International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

# The Effect of Enhanced Recovery After Cesarean Surgery (ERACS) on Patient Satisfaction and Revisit Intention: The Mediating Role of Postoperative Pain

**Windy Ari Wijaya[1], H. A. Rohendi[2], Mira Veranita[3]**

[1,2,3]Master of Management Program, Universitas Adhirajasa Reswara Sanjaya, Bandung.

Corresponding author: wijaya.windyari@gmail.com

**Abstract**

*Cesarean section (CS) is often associated with postoperative pain that may reduce patient satisfaction. Enhanced Recovery After Cesarean Surgery (ERACS) is a multimodal perioperative protocol designed to accelerate recovery. This study evaluated the effect of ERACS on postoperative pain, patient satisfaction, revisit intention, and the mediating role of postoperative pain. A quasi-experimental posttest-only control group study included 80 women undergoing Cesarean section (CS) at Simpang Lima Gumul Regional Hospital Kediri (40 ERACS and 40 non-ERACS). Data were analyzed using a Linear Mixed Model, Mann–Whitney U test, Spearman's rank correlation, and Hayes' PROCESS Macro Model 4. ERACS significantly reduced pain at rest and movement ($p < 0.001$), improved patient satisfaction ($p = 0.008$), but had no significant effect on revisit intention ($p = 0.591$). Postoperative pain did not mediate the relationship between ERACS and patient satisfaction or revisit intention (95% CI included zero). Pain at rest and movement were negatively correlated with patient satisfaction ($r = –0.310$, $p = 0.005$; $r = –0.297$, $p = 0.007$), patient satisfaction was positively correlated with revisit intention ($r = 0.613$, $p < 0.001$). Neither pain at rest and movement measure were associated with revisit intention ($r = −0.049$, $p = 0.667$; and $r = 0.002$, $p = 0.987$). ERACS effectively reduced postoperative pain and improved patient satisfaction. However, revisit intention was influenced more by patient satisfaction and service quality than by postoperative pain.*

**Keywords: ERACS, postoperative pain, cesarean section, patient satisfaction, revisit intention**



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

## INTRODUCTION

Patient satisfaction and the intention to revisit have become crucial performance indicators in modern healthcare management. In competitive, insurance-based healthcare systems, patient loyalty reflected in the intention to return to the same facility is no longer driven solely by clinical outcomes; instead, it is increasingly influenced by the patient's overall experience during their hospital care (Dayan et al., 2021; Guspianto et al., 2022). Hospitals must be capable of delivering a satisfying care experience that bridges the gap between clinical quality such as optimal pain management, competent medical personnel, and accurate diagnosis and managerial aspects like patient comfort, positive staff-patient relationships, and affordable costs; failure to do so risks losing patients to competing facilities. This challenge is particularly relevant in hospital services, where the patient's experience during and after treatment, when compared against their pre-admission expectations, shapes their long-term perception of the quality of care.

Cesarean section (CS), commonly referred to as a cesarean delivery, is a surgical procedure performed by qualified medical professionals to facilitate childbirth by making an incision in the mother's abdomen. Cesarean delivery is recommended in situations where vaginal delivery is not feasible or may pose risks to the mother, the fetus, or both (Rahman et al., 2022; WHO, 2021). These situations include prolonged or obstructed labor, fetal distress, elevated blood pressure or blood glucose levels, multiple pregnancy, and abnormal fetal presentation or position (Keag et al., 2018). Cesarean delivery can significantly reduce maternal and neonatal morbidity and mortality when performed based on appropriate medical indications. Conversely, it may pose risks to both the mother and the child when performed without appropriate indications. Although cesarean delivery is associated with both immediate and long-term risks of complications, for some women, it may be the safest, or even the only, option for delivering a healthy newborn (Angolile et al., 2023).

The global rate of cesarean delivery has increased substantially, from approximately 7% in 1990 to 21% in 2021, exceeding the rate previously recommended by the World Health Organization (WHO), which was approximately 10%–15% (WHO, 2021). According to the WHO, the use of cesarean delivery continues to increase worldwide and currently accounts for more than one in five (21%) births. This proportion is projected to continue increasing over the coming decade, with nearly one-third (29%) of all births expected to be delivered by cesarean section by 2030 (WHO, 2021).

In Indonesia, the rate of cesarean delivery has also increased over time. This trend can be observed from data reported by the Indonesian Basic Health Research (RISKESDAS), which is conducted every five years. The rate increased from 12.3% in 2013 to 17.6% in 2018. This figure exceeds the range recommended by the WHO, which indicates that the average proportion of cesarean deliveries in a country should generally


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

be approximately 5%–15% of total births (Kementerian Kesehatan RI, 2018). In East Java Province, the proportion of women aged 10–54 years who underwent cesarean delivery in 2018 was 22.36% of all deliveries (Kementerian Kesehatan RI, 2018).

One of the major challenges following cesarean section (CS) is uncontrolled acute postoperative pain. Data from the World Health Organization (WHO) indicate that more than 80% of patients undergoing recovery after CS experience pain, with approximately 75% reporting moderate to severe pain (Park et al., 2023). Poorly managed postoperative pain is directly associated with delayed early mobilization, difficulties with breastfeeding, increased opioid consumption, a higher risk of postpartum depression, and the development of chronic postsurgical pain, with a prevalence of up to 16.7% at three to six months after surgery (Lin et al., 2022). This condition affects not only clinical outcomes but also patients' overall care experience and satisfaction.

Enhanced Recovery After Cesarean Surgery (ERACS) is a multidisciplinary perioperative care protocol designed to optimize maternal recovery following cesarean section (CS) through a multimodal approach that includes multimodal analgesia, early mobilization, oral nutritional management, and opioid-sparing strategies (Ituk & Habib, 2018; Patel & Zakowski, 2021). The implementation of ERACS in Indonesia has received regulatory support through guidelines issued by the Ministry of Health of the Republic of Indonesia (2022), which integrate the optimization of antepartum, intrapartum, and postpartum care within a standardized framework. Various studies have reported the benefits of ERACS, including shorter hospital stays, reduced postoperative pain scores, decreased opioid consumption, and improved breastfeeding success (Ciechanowicz et al., 2023; Sultan et al., 2026).

ERACS was developed with the aim of preserving normal physiological function throughout the perioperative period, thereby optimizing patient outcomes without increasing the risk of postoperative complications or hospital readmission. Accordingly, ERACS offers several benefits, including shorter hospital stays, reduced postoperative pain and analgesic requirements, faster recovery of bowel function, lower rates of postoperative complications and readmission, and greater patient satisfaction (Committee on Gynecologic Practice, 2018).

Several studies have evaluated the benefits of ERACS in women undergoing cesarean delivery in hospital settings. A study involving 142 women who underwent cesarean section under the ERACS protocol reported that the ERACS program resulted in faster recovery and earlier discharge, which may ultimately improve patients' quality of life and satisfaction, including among women undergoing emergency cesarean delivery (Mundhra et al., 2024). Another study involving 125 women undergoing cesarean delivery found that implementation of the ERACS protocol reduced hospital length of stay and postoperative pain without increasing the incidence of postoperative complications


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

among patients undergoing elective cesarean delivery (Sordia-Pineyro et al., 2023). Similarly, a study involving 140 women undergoing cesarean section demonstrated that ERACS was effective in reducing pain intensity and was associated with a high level of patient satisfaction based on the patient satisfaction index (Utami & Rosa, 2023). The benefits of ERACS implementation have been recognized across the spectrum of gynecologic surgery (Committee on Gynecologic Practice, 2018). Furthermore, a meta-analysis demonstrated that the available evidence indicates that the implementation of ERACS in cesarean delivery significantly reduces postoperative complications, postoperative pain scores, and opioid consumption; shortens hospital length of stay; and may potentially reduce hospital costs without increasing the risk of readmission (Meng et al., 2021).

Nevertheless, several research gaps remain insufficiently addressed. First, no previous studies have explicitly examined the mediating role of postoperative pain in the relationship between ERACS and patient satisfaction or revisit intention, despite the assumption that the effect of ERACS on patients' pain levels may be an important factor influencing both patient satisfaction and revisit intention. Second, most ERACS studies have focused primarily on clinical outcomes, such as length of hospital stay, opioid consumption, and postoperative complications, whereas patient experience outcomes, including patient satisfaction and revisit intention, have received relatively limited attention and have rarely been assessed systematically (Lestari et al., 2025; Sultan et al., 2026). Research linking clinical outcomes with managerial aspects remains very limited. Third, findings regarding the effect of ERACS on patient satisfaction remain inconsistent, with some studies reporting a significant improvement in patient satisfaction. (Millizia et al., 2023; Rajendran et al., 2025), while other studies have reported improvements that were not consistently statistically significant (Walker et al., 2025). These inconsistencies may be attributed to differences in patient satisfaction measurement instruments, variations in the components of the ERACS protocols implemented, and differences in institutional contexts between developed and developing countries.

Studies on ERACS in Indonesia remain limited, with most having been conducted in private hospitals or large teaching hospitals in urban areas. Research involving Type C regional public hospitals in non-urban areas that predominantly serve patients covered by the National Health Insurance program remains scarce in the literature. Differences in institutional contexts, including available resources, referral systems, and patient profiles, may influence the implementation of ERACS and its effects on patient satisfaction and loyalty differently from those reported in developed countries. A phenomenological study conducted in Indonesia found that patients experienced a greater sense of empowerment


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

and trust through the ERACS protocol; however, the study did not quantitatively assess patient satisfaction and revisit intention (Kurniawan & Pratiwi, 2025).

