual analog score (VAS) at movement was significant at 4 and 6 h in Group A versus Group B (3.00 ± 0.64 versus 2.37 ± 0.89, 4.43 ± 0.68 versus 3.53 ± 1.2). At rest, the VAS score was lower in Group B

	cesarean section	section		
				than in Group A at all time intervals ( $P < 0.05$ ). The time to demand the first dose of rescue analgesic was prolonged in Group B ( $11.5 \pm 4.1$ h) than in Group A ( $7.55 \pm 1.41$ h). The mean dose of analgesic consumption in the first 24 h was lesser in Group B ( $61.67 \pm 34.57$ mg) than in Group A ( $98.33 \pm 37.68$ mg). Patient satisfaction score was higher in Group B ( $8 \pm 1.04$ ) than in Group A ( $6.23 \pm 1.04$ ).
<b>11</b>	Fusco, P., Scimia, P., Paladini, G., Fiorenzi, M., Petrucci, E., Pozzone, T., Vacca, F., Behr, A., Micaglio, M., Danelli, G., Cofini, V., Necozone, S., Carta, G., Petrini, F., Marinangeli, F. (2015)	Transversus abdominis plane block for analgesia after Cesarean delivery. A systematic review	Assessed the efficacy of ultrasound (US)-guided TAP block following cesarean delivery and reported on Post-operative opioid consumption and pain score, opioid-related side effects and patient satisfaction.	Systematic Review  Pain following cesarean section is multifactorial in origin, with a somatic component arising from the abdominal wound and a visceral component resulting from visceral and uterine manipulation. Since ITM affects both somatic and visceral afferents, Post-operative analgesia was improved with ITM as compared with TAP block alone; this was at the expense of an increased incidence of opioid-related side effects, however. <sup>39</sup> The role of the TAP block added to ITM is less clear
<b>12</b>	Teigen, N. C., Sahasrabudhe, N., Doulaveris, G., Xie, X., Negassa, A., Bernstein, J., Bernstein, P. (2020)	Enhanced recovery after surgery at cesarean delivery to reduce Post-operative length of stay: a randomized controlled trial	Determine whether an enhanced recovery pathway at the time of cesarean birth would permit a reduction in Post-operative length of stay and	Randomized-Controlled Trial  Enhanced recovery after surgery was not associated with a significantly increased rate of Post-operative day 2 discharges when compared with standard care (8.6%

			improve Post-operative patient satisfaction compared to standard perioperative care.			vs 3.3%, respectively; odds ratio, 2.74; 95% confidence interval, 0.51-14.70), but it was associated with a significantly reduced Post-operative length of stay when compared with standard care, with a median length of stay of 73.5 hours (interquartile range, 71.08-76.62) vs 75.5 hours (interquartile range, 72.86-76.84) from surgery, the difference in median length of stay (e1.92; 95% confidence interval, -3.80 to -0.29). Enhanced recovery after surgery was not associated with a reduction in Post-operative narcotic use (117.16 54.17 vs 119.38 47.98 morphine milligram equivalents; mean difference, -2.22; 95% confidence interval, -20.86 to 16.42).
13	Laronche, Popescu, Benhamou, (2017)	A., L., D.	An enhanced recovery program after cesarean delivery increases maternal satisfaction and improves maternal-neonatal bonding: A case-control study	Investigate the impact of an ERP after cesarean delivery on maternal feelings and satisfaction towards mother-child bonding initiation, in comparison with traditional Post-operative care.	Case-Control Study	Patients (n = 86) received post-operative care in agreement with what was expected in the group in which they were included. Patients in the ERP group had more positive feelings toward the relationship with their newborn on D1 and D3, had a greater maternal satisfaction level on D1, and were more comfortable in caring for their newborn, especially for cradling and

					breastfeeding the child
14	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	test whether the implementation of an enhanced recovery after surgery (ERAS) protocol for patients undergoing elective cesarean delivery has a positive impact on the Post-operative status of the patients in terms of pain management, hospital stay, hospitalization costs, and adverse reactions	Prospective Randomized Controlled Trial	Patient satisfaction rated as per the VAS was significantly higher in the ERAS group than in the control group. The total length of stay, Post-operative length of stay, and the cost of anesthesia in both groups were comparable. Further, the average daily hospitalization cost was significantly lower in the ERAS group than in the control group.
15	Staker, J. J., Liu, D., Church, R., Carlson, D. J., Panahkhani, M., Lim, A., and LeCong, T. (2018)	A triple-blind, placebo-controlled randomized trial of the ilioinguinal-transversus abdominis plane (I-TAP) nerve block for elective cesarean section	Investigated the efficacy of a new ilioinguinal-transversus abdominis plane block when used as a component of multimodal analgesia.	Triple-blind, placebo-controlled randomized trial	The primary outcome was the difference in fentanyl patient-controlled analgesia dose at 24 h. Secondary outcomes included Post-operative pain scores, adverse effects, and maternal satisfaction. The cumulative mean (95%CI) fentanyl dose at 24 h was 71.9 (55.6–92.7) $\mu$ g in the ilioinguinal-transversus abdominis group compared with 179.1 (138.5–231.4) $\mu$ g in the control group ( $p < 0.001$ ). Visual analog scale pain scores averaged across time points were 1.9(1.5–2.3) mm vs. 5.0 (4.3–5.9) mm ( $p = 0.006$ ) at rest, and 4.7 (4.1–5.5) mm vs. 11.3 (9.9–13.0) mm ( $p = 0.001$ ) movement, respectively. Post-hoc analysis



