

The Attitude of Health Care Workers on Enhanced Recovery After Surgery for Cesarean Delivery: A Scoping Review



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ABSTRACT

Objective: Previous systematic reviews have found that the enhanced recovery after surgery (ERAS) protocol for cesarean delivery can vary from one study to another, and the attitudes of health care professionals regarding ERAS methods and the implementation of the ERAS for cesarean delivery remain unclear. We aimed to identify the attitudes of health professionals toward ERAS in the context of cesarean delivery.

Data Sources: Systematic searches were conducted in 6 databases: PubMed, ScienceDirect, EBSCO, Scopus, the Cochrane Library, and Sage Journals from September 2010 to September 2020.

Study Selection: A total of 4 articles were selected for analysis. All articles use survey methods and present health professional attitudes toward ERAS for cesarean delivery.

Data Extraction and Synthesis: Data were extracted using Excel spreadsheets. The results obtained are presented descriptively.

Keywords: attitude; health personnel; enhanced recovery after surgery; cesarean section

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Conclusion: This review illustrates that there are many ERAS protocols that health care professionals have not yet implemented for cesarean delivery. Policymakers can use this knowledge to inform the promotion of the ERAS protocol for cesarean delivery.

RÉSUMÉ

Objectif : Les revues systématiques précédentes ont montré que les programmes de récupération rapide après une intervention chirurgicale (ERAS) en contexte post-césarienne peuvent varier d'une étude à l'autre et que leur utilisation, y compris leur mise en œuvre, par les professionnels de la santé demeure vague. Notre objectif était de connaître l'utilisation qu'en font les professionnels de la santé en contexte de césarienne.

Sources de données : Des recherches systématiques ont été effectuées dans six bases de données, en l'occurrence PubMed, ScienceDirect, EBSCO, Scopus, Cochrane Library et Sage Journals, pour la période de septembre 2010 à septembre 2020.

Sélection des études : Au total, quatre articles ont été sélectionnés pour analyse. Tous les articles s'appuient sur des méthodes de sondage et indiquent comment les professionnels de la santé utilisent les programmes ERAS en contexte de césarienne.

Extraction des données et synthèse : Les données ont été extraites au moyen de feuilles de calcul Excel. Les résultats obtenus sont présentés de façon descriptive.

Conclusion : Cet examen montre qu'il existe de nombreux programmes ERAS que les professionnels de la santé n'ont pas encore mis en œuvre pour la césarienne. Les décideurs peuvent

utiliser ces connaissances pour orienter la promotion des programmes ERAS en contexte de césarienne.

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INTRODUCTION

Enhanced Recovery After Surgery (ERAS) is a program that combines various aspects of evidence-based perioperative care to accelerate patient recovery.¹ The ERAS program in cesarean delivery has been shown to reduce the length of hospital stay, reduce opioid use, and provide good outcomes for mothers.² The ERAS protocol for cesarean delivery covers the preoperative, intraoperative, and postoperative periods. Adoption of the ERAS program after cesarean delivery has been slower compared to ERAS adoption in other surgical fields. The ERAS guidelines on cesarean delivery were only released in August 2018. Patients undergoing cesarean delivery may benefit more from the ERAS protocol to accelerate the return of physiological function, so although adoption is slow, the ERAS program for cesarean delivery should be more routinely applied.³

The Society for Obstetric Anesthesia and Perinatology in the United States has provided guidance on ERAS for cesarean delivery, but in reality, the application of ERAS for cesarean delivery still varies from hospital to hospital.⁴ Successful implementation of the ERAS program is strongly influenced by each health professional's cooperation in patient care⁵ and is determined by the attitude of health workers.⁴ There are several reasons why the ERAS protocol is still challenging to implement. Several protocols in ERAS are related to conventional perioperative care protocols that have been commonly applied and have become routine habits of health professionals.⁶ In addition, many health care workers do not understand the ERAS program protocol and believe that ERAS implementation requires a significant allocation of additional resources.⁷

There has been little to no research on the extent to which the ERAS protocol is applied for cesarean delivery in various countries, nor concerning the attitudes of health care workers towards the ERAS method for cesarean delivery. To answer these questions and discuss the existing literature, we conducted a scoping review. This review's primary objective was to identify the attitudes of health

professionals towards the application of the ERAS protocol for cesarean delivery, and the secondary objective was to determine how the ERAS protocol should be implemented for cesarean delivery.

METHODS

Research Design

This study chose to use the scoping review method because it provides the scope and coverage on a particular topic. The scoping review is intended to overview the available literature's core concepts. This scoping review procedure uses the methodology from Arksey and O'Malley.⁸ It includes 5 steps: (1) identifying research questions, (2) identifying relevant research, (3) selecting studies, (4) extracting and mapping data, and (5) compiling, summarizing, and reporting results.