Based on the aforementioned research gaps, this study offers several novel contributions. First, this study examines the mediating role of postoperative pain in the relationship between the ERACS protocol and patient satisfaction and revisit intention, a relationship that has rarely been investigated in previous studies. This approach aims to determine whether the effect of ERACS on patient satisfaction and revisit intention is mediated by postoperative pain among patients undergoing cesarean section. Second, this study is conducted in a Type C regional public hospital serving patients from Kediri and surrounding areas and provides an integrated assessment of the effectiveness of ERACS, not only in terms of clinical outcomes, particularly postoperative pain, but also in terms of managerial and patient-centered outcomes, including patient satisfaction and revisit intention. Therefore, the findings of this study are expected to address the existing gap in scientific evidence regarding the mechanisms through which ERACS influences patient satisfaction and loyalty within the Indonesian healthcare system, while also providing an evidence-based foundation for the development of cesarean delivery service policies in Type C regional public hospitals.

Based on the above considerations, this study aims to analyze the effectiveness of ERACS compared with non-ERACS in reducing postoperative pain, improving patient satisfaction, and increasing revisit intention, as well as to examine the mediating role of postoperative pain in these relationships among patients undergoing cesarean section at Simpang Lima Gumul Regional General Hospital, Kediri.

## LITERATURE REVIEW

### Cesarean Section (CS)

Cesarean section (CS) is a surgical procedure performed by qualified medical professionals to facilitate childbirth when vaginal delivery is not possible or may pose risks due to maternal health conditions or fetal complications. The procedure involves making an incision through the abdominal wall and uterine wall to deliver the fetus from the uterus (Dumilah Ayungtyas, Ratih Oktarina, Misnaniati, 2018).

### Enhanced Recovery After Cesarean Surgery (ERACS)

Enhanced Recovery After Cesarean Section, also known as a fast-track surgery or enhanced recovery protocol, represents a paradigm shift in perioperative care that emphasizes a multidisciplinary approach and effective collaboration among patients, surgeons, anesthesiologists, and other relevant healthcare professionals. The primary goal of ERACS is to optimize perioperative care, enabling patients undergoing cesarean section (CS) to achieve faster recovery and earlier hospital discharge. This approach is


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

guided by evidence-based protocols aimed at enhancing functional recovery after cesarean section, promoting maternal–infant bonding, and improving the overall patient experience (Patel & Zakowski, 2021).

**Pain**

Pain is a multidimensional and unpleasant sensory experience experienced by an individual in response to actual or potential tissue damage. The International Association for the Study of Pain (IASP) defines pain as an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage. Pain is a complex health problem and is one of the primary reasons why individuals seek medical care (Rizaldy Taslim Pinzon, 2016).

**Patient Satisfaction**

Patient satisfaction refers to the extent to which patients are satisfied with the healthcare services and care they receive from healthcare providers. Patient satisfaction is one of the most important factors in determining the success of healthcare facilities (Manzoor et al., 2019). It is also a widely recognized standard for evaluating the effectiveness of healthcare services provided by hospitals and serves as an important benchmark for assessing healthcare delivery. Currently, patients' perspectives are considered a key factor in treatment decisions and healthcare delivery. Therefore, evaluating healthcare services from the patients' perspective has received increasing attention and has become a core attribute of healthcare systems, as it serves as a valuable indicator of the success of service delivery, particularly in public-sector hospitals (Ganasegeran et al., 2015). Service quality and patient satisfaction have a significant influence on patient loyalty (Anisah et al., 2023). Patient satisfaction is influenced by service quality by 39.5%, while the remaining proportion is influenced by other factors (Susilowati & Veranita, 2020). Service culture is also important for service-oriented organizations, as its implementation can contribute to improvements in efficiency, work quality, employee satisfaction, and performance (Andriani et al., 2019). Service quality and patient satisfaction contribute to organizational performance through complex mechanisms involving loyalty, trust, and long-term commitment. Internal organizational factors, such as adaptive leadership, employee engagement, and organizational support, have been shown to mediate these relationships (Maulana et al., 2026)

***Revisit Intention***

In the literature on consumer behavior and healthcare service marketing, revisit intention is defined as an individual's psychological tendency to use the same healthcare service again when needed in the future. Studies have shown that although service


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

quality is a fundamental factor, other variables, such as patient satisfaction, perceived value, trust, and service experience, also play important roles in influencing this decision (Syah & Suyitno, 2025).

**Expectation Confirmation Theory**

Expectation Confirmation Theory (ECT), also known as Expectation Confirmation Theory, is a cognitive theory developed by Richard L. Oliver through two seminal articles published in 1977 and 1980. The theory specifically seeks to explain post-purchase or post-service satisfaction as a function of initial expectations, perceived performance, and the confirmation or disconfirmation of initial beliefs (Oliver, 1980). In its original formulation, Oliver proposed that consumers form expectations before consuming a product or using a service and subsequently compare these expectations with the actual performance perceived after their direct experience. The discrepancy between expectations and actual performance is referred to as disconfirmation. When actual performance exceeds expectations, positive disconfirmation occurs, resulting in satisfaction. Conversely, when actual performance falls below expectations, negative disconfirmation occurs, resulting in dissatisfaction (AlSokkar et al., 2024; Oliver, 1980). Service quality, trust, price fairness, and the physical environment have also been found to significantly influence patient satisfaction and loyalty (Wijaya et al., 2024).

## METHODS

**Research Design and Setting**

This study employed a quasi-experimental posttest-only group design to compare outcomes between two naturally occurring groups of cesarean section (CS) patients receiving different perioperative protocols at RSUD Simpang Lima Gumul Kediri, a type-B regional public hospital in East Java, Indonesia. Data were collected from January 1 to February 28, 2026. This study received ethical approval from ARS University Ethics Committee (No. 002/EC/MM-ARS/I/2026).

**Participants**

A total of 80 CS patients were recruited using purposive sampling and allocated equally into two groups: the ERACS group (n = 40) and the Non-ERACS group (n = 40). Group allocation was determined by the perioperative protocol assigned by the attending anesthesiologist, not by random assignment. Inclusion criteria were: (1) underwent CS at RSUD Simpang Lima Gumul Kediri; (2) no neurological disorders or anatomical abnormalities of the lower extremities; (3) able to read and write; and (4) willing to participate and cooperate throughout the study. Exclusion criteria were: (1) vaginal delivery; (2) sensory impairments that would hinder questionnaire completion (e.g., visual


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

or hearing impairment); (3) psychiatric disorders; and (4) spinal anesthesia subsequently converted to general anesthesia.

**Interventions**

Differences in Interventions Between Patients Undergoing ERACS and Non-ERACS:

**Table 1. Comparison of ERACS and Non-ERACS Protocol Components at RSUD Simpang Lima Gumul Kediri**

| Phase | Component | ERACS | Non-ERACS |
|---|---|---|---|
| Pre-operative | Fasting duration | 6 hours (solid food); 2 hours (high-calorie fluids) | 6 hours (all food and fluids) |
| | Carbohydrate loading | Yes — Carbo loading (non-particulate fluid) | Not given |
| | Pre-operative paracetamol | Yes — Paracetamol 1 g, 1 hour pre-op | Not given |
| | Dexamethasone | Yes — Dexamethasone 8 mg, 1 hour pre-op | Not given |
| | Metoclopramide | Yes — Metoclopramide 10 mg, 1 hour pre-op | Yes — Metoclopramide 10 mg, 1 hour pre-op |
| | Pre-operative IV fluid | Colloid 500 cc | Electrolyte 500 cc |
| | Hemoglobin optimization | Yes | Yes |
| | Patient education (surgery, pain, nutrition, mobilization) | Yes | Yes |
| | Breastfeeding education | Yes | Yes |
| Intra-operative | Patient positioning | Lateral decubitus | Lateral decubitus |
| | Spinal anesthesia | Bupivacaine 0.5% 10 mg | Bupivacaine 0.5% 10 mg |
| | Intrathecal adjuvant | Yes — Fentanyl 25 mcg | Not given |
| | Spinal needle | 26G | 26G |
| | SAB level | L3–L4 | L3–L4 |


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

| Phase | Component | ERACS | Non-ERACS |
|---|---|---|---|
| | Euvolemia monitoring | Yes | Yes |
| | Antibiotic prophylaxis | Yes | Yes |
| | Hypothermia prevention | Yes | Yes |
| | Uterotonic administration | As per obstetrician | As per obstetrician |
| | Delayed cord clamping | Yes — 1 minute | Not mentioned |
| | Post-operative analgesics | Ketorolac 3×30 mg + Paracetamol 4×1 g + Ondansetron 2×4 mg | Ketorolac 3×30 mg + Ondansetron 2×4 mg |
| Post-operative | Oral intake initiation | Yes — Clear water + biscuit at 1 hour; regular diet at 2 hours post-op | NPO until flatus |
| | Urinary catheter removal | Yes — 6 hours post-op | 8 hours post-op |
| | Early mobilization education | Yes | Yes |
| | Breastfeeding support | Yes | Yes |
| | Maintenance fluid | Yes | Yes |
| | Timely medication administration | Yes | Yes |

**Measures**

Postoperative pain was assessed using the Numeric Rating Scale (NRS; 0–10) under both resting and movement conditions at six time points: 0 minutes, during the post-anesthesia care unit (PACU) phase (15–60 minutes), and at 2, 6, 24, and 48 hours postoperatively. Measurements taken from 0 to 2 hours postoperatively were conducted by the primary researcher, while subsequent measurements at 6–48 hours were conducted by trained ward nurses following standardized briefing to minimize inter-rater variability.

Patient satisfaction and revisit intention were each measured using researcher-modified questionnaires that had undergone validity and reliability testing prior to data collection. Construct validity was assessed by correlating each item score with the total


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

score using the Corrected Item-Total Correlation technique. The criterion for validity was a correlation coefficient greater than the r-table value of 0.361. The validity test results showed that all questionnaire items had correlation coefficients greater than the r-table value, ranging from 0.784 to 0.896. Reliability was assessed using Cronbach's alpha, with an instrument considered sufficiently reliable when the alpha coefficient exceeded 0.60. The Cronbach's alpha coefficients for the patient satisfaction and revisit intention questionnaires were 0.940 and 0.930, respectively. Both instruments were administered to patients at discharge on the final day of hospitalization.