					showed that the ilioinguinal-transversus abdominis group was less likely to use $\geq 1000\mu\text{g}$ fentanyl compared with the control group (2% vs. 16%; $p=0.016$ ).
16	O'Carroll, J., Carvalho, B., and Sultan, P. (2022)	Enhancing recovery after cesarean delivery: A narrative review	Provide a contemporary summary of the ERAC literature to facilitate evidence-based practice for clinicians caring for women undergoing this procedure.	Narrative Review	ERAC protocol implementation significantly reduces the length of hospital stay, postpartum opioid consumption, pain scores, times to mobilization and urinary catheter removal, and hospitalizations costs, without significantly increasing maternal readmission rates.
17	Sultan, P., Sharawi, L., Blake, L., Carvalho, B. (2020)	Enhanced recovery after cesarean delivery versus standard care studies: a systematic review of interventions and outcomes	Determine whether enhanced recovery after cesarean delivery (ERAC) protocols should be adopted.	systematic review	Most studies showed a reduction in hospital stay (6/7 studies) and reduced costs (2/2 studies) with ERAC compared with standard care. Satisfaction was inconsistently reported. Re-admission rates were similar between groups. Two studies showed a reduction and two showed no difference in opioid consumption with ERAC. One study showed improvement and another showed no change in outpatient breastfeeding rates with ERAC. One study showed better inpatient maternal-neonatal bonding. The GRADE level of evidence was low or very low for all outcomes.

18	Ciechanowicz, S., Ke, J. X. C., Sharawi, N., Sultan, P. (2023)	Measuring enhanced recovery in obstetrics: a narrative review	Provides a summary of current measures of enhanced recovery after cesarean delivery success, and optimal measures of inpatient and outpatient postpartum recovery	Narrative Review	There remains a wide variation in protocols, with disparate outcome measures used in published ERAC studies. The most common measure reported is LOS, a useful process metric, but one that is significantly influenced by nonclinical factors. Controlling for these factors or instead measuring time to maternal "readiness for discharge" could provide a truer reflection of early postpartum recovery. Other common outcomes used include time to mobilization, urinary catheter removal, and opioid consumption. Reported outcomes related to infant health and maternal experience and satisfaction with care are limited. PROMs are established as gold-standard measures in perioperative care research, and can be particularly suited for measuring longer-term health outcomes.
19	Adeel,S., Narayan, P., Chandrashekaraiyah, M. M., Abuhassan, K. A., Elsemeeen, R. M., Skowronski, S. (2017)	Ultrasound-Guided Transversus Abdominis Plane Block: An Evaluation of its Efficacy in Reducing Post-operative Opioid Requirements in Cesarean Section	Compare the efficacy of high versus low volume of bupivacaine TAP block in providing Post-operative analgesia for cesarean sections.	Randomized-Controlled Trial	TAP block as a part of multi-modal analgesia is debatable in the context of reducing the need for post-operative opioids. The present study was unequivocal in that two different volumes of the

					same dose of local anesthetic failed to demonstrate any clinical or statistical significance in decreasing post-operative opioid consumption following cesarean section.
20	Kupiec, A., Zwierzchowski, J., Kowal-Janicka, J., Goździk, W., Fuchs, T., Pomorski, M., Zimmer, M., Kübler, A. (2018)	The analgesic efficiency of the transversus abdominis plane (TAP) block after cesarean delivery	Evaluate the analgesic effects of the TAP block in patients undergoing cesarean section.	Randomized-Controlled Trial	The TAP block resulted in a significant reduction of pain intensity using the visual analog scale after 3, 6 and 12 hours ( $p < 0.05$ ) and a significant decrease in tramadol administration ( $p < 0.05$ ) during the first 12 hours of Post-operatively. No significant differences in the heart rate and blood pressure were noted between groups ( $p > 0.05$ ). There were no complications related to the TAP block.
21	Sjarifudhin, Mochammad Maria Rosa, Elsy (2018)	Effectiveness of Patient Centered Care to Reduce Anxiety Level and Improve Satisfaction in Patients Undergoing Cataract Surgery	Compare and evaluate the Effectiveness of Patient Centered Care in Reduce Anxiety Level and Improve Satisfaction on Patient Post Cesarean Section in PKU Muhammadiyah Bantul Hospital.	Experimental Quasi	From the measurement results of different test levels of anxiety from the control group (mean = 62.8571) and PCC (mean = 45.4667) showed the results of sig. 2-tailed = 0.001, and the test of the level of satisfaction between the control groups (mean = 76.3143) and PCC (mean = 84.9677) was obtained by sig. 2-tailed = 0.003. Different tests are said to be meaningful if $p$ value $< 0.05$
22	Aini, Q. (2020)	Model of patient safety behavior	Analyze patient safety behavior	Qualitative Study	The patient safety behavior model had

influenced by culture and attitudes of safety patients: Case study of PKU Muhammadiyah Hospital in Bantul	models as well as the influence of patient safety culture and patient safety attitudes.	a good level of goodness of fit. The culture of patient safety had a positive influence on patient safety behavior. Patient safety attitudes also had a positive influence on patient safety behavior. These results confirm that enhancing patient safety culture, and the attitude of patient safety from nurses and doctors in providing health services in hospitals could improve patient safety behavior
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Source: Authors' Findings

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