Step 1: Identifying Research Questions

The research questions in this scoping review are as follows:

1. What is the attitude of health care workers towards the ERAS protocol for cesarean delivery?
2. How is the ERAS protocol implemented for cesarean delivery?

Step 2: Identifying Relevant Studies

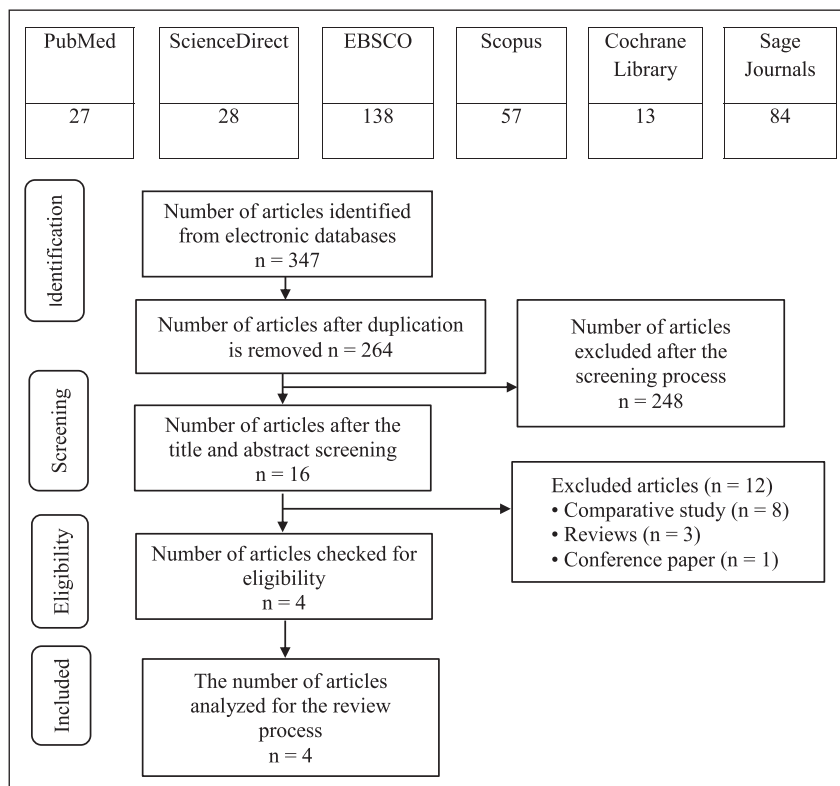
Systematic searches were conducted on 6 databases: PubMed, ScienceDirect, EBSCO, SCOPUS, Cochrane Library, and Sage Journals. In the search, the authors used the Boolean operators “AND” and “OR,” wildcards, and truncation to expand the search for various tenses. The keywords used for the search were (“cesarean section” OR “c-section” OR “caesarean” OR “caesarian” OR “cesarian” OR “cesarean”) AND (“enhanced recovery” OR “ERAS”) AND (“attitude “OR” perspective” OR “implementation” OR “survey”).

This review includes all primary studies and qualitative and quantitative analyses of health care professionals' attitudes regarding ERAS for cesarean delivery. The research period included in the review was the last 10 years, so this study searched research articles published from September 2010 to September 2020.

Step 3: Study Selection

Inclusion and exclusion criteria. All survey studies on attitudes of health care workers towards the ERAS method for cesarean delivery were included. Owing to the limited articles obtained, the authors did not limit articles to only

Figure 1. Study identification flowchart and inclusion process using Preferred Reporting Items for Systematic Review and Meta-Analyses.



those in English. The articles chosen had full text. Opinion pieces, posters and editorials, conference abstracts, and textbooks were not included in the analysis process.

Study selection. The study selection process was conducted by following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis.⁹ Data were processed and selected in the following stages: identification, screening, checking of eligibility, and application of inclusion criteria. The process of selecting articles used the Mendeley bibliographic program to create a reference list of related articles. The results of 2 independent searches were compared. Differences in article findings were communicated and discussed until the same number of articles was reported.

Step 4: Extracting and Mapping Data

The data were extracted using a Microsoft Excel spreadsheet. The data were collated in an extraction table, including the title of the article, author, year of publication, country in which the study was conducted, research objectives, research design, sample, response rate, data collection methods, and main findings.

Step 5: Compile, Summarize, and Report Results

All articles found identified the type of implementation of the ERAS protocol, the country in which the study was conducted, and health care professionals' attitudes towards each ERAS protocol for cesarean delivery.

RESULTS

A total of 347 articles were identified. Mendeley software was used to find 83 similar articles, leaving 264 articles for title and abstract filtering to identify articles that met the inclusion criteria. A total of 248 articles were deemed irrelevant based on title and abstract screening because they did not discuss health care workers' attitudes or the implementation of ERAS for cesarean delivery, leaving 16 articles for full-text review. Based on the inclusion criteria, only 4 articles were finally included in the study (Figure 1).