**Statistical Analysis**

All analyses were performed using SPSS version 25 and PROCESS Macro version 4, with a significance level of $\alpha = 0.05$. Normality testing using the Kolmogorov–Smirnov and Shapiro–Wilk tests showed that all study variables, namely resting pain, movement-related pain, patient satisfaction, and revisit intention, had significance values of less than 0.05 in both groups (Non-ERACS and ERACS), indicating that the data were not normally distributed.

Four analytical approaches were employed: (1) a Linear Mixed Model (LMM) was used to examine the effects of group, time, and the group × time interaction on repeated pain measurements; (2) the Mann–Whitney U test was used to compare patient satisfaction and revisit intention scores between the groups; (3) Spearman's correlation analysis was used to examine the relationships between postoperative pain, patient satisfaction, and revisit intention; and (4) PROCESS Macro Model 4 (Hayes, 2022) with 5,000 bootstrap resamples was used to test the indirect effects of ERACS on patient satisfaction and revisit intention through postoperative pain as a mediator. Mediation was considered statistically significant when the 95% confidence interval (CI) for the indirect effect did not include zero.

## RESULTS

**Participant Characteristics**

A total of 80 patients undergoing cesarean section (CS) were enrolled in the study (Non-ERACS: n = 40; ERACS: n = 40). The two groups were demographically comparable. The majority of participants were housewives (Non-ERACS: 82.5%; ERACS: 90.0%), and senior high school level education was predominant (Non-ERACS: 80.0%; ERACS: 65.0%). All participants (100%) were covered by the National Health Insurance program (BPJS). The mean age was comparable between the groups (Non-ERACS: 28.05 ± 4.88 years; ERACS: 27.98 ± 5.30 years), as was the operative duration (45 minutes in both groups).


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Regarding obstetric history, most respondents had no previous history of cesarean section (75.0% in the Non-ERACS group and 70.0% in the ERACS group), indicating that the majority were undergoing their first cesarean delivery. The distribution was relatively comparable between the two groups: patients with no previous history of CS accounted for 75.0% and 70.0% in the Non-ERACS and ERACS groups, respectively; those with one previous CS accounted for 20.0% and 22.5%, respectively; and those with two previous CS procedures accounted for 5.0% and 7.5%, respectively. Fisher's exact test yielded a p-value of approximately 0.803, indicating no statistically significant difference in obstetric history between the groups. Overall, no substantial imbalance was observed that would systematically favor either group. All patients received spinal anesthesia. The key differentiating factor between the groups was the administration of intrathecal fentanyl (25 µg), which was used exclusively in the ERACS group. Instrument validity was confirmed, with all item correlation coefficients exceeding 0.361. Both the patient satisfaction and revisit intention scales demonstrated high internal consistency, with Cronbach's alpha coefficients of 0.940 and 0.930, respectively.

**Table 2. Characteristics of Respondents in the Non-ERACS and ERACS Groups**

| Characteristics | Category | Non-ERACS n (%) | ERACS n (%) |
|---|---|---|---|
| Occupation | Teacher | 1 (2.5) | – |
| | Housewife | 33 (82.5) | 36 (90.0) |
| | Private-sector employee | 4 (10.0) | 1 (2.5) |
| | Self-employed/Trader | 2 (5.0) | 3 (7.5) |
| Education | Elementary school | 1 (2.5) | 2 (5.0) |
| | Junior high school | 4 (10.0) | 9 (22.5) |
| | Senior high school | 32 (80.0) | 26 (65.0) |
| | Diploma/Bachelor's/Master's degree | 3 (7.5) | 3 (7.5) |
| Health Insurance | Insured | 40 (100) | 40 (100) |
| Previous Deliveries | None | 23 (57.5) | 18 (45.0) |
| | 1 time | 12 (30.0) | 12 (30.0) |
| | ≥2 times | 5 (12.5) | 10 (25.0) |
| Previous Cesarean Section | None | 30 (75.0) | 28 (70.0) |
| | 1 time | 8 (20.0) | 9 (22.5) |


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

| Characteristics | Category | Non-ERACS n (%) | ERACS n (%) |
|---|---|---|---|
| | 2 times | 2 (5.0) | 3 (7.5) |
| Anesthesia Technique | Spinal | 40 (100) | 40 (100) |
| Intrathecal Adjuvant | No | 40 (100) | – |
| | Yes (Fentanyl) | – | 40 (100) |
| Age (Mean ± SD) | | 28.05 ± 4.88 | 27.98 ± 5.30 |
| Operative Duration (Mean ± SD) | | 45.00 ± 0.00 | 45.00 ± 0.00 |

**H1: Effect of ERACS on Postoperative Pain**

Linear Mixed Model analysis revealed that group, time, and group × time interaction all significantly influenced pain scores under both resting ($F_{group} = 54.626$, $p < 0.001$) and movement conditions ($F_{group} = 40.466$, $p < 0.001$), confirming that ERACS had a significant negative effect on postoperative pain intensity compared to Non-ERACS. Pain peaked at 6 hours postoperatively in both groups. At this time point, the ERACS group showed lower resting pain (1.68 ± 0.57 vs. 2.23 ± 0.48) and movement pain (2.63 ± 0.59 vs. 2.95 ± 0.60). Notably, 100% of ERACS patients remained in the mild pain category at 6 hours, whereas 17.5% of Non-ERACS patients experienced moderate pain. The significant group × time interaction (resting: $F = 13.935$, $p < 0.001$; movement: $F = 8.741$, $p < 0.001$) confirmed that the pain trajectory declined more rapidly and stably in the ERACS group (Table 3).

**Table 3. Linear Mixed Model Results for Postoperative Pain**

| Source | Resting Pain F (p) | Movement Pain F (p) |
|---|---|---|
| Group | 54.626 (<0.001) | 40.466 (<0.001) |
| Time | 173.944 (<0.001) | 282.729 (<0.001) |
| Group × Time | 13.935 (<0.001) | 8.741 (<0.001) |

**H2 and H3: Effect of ERACS on Satisfaction and Revisit Intention**

Mann-Whitney U tests revealed a significant difference in patient satisfaction between groups ($p = 0.008$), with the ERACS group scoring higher (23.70 ± 1.80 vs. 22.45 ± 2.21). The proportion of "very satisfied" patients was greater in the ERACS group (82.5% vs. 65.0%), supporting H2. In contrast, no significant difference in revisit intention was found ($p = 0.591$), despite a higher mean score in the ERACS group (23.85 ± 1.72


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

vs. 23.53 ± 1.92), with both groups showing high revisit intention (ERACS: 87.5% vs. Non-ERACS: 77.5% "very willing"), leading to rejection of H3 (Table 4).

**Table 4. Satisfaction and Revisit Intention by Group**

| Variable | Non-ERACS Mean ± SD | ERACS Mean ± SD | p-value |
|---|---|---|---|
| Satisfaction | 22.45 ± 2.21 | 23.70 ± 1.80 | 0.008* |
| Revisit Intention | 23.53 ± 1.92 | 23.85 ± 1.72 | 0.591 |

*Significant at $p < 0.05$

**Spearman Correlation: Pain, Satisfaction, and Revisit Intention**

Spearman correlation analysis revealed that both resting pain ($r = -0.310$, $p = 0.005$) and movement pain ($r = -0.297$, $p = 0.007$) were significantly and negatively correlated with patient satisfaction indicating that higher pain levels were associated with lower satisfaction. However, neither resting pain ($r = -0.049$, $p = 0.667$) nor movement pain ($r = 0.002$, $p = 0.987$) showed a significant correlation with revisit intention. Notably, patient satisfaction was strongly and positively correlated with revisit intention ($r = 0.613$, $p < 0.001$), suggesting that satisfaction rather than pain is the primary driver of return intention (Table 5).

**Table 5. Spearman Correlation Matrix**

| Relationship | r | p-value |
|---|---|---|
| Resting pain → Satisfaction | −0.310 | 0.005* |
| Movement pain → Satisfaction | −0.297 | 0.007* |
| Resting pain → Revisit intention | −0.049 | 0.667 |
| Movement pain → Revisit intention | 0.002 | 0.987 |
| Satisfaction → Revisit intention | 0.613 | <0.001* |

*Significant at $p < 0.05$

**H4 and H5: Mediation Analysis (PROCESS Macro Model 4)**

Mediation analysis using Hayes' PROCESS Macro Model 4 with 5,000-resample bootstrapping tested whether postoperative pain mediated the relationships between ERACS and satisfaction (H4), and between ERACS and revisit intention (H5). Results are summarized in Table 6. ERACS significantly reduced both resting pain ($\beta = -0.286$, $p < 0.001$) and movement pain ($\beta = -0.285$, $p < 0.001$), confirming a significant path a. However, neither resting pain ($\beta = -1.222$, $p = 0.272$) nor movement pain ($\beta = -1.424$, $p = 0.158$) significantly predicted satisfaction (path b), and the direct effect of ERACS on satisfaction was also non-significant ($\beta = 0.844–0.900$, $p = 0.106–0.115$). The indirect effects through resting pain (0.350) and movement pain (0.406) both yielded 95%


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

confidence intervals that included zero, indicating non-significant mediation. H4 was therefore rejected.

Similarly, ERACS showed no significant direct effect on revisit intention (β = 0.398–0.446, p = 0.361–0.430), and neither pain variable significantly predicted revisit intention (resting: β = 0.254, p = 0.801; movement: β = 0.426, p = 0.642). Indirect effects through both pain pathways (resting: −0.073; movement: −0.121) also yielded CIs that included zero. H5 was therefore rejected.