The articles analyzed came from Europe and Africa. All studies were published in journals between 2013 and 2018. The research design used was a quantitative approach with a survey method. Two studies were in English, and 2 studies were in French. Articles in French were translated using

translation software, and the translation's suitability was checked by colleagues who understand both the French and Indonesian languages. Further details of each study are given in Table 1. Table 2 summarizes the findings on health care workers' attitudes regarding ERAS methods for cesarean delivery in various countries.

DISCUSSION

Existing research on the attitudes of health care workers towards the ERAS method for cesarean delivery shows that the focus on health care workers is still limited to anaesthetists and obstetricians. There has been no research on the attitudes of other health care workers, although the application of ERAS for cesarean delivery requires teamwork from midwifery, nursing, and other health professions.¹⁰

The ERAS protocol for cesarean delivery is still not well implemented in the United Kingdom, France, Serbia, and Tunisia. In the studies examined, there was no mention of the reasons why health workers did not use the ERAS protocol for cesarean delivery.^{11–14}

Giving oral carbohydrate drinks 2 hours before surgery can reduce insulin resistance, minimize protein loss, reduce the length of hospital stay, and increase patient comfort without affecting gastric emptying¹⁵; however, only a few doctors in the United Kingdom follow this protocol.¹³ Health care workers' unwillingness to change and problems with the taste of the high-calorie drinks used for carbohydrate loading can cause challenges in ERAS implementation.¹⁶

Bowel preparation is still being done by 87% of Serbian units, although this is not recommended in the ERAS program.^{14,17} A Caribbean study of the reasons why surgeons used bowel preparation revealed that surgeons believed bowel preparation could reduce infection and the incidence of anastomotic leak. Many surgeons are not aware of the potential dangers of bowel preparation, such as liver dysfunction, cardiac events, acute renal failure, fluid shift, dehydration, and electrolyte disturbances.¹⁸

Monitoring of body temperature and administration of warm intravenous fluids are still rarely performed in the United Kingdom and Serbia.^{13,14} There are various reasons why body temperature monitoring is not done routinely during surgery. A study conducted in Colombia in 2016 showed that limited tools for monitoring body temperature and a lack of interest in monitoring body temperature are the main reasons this protocol is not followed.¹⁹

The uterotonic agent oxytocin is most widely used in the United Kingdom and Tunisia. Carbetocin is used by only 15.1% of doctors in the United Kingdom; it is not used in Tunisia because the amount available is limited.^{11,13} A study conducted in Canada on the choice of uterotonic agent in women with a low and high risk of postpartum hemorrhage showed that most physicians also prefer oxytocin over carbetocin. The choice of uterotonic agent is based on the perceived benefits and guidelines of the Society of Obstetricians and Gynaecologists of Canada.²⁰

In Serbia, prophylactic antibiotics are still used, which is against ERAS guidelines for cesarean delivery.¹⁴ Another study conducted in Southern Thailand on the varying attitudes of obstetricians regarding the administration of antibiotics for cesarean delivery showed that attitudes depended on the norms maintained during residency training. These norms have a long-term effect on current practice because obstetricians have less access to the latest information from recently published books or journals.²¹

Prevention of postoperative nausea and vomiting is still not widely practiced. This may be due to postoperative nausea and vomiting being seen as less critical than reducing postoperative pain. One study found that many surgeons did not understand the need for the prevention of nausea and vomiting. Positive attitudes towards preventing nausea and vomiting are not routinely followed up with good practices.²²

Opioids are still widely used to reduce postoperative pain in the United Kingdom and France.^{12,13} The high use of opioids may be due to the insufficient implementation of ERAS for cesarean delivery. Research by Dharmalingam et al.²³ in 2019 concerning the knowledge and attitudes of doctors in Malaysia towards pain management shows that most doctors still have insufficient knowledge about pain management. This may affect the choice of postoperative analgesia.

Many intraoperative fluid restrictions do not follow the ERAS protocol. The Society of Obstetric Anesthesia and Perinatology recommends a fluid restriction of <3 L,²⁴ so the decision to stop infusion early should be reconsidered if the patient has no contraindications to continued administration of fluid.²⁵

Early catheter removal has the advantages of speeding up patient ambulation, reducing the length of hospital stay, and reducing the risk of urinary tract infections.^{25,26} Only a few doctors in France mobilize patients 6 hours postoperatively.¹² The times for mobilizing patients in both the