**Table 6. Mediation Analysis Results (PROCESS Model 4)**

| Path | β | p-value | 95% CI |
|---|---|---|---|
| Outcome: Satisfaction | | | |
| ERACS → Resting pain (a) | −0.286 | <0.001 | — |
| ERACS → Movement pain (a) | −0.285 | <0.001 | — |
| Resting pain → Satisfaction (b) | −1.222 | 0.272 | — |
| Movement pain → Satisfaction (b) | −1.424 | 0.158 | — |
| Direct effect (c') | 0.844–0.900 | 0.106–0.115 | — |
| Indirect effect via resting pain | 0.350 | — | Includes 0 |
| Indirect effect via movement pain | 0.406 | — | Includes 0 |
| Outcome: Revisit Intention | | | |
| ERACS → Revisit intention (direct) | 0.398–0.446 | 0.361–0.430 | — |
| Resting pain → Revisit intention (b) | 0.254 | 0.801 | — |
| Movement pain → Revisit intention (b) | 0.426 | 0.642 | — |
| Indirect effect via resting pain | −0.073 | — | Includes 0 |
| Indirect effect via movement pain | −0.121 | — | Includes 0 |

## DISCUSSION

### Respondent Characteristics

This study involved 80 respondents who were equally divided into two groups: 40 patients in the Non-ERACS group and 40 patients in the ERACS group. All participants underwent cesarean section (CS) at Simpang Lima Gumul Regional General Hospital, Kediri. Demographically, the two groups showed relatively homogeneous characteristics, supporting the validity of between-group comparisons.

The majority of respondents in both groups were housewives, accounting for 82.5% of the Non-ERACS group and 90.0% of the ERACS group. This proportion reflects the sociodemographic characteristics of obstetric patients in the Kediri region, where a substantial proportion of women of reproductive age are engaged in household roles.


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Educational attainment was predominantly at the senior high school level, accounting for 80.0% and 65.0% of the Non-ERACS and ERACS groups, respectively. All respondents (100%) had health insurance coverage. This finding is relevant because health insurance coverage, particularly through the National Health Insurance (BPJS) program, is associated with access to and continuity of healthcare services, which may influence the delivery of hospital-based care.

Regarding obstetric history, most respondents had no previous history of cesarean section (75.0% in the Non-ERACS group and 70.0% in the ERACS group). The distribution was relatively comparable between the groups, with patients having no previous CS accounting for 75.0% and 70.0%, those with one previous CS accounting for 20.0% and 22.5%, and those with two previous CS procedures accounting for 5.0% and 7.5% in the Non-ERACS and ERACS groups, respectively. Fisher's exact test yielded a p-value of approximately 0.803, indicating no statistically significant difference in previous CS history between the groups. Therefore, no substantial imbalance was observed that would systematically favor either group. Respondents without a previous history of CS had the highest resting and movement-related pain scores compared with those who had undergone CS once or twice. This finding may be explained by mechanisms of peripheral and central sensitization, whereby previous pain experiences may influence the modulation of pain responses during subsequent surgical procedures. The mean age of respondents was nearly identical between the two groups (28.05 ± 4.88 years vs. 27.98 ± 5.30 years), as was the operative duration, which was consistently 45 minutes for all respondents. Therefore, these factors were unlikely to represent major sources of variation or confounding in the analysis.

All respondents received spinal anesthesia. The primary intervention that differentiated the two groups during spinal anesthesia was the administration of intrathecal fentanyl at a dose of 25 µg, which was administered exclusively to patients in the ERACS group, whereas patients in the Non-ERACS group did not receive any additional intrathecal adjuvant therapy. The use of intrathecal fentanyl as a component of the ERACS protocol is consistent with current evidence-based recommendations. Fentanyl acts on opioid receptors to produce an afferent nociceptive blockade, thereby prolonging the duration of spinal analgesia without substantially increasing the risk of respiratory depression when administered at low doses. This finding is supported by a study involving 90 patients undergoing elective cesarean section, which reported that the addition of fentanyl to spinal anesthesia significantly prolonged the duration of postoperative analgesia and improved patient comfort compared with the control group (Yazhini et al., 2024).


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

**Effectiveness of ERACS on Postoperative Pain After Cesarean Section**

The results of the Linear Mixed Model (LMM) analysis showed that group, time, and the group × time interaction significantly influenced pain scores both at rest ($F = 54.626$; $p < 0.001$) and during movement ($F = 40.466$; $p < 0.001$). These findings indicate that the ERACS protocol was more effective in reducing postoperative pain intensity following cesarean section (CS) than the Non-ERACS protocol. This difference may be explained by variations in perioperative management, particularly the analgesic regimens administered to each group. The Non-ERACS group received standard preoperative treatment consisting of metoclopramide 10 mg and 500 mL of crystalloid solution. During surgery, patients in this group did not receive an opioid adjuvant, while postoperatively they received standard treatment consisting of ketorolac 30 mg three times daily and ondansetron 4 mg twice daily. In contrast, the ERACS group received metoclopramide 10 mg, dexamethasone 8 mg, paracetamol 1 g, and 500 mL of colloid solution preoperatively; intrathecal fentanyl 25 µg as an adjuvant during surgery; and postoperative treatment consisting of ketorolac 30 mg three times daily, paracetamol 1 g four times daily, and ondansetron 4 mg twice daily.

The differences in analgesic regimens represent one pharmacological factor that may contribute to the differences in pain intensity observed between the two groups, in addition to other perioperative factors. The combination of multiple analgesic agents with different mechanisms of action in the ERACS group may provide more effective pain control than the standard analgesic regimen administered to the Non-ERACS group. Thus, the effectiveness of ERACS in reducing postoperative pain may not solely reflect differences in the overall care protocol but may also be influenced by the implementation of multimodal analgesia, which is a key component of the ERACS protocol.

During the first 0–60 minutes postoperatively, pain scores in both groups were relatively low and did not differ significantly ($p > 0.05$), which may be explained by the ongoing effects of spinal anesthesia during this period. Differences began to emerge during the subsequent ward-care phase, with pain reaching its peak at 6 hours postoperatively in both groups. The ERACS group consistently demonstrated lower pain scores than the Non-ERACS group at nearly all observation time points, particularly at 2 hours ($p < 0.001$), 6 hours ($p < 0.001$), and 24 hours ($p < 0.001$) postoperatively.

At rest, the highest mean pain score in the Non-ERACS group was 2.23 ± 0.48 at 6 hours postoperatively, compared with 1.68 ± 0.57 in the ERACS group at the same time point. A similar pattern was observed for movement-related pain, with the Non-ERACS group reaching a peak score of 2.95 ± 0.60 and the ERACS group reaching 2.63 ± 0.59 at 6 hours. Furthermore, the distribution of pain categories showed that at 6 hours postoperatively, 17.5% of respondents in the Non-ERACS group continued to experience moderate pain, whereas all respondents in the ERACS group (100%) reported mild pain.



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

This finding is clinically relevant because moderate to severe pain during the early postoperative period following CS may hinder early mobilization, which is a key component of postoperative recovery.

The significant group × time interaction ($F = 13.935$ for resting pain; $F = 8.741$ for movement-related pain; both $p < 0.001$) indicates that the pattern of pain reduction over time differed significantly between the two groups. This pattern helps explain why the most pronounced differences in pain were observed at 2, 6, and 24 hours postoperatively ($p < 0.001$), rather than during the early PACU phase (0–60 minutes). During the PACU phase, the effects of spinal anesthesia remained dominant in both groups, and therefore differences in analgesic regimens may not yet have been apparent. As the effects of spinal anesthesia diminished, however, the ERACS group benefited from a multimodal analgesic regimen, whereas the Non-ERACS group primarily relied on ketorolac for postoperative analgesia. This may explain why, at the 6-hour peak of postoperative pain, all respondents in the ERACS group (100%) remained within the mild pain category, whereas 17.5% of respondents in the Non-ERACS group continued to experience moderate pain. Clinically, this difference may be relevant because moderate pain during the early postoperative period following CS can interfere with independent sitting, comfortable breastfeeding, and early mobilization, potentially affecting the speed of recovery and the overall patient care experience.

These findings are consistent with studied 128 patients, comprising 56 patients in the pre-ERAS implementation group and 72 patients in the post-ERAS implementation group. Their findings demonstrated that the implementation of Enhanced Recovery After Surgery (ERAS) in patients undergoing cesarean delivery significantly reduced opioid consumption both during the first 48 hours after surgery and following discharge from the hospital (Grasch et al., 2023). Similarly, a study involving 100 patients undergoing elective cesarean delivery, with 50 patients in the ERAS group and 50 patients receiving routine care, demonstrated that the implementation of an adapted ERAS protocol significantly improved postoperative outcomes. The ERAS group experienced lower incidences of intraoperative shivering and hypotension and had lower pain scores at 24 hours postoperatively, both at rest and during movement, compared with the routine-care group. In addition, postoperative opioid requirements were significantly lower, with only 2 patients (4%) in the ERAS group requiring opioids compared with 25 patients (50%) in the routine-care group. These findings indicate that an adapted ERAS protocol can effectively optimize acute postoperative pain management following cesarean delivery, reduce opioid requirements, facilitate earlier mobilization, shorten hospital length of stay, and improve patient satisfaction (Rajendran et al., 2025). These findings are further supported by a systematic review and meta-analysis which included 19,001 women from 16 studies. The review confirmed that ERAS implementation in cesarean delivery


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

consistently reduced pain scores, opioid consumption, and hospital length of stay without increasing the rates of postoperative complications or hospital readmission (Pinho & Costa, 2024).

From a mechanistic perspective, the effectiveness of ERACS in controlling postoperative pain in this study may be partly attributed to the use of 25 µg of intrathecal fentanyl as an adjuvant to spinal anesthesia. Intrathecal fentanyl prolongs the duration of sensory blockade through activation of opioid receptors at the spinal level, thereby delaying the onset of postoperative pain and contributing to better pain control. This is supported by a study involving 1,076 patients undergoing cesarean delivery, of whom 520 received 10 µg of intrathecal fentanyl and 556 received 15 µg. The study demonstrated that a higher dose of intrathecal fentanyl was associated with a reduced need for rescue analgesia during surgery. Patients who received 15 µg of intrathecal fentanyl had approximately a 33% lower likelihood of requiring rescue analgesic intervention than those who received 10 µg (Vacula et al., 2024). These findings suggest that increasing the dose of intrathecal fentanyl may enhance the effectiveness of intraoperative analgesia during cesarean delivery and consequently reduce the need for additional analgesic interventions during the procedure.

**Effectiveness of ERACS on Patient Satisfaction**

The results showed that the mean patient satisfaction score in the ERACS group (23.70 ± 1.80) was higher than that in the Non-ERACS group (22.45 ± 2.21), and this difference was statistically significant based on the Mann–Whitney U test ($p = 0.008$). The proportion of patients classified as highly satisfied was also higher in the ERACS group (82.5%) than in the Non-ERACS group (65.0%).

Patient satisfaction is a psychological construct formed through the accumulation of patients' overall care experiences rather than through a single clinical dimension. It is a multidimensional concept influenced by various factors, particularly the quality of communication between healthcare professionals and patients, patient involvement in decision-making, and the degree to which the care received corresponds to patients' expectations (Wang et al., 2023). The higher level of patient satisfaction observed in the ERACS group may be explained through several mechanisms. First, preoperative education, as one of the key components of the ERACS protocol, plays an important role in preparing patients psychologically for surgery and the subsequent recovery process. Such education helps establish more realistic expectations, making it more likely that the care experience will meet or even exceed patients' expectations. From the perspective of Expectation Confirmation Theory, this condition is referred to as positive disconfirmation, which occurs when the actual experience is better than the initial expectations and consequently contributes to greater patient satisfaction (Oliver, 1980).


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Second, the implementation of early mobilization enables mothers following cesarean section (CS) to resume activities more quickly, including breastfeeding and performing self-care independently. The ability to promptly resume the maternal role and maintain greater independence during the recovery period may contribute substantially to patient satisfaction. Therefore, consistent implementation of the ERACS protocol has been associated with higher levels of maternal satisfaction and improved breastfeeding success compared with conventional care (Forkin et al., 2022).

From a pharmacological perspective, the addition of paracetamol 1 g preoperatively, intrathecal fentanyl 25 µg, and paracetamol 1 g four times daily postoperatively as components of the ERACS analgesic regimen not only contributes to postoperative pain control but may also indirectly improve patient satisfaction by providing greater physical comfort during the recovery period. This improved comfort may enable patients to perform activities more effectively, including early mobilization, breastfeeding, and independent self-care. The addition of paracetamol as part of a multimodal analgesic strategy has been shown to reduce postoperative pain intensity and shorten the length of stay in the recovery unit, thereby supporting a more positive recovery experience (Freo, 2022). Greater physical comfort from the early stages of recovery also enables patients to interact with their infants, communicate more effectively with healthcare professionals, and actively participate in their care. These experiences are important components that contribute to greater patient satisfaction. Patient satisfaction with perioperative care is determined not only by effective pain control but also by the quality of communication and the extent of patient involvement in the care process. Effective communication and active patient participation can enhance trust, improve patients' understanding of the care provided, and foster more positive perceptions of service quality, thereby contributing to greater patient satisfaction (Ataro et al., 2024). Healthcare professionals' communication skills are an important factor influencing patient satisfaction during the course of care. Effective communication not only improves patients' perceptions of service quality but is also associated with better clinical and managerial outcomes (Surani et al., 2023).

These findings are consistent with previous research involving 46 patients following cesarean delivery at Abby Maternal and Child Hospital, Lhokseumawe. The study demonstrated a very high level of patient satisfaction following the implementation of Enhanced Recovery After Cesarean Surgery (ERACS). A total of 45 patients (97.8%) reported being satisfied with ERACS-based anesthesia and pain management services. In addition, most patients experienced mild pain (87%) and were able to perform early mobilization and hold their infants for breastfeeding (95.7%) after surgery (Millizia et al., 2023). Similarly, a study involving 513 patients undergoing cesarean delivery, comprising 290 patients before the implementation of ERAC and 223 patients after its


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

implementation, demonstrated that Enhanced Recovery After Cesarean (ERAC) is feasible and provides substantial benefits, particularly for patients undergoing planned cesarean delivery. In this group, ERAC implementation significantly improved patient satisfaction at six weeks postpartum and was also associated with a tendency toward improved postoperative recovery quality (Walker et al., 2025).

Although the Mann–Whitney U test demonstrated a significant difference in patient satisfaction between the groups, these findings should be distinguished from the results of the regression analysis using Hayes' PROCESS Model 4, which examined the effect of ERACS on patient satisfaction while simultaneously accounting for postoperative pain as a mediator within a single model. The two analytical approaches address different research questions: the Mann–Whitney U test demonstrates that, overall, patients in the ERACS group reported higher satisfaction, whereas the mediation analysis examines whether this effect remains after accounting for the indirect pathway through postoperative pain. In the regression model, the direct effect of ERACS on patient satisfaction was no longer statistically significant, both when resting pain was included as the mediator ($\beta = 0.844$; $p = 0.115$) and when movement-related pain was included as the mediator ($\beta = 0.900$; $p = 0.106$). This reduction in statistical significance is common in mediation analysis because part of the variance in the relationship between group assignment and patient satisfaction may be explained by the mediator included in the model, resulting in a smaller and less precise estimate of the direct effect compared with the effect observed when the groups are analyzed separately.

These findings indicate that the relationship between ERACS and patient satisfaction is complex and may also be mediated by factors beyond pain alone, such as relational aspects of care, process efficiency (e.g., waiting time and length of stay), and patients' overall perceptions of service quality. A review emphasized that postoperative pain is one of the determinants of patient satisfaction but is not the sole factor, as patient satisfaction is influenced by a combination of pharmacological and non-pharmacological factors, including communication and the care environment (Alqaisi & Al-Ghabeesh, 2024).

**Effect of the ERACS Method on Revisit Intention**

The Mann–Whitney U test showed that the ERACS method did not have a statistically significant effect on patients' revisit intention compared with the Non-ERACS method ($p = 0.591$). Nevertheless, the mean revisit intention score was slightly higher in the ERACS group ($23.85 \pm 1.72$) than in the Non-ERACS group ($23.53 \pm 1.92$). In addition, the majority of respondents in both groups were categorized as having a very high intention to reuse the hospital's services, accounting for 87.5% in the ERACS group and 77.5% in the Non-ERACS group. These findings indicate that although there was a


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

tendency toward higher revisit intention scores among patients receiving ERACS, the observed difference was not sufficiently large to reach statistical significance**.**

The absence of a direct effect of the ERACS method on revisit intention can be explained through several perspectives. The first explanation relates to a possible **ceiling effect**. Most respondents in both groups already had a very high level of revisit intention, resulting in limited variability in the scores. This condition reduces the likelihood of detecting meaningful differences between groups. The high level of revisit intention observed in both groups may not have been influenced solely by the clinical experience during hospitalization but may also reflect characteristics of the healthcare delivery system, particularly the provision of cesarean section (CS) services in Indonesia.

All respondents in this study (100%) were covered by health insurance, with the majority enrolled in the National Health Insurance program administered by BPJS Kesehatan. Within the JKN system, patients' choice of healthcare facilities is not determined entirely by personal preference but is also influenced by the network of healthcare facilities affiliated with BPJS, particularly for patients undergoing elective surgery. In addition, both general patients and BPJS participants currently have access to online registration services. The availability of such systems may improve service efficiency and accessibility, thereby contributing to higher levels of patient satisfaction (Oktiarto et al., 2024). Therefore, patients' decisions to reuse the services of the same hospital may be influenced more strongly by these structural factors than by their experience during a single episode of care. Patient loyalty among BPJS participants has also been reported to be more strongly influenced by healthcare accessibility and the quality of interactions with healthcare professionals than by a single clinical aspect, such as postoperative pain control (Rosita et al., 2022). The affordability of healthcare costs for BPJS patients may also be an important factor contributing to patient satisfaction.

The second explanation relates to the absence of an association between postoperative pain and revisit intention. Correlation analysis showed that resting pain had a correlation coefficient of $r = -0.049$ ($p = 0.667$), whereas movement-related pain had a correlation coefficient of $r = 0.002$ ($p = 0.987$) with revisit intention. These findings indicate that pain intensity was almost unrelated to patients' decisions to reuse the hospital's services. This suggests that the experience of acute pain during the recovery period may not be a primary factor considered by patients when deciding whether to seek healthcare services again at the same facility. Instead, such decisions may be influenced more strongly by long-term perceptions of service quality, trust in the healthcare institution, and the overall care experience (Noviyani & Viwattanakulvanid, 2024).

The third explanation, and arguably the most important from a healthcare service management perspective, is that patient satisfaction plays a substantially greater role in shaping revisit intention than postoperative pain. The findings of this study demonstrated


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

a strong positive correlation between patient satisfaction and revisit intention ($r$ = 0.613; $p$ < 0.001), whereas postoperative pain showed no significant association with revisit intention. These findings suggest that an increase in revisit intention is more likely to occur through improvements in patient satisfaction rather than through reductions in pain intensity alone

These findings are consistent with previous studies indicating that patient satisfaction serves as a key mediator between service quality and patient loyalty. Service quality may influence revisit intention indirectly by enhancing patient satisfaction, both in primary healthcare settings and hospitals. Furthermore, the dimensions of reliability, assurance, and responsiveness have been shown to collectively influence patient satisfaction (Adafiah et al., 2023). Furthermore, positive care experiences, effective communication with healthcare professionals, and emotional interactions throughout the care process have been reported to contribute more substantially to patient loyalty than clinical attributes or institutional characteristics of healthcare facilities (Dayan et al., 2021; Guspianto et al., 2022).

Overall, the absence of a statistically significant direct effect of the ERACS method on revisit intention does not indicate that ERACS provides no benefit to patient loyalty. Rather, the findings suggest that the effect of ERACS on revisit intention may operate through a more complex mechanism, particularly through increased patient satisfaction, which was statistically associated with revisit intention as a consequence of a better overall care experience. Therefore, efforts to improve patient loyalty at Simpang Lima Gumul Regional General Hospital, Kediri, should not focus solely on optimizing the clinical ERACS protocol but should also be integrated with comprehensive improvements in service quality, including therapeutic communication, healthcare professionals' responsiveness, the comfort of the care environment, and administrative convenience. These aspects are important determinants of patient satisfaction and may ultimately contribute to increased revisit intention, particularly among BPJS participants in Indonesia (Kusumadewi et al., 2025; Syamsuriyati & Ramli, 2024).

**The Mediating Role of Postoperative Pain in the Relationship Between ERACS and Patient Satisfaction**

The mediation analysis using Hayes' PROCESS Macro Model 4 with a bootstrapping approach showed that postoperative pain did not significantly mediate the relationship between the ERACS method and patient satisfaction. The indirect effect through resting pain was 0.350, while the indirect effect through movement-related pain was 0.406; however, the confidence intervals for both pathways included zero. These findings indicate that the fourth hypothesis (H4) was not supported and was inconsistent with the initial hypothesis of the study.



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Nevertheless, the absence of a significant mediation effect does not indicate that the study failed. Rather, this finding provides deeper scientific insight into the mechanisms underlying the relationship between the ERACS method and patient satisfaction. The results encourage a more comprehensive examination of other factors that may play a greater role in enhancing patient satisfaction. Thus, the focus of interpretation should shift from why the hypothesis was not supported to identifying which factors beyond postoperative pain may contribute to increased patient satisfaction.

Three possible explanations may account for the non-significant mediating effect of postoperative pain. The first relates to statistical and methodological considerations, particularly range restriction in the pain variable. Throughout the observation period, all respondents in both groups remained within the mild pain category, resulting in a relatively narrow range of pain scores. Consequently, the mediator had limited variance. In mediation analysis, the statistical ability to detect an indirect effect depends substantially on the amount of variability in the mediator. The smaller the variation in mediator scores, the lower the likelihood of detecting a statistically significant mediation effect, even when a conceptual relationship between the variables may actually exist (Lachowicz et al., 2018)

This explanation is supported by the correlation analysis in the present study, which showed that postoperative pain remained significantly and negatively associated with patient satisfaction. The correlation between resting pain and patient satisfaction was $r = -0.310$, while the correlation between movement-related pain and patient satisfaction was $r = -0.297$; both associations were statistically significant ($p < 0.01$). These findings indicate that lower pain intensity was associated with higher levels of patient satisfaction. However, the strength of these associations was insufficient to produce a significant mediation effect in the multivariate model, possibly because of the limited variability in pain scores as the mediator.

The second explanation concerns a statistical aspect, namely the strong association between the treatment group variable and the pain variable, resulting in shared variance within the regression model. The ERACS method significantly reduced postoperative pain intensity; therefore, when the treatment group (ERACS and Non-ERACS) and pain variables were entered simultaneously into the mediation model, a substantial proportion of the variance explained by pain had already been accounted for by the treatment group variable. This condition makes the unique contribution of pain to patient satisfaction more difficult to identify statistically. This is reflected in the regression coefficients for resting pain ($\beta = -1.222$; $p = 0.272$) and movement-related pain ($\beta = -1.424$; $p = 0.158$), which were no longer statistically significant, despite both variables showing significant associations with patient satisfaction in the bivariate analysis. This phenomenon does not indicate a weakness in the study design but rather represents a


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

methodological consequence commonly encountered in mediation analysis when the predictor and mediator are strongly associated. In an experimental study such as the present one, the ERACS intervention is specifically designed to influence postoperative pain directly; consequently, some of the effect attributable to the mediator may already be accounted for by the treatment variable. As a result, the model's ability to detect the independent contribution of pain as a mediator is reduced, even though pain remains conceptually associated with patient satisfaction.

The third explanation, and arguably the most relevant from a healthcare service management perspective, is that patient satisfaction following cesarean section (CS) is a multidimensional outcome that is not determined solely by postoperative pain intensity. Previous research has shown that preoperative education and the appropriate selection of anesthetic techniques are important predictors of surgical patient satisfaction, with contributions comparable to the effectiveness of postoperative pain control (EL-Tallawy et al., 2025). Furthermore, among patients undergoing cesarean section, effective communication and emotional support provided by healthcare professionals throughout the care process have been shown to enhance patient satisfaction while reducing anxiety, regardless of the intensity of pain experienced by the patient (Sung et al., 2024).

In the context of this study, all respondents in both the ERACS and Non-ERACS groups experienced postoperative pain within the mild-to-moderate range, and none met the criteria for severe pain. Therefore, the differences in patient satisfaction observed between the groups may have been influenced more strongly by non-pain-related factors inherent to the ERACS protocol, such as more comprehensive preoperative education, early mobilization, opportunities to initiate breastfeeding earlier, and the quality of interactions between patients and healthcare professionals. The combination of these components may provide a more positive care experience, thereby enhancing patients' perceptions of the quality of care they receive (EL-Tallawy et al., 2025; Sung et al., 2024). This interpretation is further supported by research indicating that structured, patient-centered postoperative care programs following cesarean section (CS), supported by guidance and emotional support from healthcare professionals, can accelerate recovery, enhance patient independence, and ultimately contribute more substantially to patient satisfaction than pain control alone (Kuppan et al., 2025).

These findings can be comprehensively understood within the framework of Expectation Confirmation Theory When all patients experience only mild postoperative pain, their pre-existing expectations that pain following CS is a "normal" part of the recovery process may be met in both groups. Consequently, pain may not create a sufficiently large expectation–perception discrepancy to serve as a differentiating determinant of patient satisfaction. Instead, the positive disconfirmation may arise from aspects that patients did not necessarily anticipate, including preoperative and


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

postoperative communication, the ability to sit and ambulate earlier, earlier initiation of breastfeeding, reduced use of urinary catheters, and a greater sense of empowerment during the recovery process. These components of ERACS operate beyond the pain dimension and may therefore contribute more substantially to the overall care experience.

Conceptually, these findings can be understood within the framework of Expectation Disconfirmation Theory, which proposes that satisfaction is a function of the discrepancy between initial expectations and actual perceptions of service performance. Satisfaction is achieved when perceived service performance exceeds initial expectations, whereas satisfaction decreases when perceived performance falls below those expectations (A'aqoulah et al., 2022). When all patients in both groups experienced mild postoperative pain, and pain following CS was already perceived as a "normal" aspect of the obstetric experience, the differential effect of pain on patient satisfaction may have been relatively small because the expectation–perception gap was similarly limited in both groups. Adequate pain management represents a fundamental prerequisite for satisfactory postoperative care; however, achieving high levels of patient satisfaction requires more than effective pain control alone (Alqaisi & Al-Ghabeesh, 2024).

**The Mediating Role of Postoperative Pain in the Relationship Between ERACS and Revisit Intention**

Mediation analysis using Hayes' PROCESS Macro Model 4 with 5,000 bootstrap resamples showed that postoperative pain did not significantly mediate the relationship between the ERACS method and revisit intention, either through the resting pain pathway (indirect effect = −0.073; CI included zero) or the movement-related pain pathway (indirect effect = −0.121; CI included zero). Therefore, hypothesis H5 was not supported

The first explanation lies in the absence of a fundamental relationship between postoperative pain and revisit intention in the present study. Spearman's correlation analysis showed that neither resting pain ($r$ = −0.049; $p$ = 0.667) nor movement-related pain ($r$ = 0.002; $p$ = 0.987) was significantly correlated with revisit intention. These correlation coefficients, which were close to zero, indicate that the basic requirement for mediation, namely a significant *b* pathway representing the relationship between the mediator and the outcome, was not met from the outset. Within Hayes' mediation framework, when the *b* pathway is not statistically significant, the indirect effect is unlikely to be significant regardless of the magnitude of the other pathway. This finding contrasts with the relationship between postoperative pain and patient satisfaction, which was statistically significant in the bivariate analysis ($r$ = −0.310; $p$ = 0.005), indicating that postoperative pain is relevant to patient satisfaction but not to patients' decisions to revisit the hospital.


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

The second explanation relates to psychological and consumer behavior perspectives. Revisit intention in healthcare services is a cognitive–affective construct formed through accumulated, long-term experiences with a healthcare institution rather than through a single, temporary experience of acute pain. Healthcare consumers tend to evaluate their intention to return based on trust in the institution, accessibility, and the quality of relational interactions with healthcare professionals, rather than on their memory of the pain intensity experienced during a single episode of care. Loyalty Theory posits that loyalty develops through four stages cognitive, affective, conative, and behavioral with the conative stage, represented by revisit intention, being more strongly influenced by cumulative satisfaction than by a single clinical experience. (Oliver, 1980). Patient loyalty in Indonesian hospitals is consistent with the view that revisit decisions among BPJS patients are influenced more strongly by healthcare accessibility and the quality of direct interactions with healthcare professionals than by specific clinical dimensions, such as pain management (Rosita et al., 2022).

The third explanation is structural and contextual in nature. All respondents in this study (100%) were enrolled in the National Health Insurance program (BPJS). Within the JKN system, which operates through a tiered referral mechanism, patients' choices of healthcare facilities are not entirely unrestricted and are strongly influenced by the availability of BPJS-affiliated facilities in their respective areas. When the choice of healthcare facilities is structurally limited, differences in pain intensity experienced during a single episode of care become less relevant in shaping revisit intention. The high absolute levels of revisit intention in both groups (87.5% in the ERACS group and 77.5% in the Non-ERACS group classified as highly willing to revisit) may reflect a ceiling effect reinforced by these structural factors rather than solely reflecting patients' clinical satisfaction.

The most managerially significant finding is not the absence of a mediation effect itself, but rather the factor that actually drives revisit intention. Patient satisfaction was found to have a strong positive correlation with revisit intention ($r = 0.613$; $p < 0.001$), substantially stronger than the near-zero correlation between pain and revisit intention. This finding confirms that the relationship between the ERACS method and revisit intention is more likely to operate through increased patient satisfaction, whereas the influence of ERACS on revisit intention through postoperative pain appears to be limited. This is consistent with findings from studies involving 600 outpatients in Jambi and patients at a public hospital, both of which confirmed a similar pattern: patient satisfaction represents the strongest mediator between service quality and patient loyalty, whereas a single clinical dimension, such as pain, has a very limited influence on patients' decisions to revisit (Dayan et al., 2021; Guspianto et al., 2022). Thus, the absence of a significant mediating effect of postoperative pain in the relationship between the ERACS method


Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

and revisit intention reinforces the argument that strategies to enhance patient loyalty at regional public hospitals should focus on improving overall patient satisfaction rather than solely optimizing pharmacological pain management.

## CONCLUSION

This study confirms that ERACS significantly reduces postoperative pain ($p < 0.001$) and improves patient satisfaction ($p = 0.008$) compared to Non-ERACS among CS patients at RSUD Simpang Lima Gumul Kediri. However, ERACS showed no significant direct effect on revisit intention ($p = 0.591$), and postoperative pain did not significantly mediate either the ERACS satisfaction or ERACS revisit intention relationship, as both indirect effects yielded confidence intervals that included zero. Notably, satisfaction emerged as the strongest predictor of revisit intention ($r = 0.613$, $p < 0.001$), suggesting that patient loyalty is driven by overall care experience rather than pain reduction alone.

## RECOMMENDATIONS

For hospital management, the ERACS protocol should be formalized as a standard operating procedure (SOP) for all cesarean section (CS) patients, with equal emphasis on non-pharmacological dimensions of care, particularly nurse–patient communication and emotional support, as these factors may serve as primary drivers of patient satisfaction and loyalty beyond pain control. For future research, multicenter studies with larger sample sizes and serial mediation models are recommended to more comprehensively examine the indirect pathways through which perioperative protocols influence patient loyalty. A serial mediation model examining the relationship between the ERACS method, postoperative pain, patient satisfaction, and revisit intention may provide a more comprehensive understanding of the mechanisms underlying patient loyalty in Indonesian public hospital settings.

## REFERENCES

A'aqoulah, A., Kuyini, A. B., & Albalas, S. (2022). Exploring the Gap Between Patients ' Expectations and Perceptions of Healthcare Service Quality. *Patient Preference and Adherence*, *16*(3), 1295–1305.

Adafiah, M., Rohendi, A., & Andriani, R. (2023). Pengaruh Pelayanan Satuan Darurat Terhadap Kepuasan Pasien Selama Pandemi COVID-19 Di Rumah Sakit Muhammadiyah Bandung. *Jurnal Manajemen Rumah Sakit*, *1*(1), 23–41.

Alqaisi, O. M., & Al-Ghabeesh, S. (2024). Quality of Postoperative Pain Management in Orthopedic Patients and Its Impact on Sleep Quality and Patient Satisfaction: An Integrative Review. *Cureus*, *16*(7), e65872. https://doi.org/10.7759/cureus.65872



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

AlSokkar, A. A. M., Law, E. L.-C., AlMajali, D. A., Al-Gasawneh, J. A., & Alshinwan, M. (2024). An Indexed Approach for Expectation-Confirmation Theory: A Trust-based model. *Electronic Markets*, *34*(1), 12. https://doi.org/10.1007/s12525-024-00694-3

Andriani, R., Kristiutami, Y. P., Martina, S., & Hakim, L. (2019). Implementation of Service Culture for Hospitality Industry. *Advances in Economics, Business and Management Research*, *65*, 507–510.

Angolile, C. M., Max, B. L., Mushemba, J., & Mashauri, H. L. (2023). Global increased cesarean section rates and public health implications: A call to action. *Health Science Reports*, *6*(5), 1–5. https://doi.org/10.1002/hsr2.1274

Anisah, Rohendi, A., & Rahim, A. H. (2023). Pengaruh Kualitas Layanan Dan Kepuasan Pasien Terhadap Loyalitas Pasien Rawat Jalan Rumah Sakit Khusus Paru Karawang. *INNOVATIVE: Journal Of Social Science Research*, *3*, 9151–9164.

Ataro, B. A., Geta, T., Endirias, E. E., Gadabo, C. K., & Bolado, G. N. (2024). Patient satisfaction with preoperative nursing care and its associated factors in surgical procedures, 2023: a cross-sectional study. *BMC Nursing*, *23*(1), 235. https://doi.org/10.1186/s12912-024-01881-5

Ciechanowicz, S., Ke, J. X. C., Sharawi, N., & Sultan, P. (2023). Measuring enhanced recovery in obstetrics: a narrative review. *AJOG Global Reports*, *3*(1), 100152. https://doi.org/10.1016/j.xagr.2022.100152

Committee on Gynecologic Practice. (2018). Perioperative Pathways: Enhanced Recovery After Surgery. *Obstetrics and Gynecology*, *132*(3), 801–802. https://doi.org/10.1097/AOG.0000000000002819

Dayan, M., Al Kuwaiti, I. A., Husain, Z., Ng, P. Y., & Dayan, A. (2021). Factors influencing patient loyalty to outpatient medical services: an empirical analysis of the UAE's government healthcare system. *International Journal of Quality & Reliability Management*, *39*(1), 176–203. https://doi.org/https://doi.org/10.1108/IJQRM-11-2020-0373

Dumilah Ayungtyas, Ratih Oktarina, Misnaniati, N. N. D. S. (2018). Etika Kesehatan pada Persalinan Melalui Sectio Caesarea Tanpa Indikasi Medis. *JURNAL MKMI*, *14*(1), 9–16. https://doi.org/10.1080/14017430510009078

EL-Tallawy, S. N., Alsubaie, A. T., Yousef, E. A., Dahum, F. T., Abdelzaher, T. A., Ahmed, R. S., Alcudia, V. M., Badawy, W. R., De Vera, S. A., Nagiub, M. S., Aljumah, A. R., Manaa, E. M., & Ali, W. A. (2025). Identifying Predictors of Early Postoperative Pain and Patient Satisfaction Following Day Surgery: Insights From an Observational Study. *Cureus*, *17*(6), e86118. https://doi.org/10.7759/cureus.86118



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Forkin, K. T., Mitchell, R. D., Chiao, S. S., Song, C., Chronister, B. N. C., Wang, X. Q., Chisholm, C. A., & Tiouririne, M. (2022). Impact of timing of multimodal analgesia in enhanced recovery after cesarean delivery protocols on postoperative opioids: A single center before-and-after study. *Journal of Clinical Anesthesia*, *80*(November 2021), 110847. https://doi.org/10.1016/j.jclinane.2022.110847

Freo, U. (2022). Paracetamol for Multimodal Analgesia. *Pain Management*, *12*(6), 737–750. https://doi.org/10.2217/pmt-2021-0116

Ganasegeran, K., Perianayagam, W., Abdul Manaf, R., Ali Jadoo, S. A., & Al-Dubai, S. A. R. (2015). Patient satisfaction in Malaysia's busiest outpatient medical care. *Scientific World Journal*, *2015*. https://doi.org/10.1155/2015/714754

Grasch, J. L., Rojas, J. C., Sharifi, M., McLaughlin, M. M., Bhamidipalli, S. S., & Haas, D. M. (2023). Impact of Enhanced Recovery After Surgery pathway for cesarean delivery on postoperative pain. *AJOG Global Reports*, *3*(1), 1–9. https://doi.org/10.1016/j.xagr.2023.100169

Guspianto, G., Hubaybah, H., & Ningsih, V. R. (2022). Quality of Service and its Effect on Patient Value , Patient Satisfaction , and Revisit Intention : Investigation of the Public Health Center in Jambi Province. *Open Access Macedonian Journal of Medical Sciences*, *10*, 1865–1873. https://doi.org/https://doi.org/10.3889/oamjms.2022.8666

Ituk, U., & Habib, A. S. (2018). Enhanced recovery after cesarean delivery. *F1000Research*, *7*(1), 1–11.

Keag, O. E., Norman, J. E., & Stock, S. J. (2018). Long-term risks and benefits associated with cesarean delivery for mother, baby, and subsequent pregnancies: Systematic review and meta-analysis. *PLoS Medicine*, *15*(1), 1–22. https://doi.org/10.1371/journal.pmed.1002494

Kementerian Kesehatan RI. (2018). Laporan Nasional Riskesdas 2018. In *Badan Penelitian dan Pengembangan Kesehatan*.

Kuppan, J. I., Chandran, S., Rajendran, S. S., Narayanasamy, V., Ethiraj, K., Gopalan, C., & Khan, A. J. T. (2025). From incision to empowerment: Enhancing maternal recovery and self-care through structured post-caesarean support. *Bioinformation*, *21*(8), 2744–2746. https://doi.org/10.6026/973206300212744

Kurniawan, A., & Pratiwi, N. P. (2025). Post-Anesthesia Recovery Experience Following Cesarean Section with ERACS Protocol : A Phenomenological Study in Indonesia. *Journal of Applied Nursing and Health*, *7*(2), 352–366.

Kusumadewi, A. G., Lestari, S., Nasution, R., Girsang, E., & Napiah, A. (2025). An Analysis Of Factors Influencing Bpjs Patient Loyalty Based On Customer Satisfaction Theory At Bandung General Hospital Medan. *Jurnal Ners*, *9*, 7131–7138.



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Lachowicz, M. J., Preacher, K. J., & Kelley, K. (2018). A novel measure of effect size for mediation analysis. In *Psychological Methods* (Vol. 23, Issue 2, pp. 244–261). American Psychological Association. https://doi.org/10.1037/met0000165

Lestari, M. I., Sari, D., Chandra, S., Purwoko, P., Isngadi, I., & Umar, T. P. (2025). Enhanced recovery after cesarean (ERAC) versus conventional care: An expanded systematic review and meta-analysis of 18,368 subjects. *Journal of Anaesthesiology, Clinical Pharmacology*, *41*(1), 48–61. https://doi.org/10.4103/joacp.joacp_339_23

Lin, R., Lu, Y., Luo, W., Zhang, B., Liu, Z., & Xu, Z. (2022). Risk factors for postpartum depression in women undergoing elective cesarean section: A prospective cohort study. *Frontiers in Medicine*, *Volume 9-2022*. https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2022.1001855

Manzoor, F., Wei, L., Hussain, A., Asif, M., & Shah, S. (2019). Patient satisfaction with health care services; an application of physician's behavior as a moderator. International Journal of Environmental Research and Public Health [revista en Internet] 2019 [acceso 20 de octubre de 2022]; 16(18): 1-16. *Int J Environ Res Public Health*, 1–16.

Maulana, F., Naradha, I. M. A. S., Insani, H. D., Wiana, I. M. R., Muharis, I. A., & A.Rohendi. (2026). Tinjauan Sistematis Faktor-Faktor Yang Mempengaruhi Service Quality Rumah Sakit: Perspektif Servqual, Kepuasan Pasien, Dan Kinerja Organisasi Kesehatan. *JURNAL ILMIAH MANAJEMEN DAN AKUNTANSI*, *3*(2), 239–251.

Meng, X., Chen, K., Yang, C., Li, H., & Wang, X. (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. *Frontiers in Medicine*, *8*(August). https://doi.org/10.3389/fmed.2021.694385

Millizia, A., Rizka, A., & Mellaratna, W. P. (2023). Patient Satisfaction Level of Enhanced Recovery after C-Section at Abby Maternal and Child Hospital Lhokseumawe. *Eureka Herba Indonesia*, *4*(1), 171–175. https://doi.org/https://doi.org/10.37275/ehi.v4i1.60

Mundhra, R., Gupta, D. K., Bahadur, A., Kumar, A., & Kumar, R. (2024). Effect of Enhanced Recovery after Surgery (ERAS) protocol on maternal outcomes following emergency caesarean delivery: A randomized controlled trial. *European Journal of Obstetrics and Gynecology and Reproductive Biology: X*, *22*(December 2023), 100295. https://doi.org/10.1016/j.eurox.2024.100295

Noviyani, A., & Viwattanakulvanid, P. (2024). Exploring patients ' perspectives on healthcare service quality in outpatient settings at a public hospital in Palembang



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

, Indonesia : A qualitative study. *Open Access Macedonian Journal of Medical Sciences.*, *10*(6), 703–711.

Oktiarto, W., Komara, E., & Veranita, M. (2024). Pengaruh Sistem Pendaftaran Online Terhadap Kualitas Pelayanan Untuk Meningkatkan Kepuasan Pasien Di Rumah Sakit Kasih Herlina Kota Sorong. *Journal of Social and Economics Research*, *6*(1), 2381–2388.

Oliver, R. L. (1980). A Cognitive Model of the Antecedents and. *Journal OfMarketing Research*, *XVII*(November), 460–469.

Park, R., Mohiuddin, M., Arellano, R., Pogatzki-Zahn, E., Klar, G., & Gilron, I. (2023). Prevalence of postoperative pain after hospital discharge: systematic review and meta-analysis. *Pain Reports*, *8*(3), e1075. https://doi.org/10.1097/PR9.0000000000001075

Patel, K., & Zakowski, M. (2021). Enhanced Recovery After Cesarean: Current and Emerging Trends. *Current Anesthesiology Reports*, *11*(2), 136–144.

Pinho, B., & Costa, A. (2024). Impact of enhanced recovery after surgery (ERAS) guidelines implementation in cesarean delivery: A systematic review and meta-analysis. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, *292*(April 2023), 201–209. https://doi.org/10.1016/j.ejogrb.2023.11.028

Rahman, M., Khan, N., Rahman, A., Alam, M., & Khan, A. (2022). Long-term effects of caesarean delivery on health and behavioural outcomes of the mother and child in Bangladesh. *Journal of Health, Population and Nutrition*, *41*(1), 1–7. https://doi.org/10.1186/s41043-022-00326-6

Rajendran, S., Karigar, S. L., Kori, S., Alalamath, S., & D, P. S. (2025). A Tailored Enhanced Recovery After Surgery (ERAS) Approach for Acute Pain Management in Elective Cesarean Deliveries: A Randomized Controlled Trial. *Cureus*, *17*(4), e82129. https://doi.org/10.7759/cureus.82129

Rizaldy Taslim Pinzon. (2016). *Pengkajian Nyeri*. Betha Grafika Yogyakarta.

Rosita, C., Prakoeswa, S., Hidayah, N., & Dewi, A. (2022). A Systematic Review on Hospital ' s Patient Satisfaction and Loyalty in Indonesia. *Open Access Macedonian Journal of Medical Sciences.*, *10*, 655–664.

Sordia-Pineyro, M. O., Villegas-Cruz, C., Hernandez-Bazaldua, M., Pineyro-Cantu, A., Gaston-Locsin, T., & Sordia-Hernandez, L. H. (2023). Effect of the implementation of an enhanced recovery after surgery protocol (ERAS) in patients undergoing an elective cesarean section. *Ginekologia Polska*, *94*(2), 141–145. https://doi.org/10.5603/GP.a2023.003

Sultan, P., Monks, D. T., Sharawi, N., Bamber, J., Panelli, D. M., Sauro, K. M., Shah, P. S., Muraca, G. M., Metcalfe, A., Wood, S. L., Jago, C. A., Daly, S., Blake, L. E. A., Macones, G. A., Caughey, A. B., Wilson, R. D., & Nelson, G. (2026). Guidelines



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

for postoperative care in cesarean delivery: Enhanced Recovery After Surgery Society recommendations (part 3)—2025 update. *American Journal of Obstetrics & Gynecology*, *233*(6), S184–S198. https://doi.org/10.1016/j.ajog.2025.01.038

Sung, S., Mikes, B. A., Martingano, D. J., & Mahdy, H. (2024). *Cesarean Delivery*. StatPearls Publishing LLC. https://www.ncbi.nlm.nih.gov/books/NBK546707/

Surani, A., Hammad, M., Agarwal, N., & Segon, A. (2023). The Impact of Dynamic Real-Time Feedback on Patient Satisfaction Scores. *Journal of General Internal Medicine*, *38*(2), 361–365. https://doi.org/10.1007/s11606-022-07614-1

Susilowati, R., & Veranita, M. (2020). Analisa Pengaruh Kualitas Pelayanan Terhadap Kepuasan Pasien. *Jurnal EKBIS*, *8*(2), 45–53.

Syah, T. Y. R., & Suyitno, E. (2025). How to create patients revisit intention ? A study on private hospitals in Indonesia. *Business Perspectives*, *21*(1), 75–88. https://doi.org/10.21511/im.21(1).2025.07

Syamsuriyati, H. S., & Ramli, A. (2024). The Effect Of Health Care Service Quality On BPJS Outpatient Patient Satisfaction At Undata Regional Public Hospital , Palu City , Central Sulawesi Province. *Jurnal Eduhealth*, *15*(04), 1475–1486. https://doi.org/10.54209/eduhealth.v15i04

Utami, F. S., & Rosa, E. M. (2023). The Effectiveness of the Enhanced Recovery after Cesarean Surgery (ERACS) method on patients' pain levels and satisfaction in hospitals: a quasi-experimental posttest design. *Journal of Public Health and Development*, *21*(3), 107–119. https://doi.org/10.55131/jphd/2023/210309

Vacula, M., Sharpe, E. E., Hammonds, K., & Hofkamp, M. P. (2024). Effect of an increased dose of intrathecal fentanyl on cesarean delivery anesthesia at a Texas level IV maternal care center. *Proceedings (Baylor University. Medical Center)*, *37*(4), 592–596. https://doi.org/10.1080/08998280.2024.2349985

Walker, M., Sobel, M., Siddiqi, N., Carvalho, J. C. A., Jahan, N., Santini, S., Watts, N., Dart, K., Wang, S., Huszti, E., & Thomas, J. (2025). Implementation of enhanced recovery after surgery for caesarean delivery: a quality improvement initiative. *BMJ Open Quality*, *14*(3). https://doi.org/10.1136/bmjoq-2025-003391

Wang, Y., Liu, C., & Wang, P. (2023). Patient satisfaction impact indicators from a psychosocial perspective. *Frontiers in Public Health*, *Volume 11-2023*. https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2023.1103819

WHO. (2021). *Caesarean section rates continue to rise, amid growing inequalities in access*.



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Wijaya, H., Rohendi, A., & Mulyani, K. (2024). Pengaruh Kepercayaan , Kualitas Pelayanan , dan Kewajaran Harga Terhadap. *INNOVATIVE: Journal Of Social Science Research*, *4*, 2446–2457.

Yazhini, S., Venkatraman, R., & Kandan, K. (2024). Comparison of Fentanyl With Midazolam As Adjuvants to Levobupivacaine in Spinal Anesthesia for Cesarean Sections: A Randomized Controlled Trial. *Cureus*, *16*(7), e64732. https://doi.org/10.7759/cureus.64732



Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.