Table 1. Summary of articles included in the review

Article no.	Article title	Author (year)	Country of research	Objective	Research design	No. of participants and response rate	Data collection	Main findings
1	Enhanced recovery following uncomplicated elective cesarean section in France: a survey of national practice ¹²	Jacques et al. (2013)	France	To determine obstetric anesthesiologists' practice regarding ERAS application in women undergoing elective cesarean delivery without complications.	Survey	400 anesthesiologists; 45% survey response rate	Questionnaire	As many as 60% of respondents stated that they did not apply ERAS for cesarean delivery at the hospital where they worked.
2	A survey of enhanced recovery after surgery protocols for cesarean delivery in Serbia ¹⁴	Pujic et al. (2018)	Serbia	To find out what ERAS protocols are used for cesarean delivery in hospitals that implement or do not implement ERAS.	Survey	49 hospitals; chiefs of obstetrics or anesthesiologists answered the questionnaire; 94% response rate	Questionnaire	The ERAS protocol was only used in 24% of the hospitals surveyed.
3	Early recovery after a cesarean section: survey of practice at some maternity hospitals in the region of Stax in Tunisia ¹¹	Jarraya et al. (2016)	Tunisia	To find out about the application of ERAS in private and government hospitals in Tunisia.	Survey	44 anesthesiologists in private and government hospitals; 68% response rate	Questionnaire	There is no difference in the application of ERAS between doctors who work in government hospitals and those in private hospitals.
4	Enhanced recovery from obstetric surgery: a UK survey of a practice ¹³	Aluri and Wrench (2014)	United Kingdom	To find out about the implementation of ERAS in the United Kingdom and identify what changes are needed to introduce the ERAS program.	Survey	196 obstetric anesthesiologists; 81% response rate	Questionnaire	Ninety-six percent of doctors support the concept of ERAS for cesarean delivery. However, 36% want to know more about evidence-based ERAS in cesarean delivery, and 2% of doctors believe that their current cesarean treatment is good enough.

ERAS: enhanced recovery after surgery.

Table 2. Attitudes of health care workers towards the ERAS protocol for cesarean delivery

No.	ERAS protocol	Study country	Attitudes of health workers
1.	Loading of oral carbohydrates	United Kingdom ¹³	Only 4% of physicians give high calorie drinks 2 h before surgery
2.	Bowel preparation	Serbia ¹⁴	87% of physicians still do bowel preparation
3.	Normothermia	United Kingdom ¹³	27% of physicians routinely monitor the patient's body temperature during surgery
		Serbia ¹⁴	11% of units monitor the patient's body temperature
4.	Uterotonic administration	France ¹²	81.3% of physicians give uterotonic agents such as oxytocin; 15.1% of physicians administer carbetocin
		Tunisia ¹¹	Oxytocin is used by 60% of physicians; carbetocin is not used
5.	Prophylactic antibiotics	Serbia ¹⁴	51% of physicians give antibiotics 30 min before surgery
6.	Prevention of nausea and vomiting	United Kingdom ¹³	55% of physicians do not routinely administer antiemetics to postoperative patients
		France ¹²	64.8% of physicians prevent postoperative nausea and vomiting
7.	Multimodal analgesia	United Kingdom ¹³	95% of physicians provide postoperative pain relief with neuraxial opioids
		France ¹²	56% of physicians give morphine as a postoperative pain reliever
		Serbia ¹⁴	9% of units administer postoperative neuraxial morphine
8.	Time to take off the infusion	France ¹²	17% of physicians remove the infusion <24 h postoperatively
		Tunisia ¹¹	26% of physicians stop the infusion at 6 h postoperatively
		Serbia ¹⁴	33% of units remove the infusion <24 h postoperatively
9.	Time of postoperative drinking	United Kingdom ¹³	71% of physicians allow patients to drink water 1 h postoperatively
		France ¹²	41.2% of physicians recommend drinking 4–6 h after surgery
		Tunisia ¹¹	63% of physicians recommend drinking <6 h postoperatively
		Serbia ¹⁴	13% of units allow immediate postoperative drinking
10.	Time of postoperative feeding	United Kingdom ¹³	70% of physicians allow solid food 6 h postoperatively
		France ¹²	13.8% of physicians recommend feeding 4–6 hours postoperatively
		Tunisia ¹¹	30% of physicians allow feeding <6 h postoperatively
		Serbia ¹⁴	11% of units allow solid food 12 h after surgery
11.	Giving chewing gum	Serbia ¹⁴	86% of the units provide postoperative chewing gum
12.	Time to remove the urine catheter	United Kingdom ¹³	28% of physicians remove the urinary catheter within 12 h of surgery
		Tunisia ¹¹	57% of physicians remove the urinary catheter before 6 h postoperatively
		Serbia ¹⁴	5% of units remove the urine catheter <24 h postoperatively
13.	Skin to skin contact	United Kingdom ¹³	53% of physicians initiate skin contact between mother and baby in the operating room
		Serbia ¹⁴	49% of units facilitate skin contact between mother and baby
14.	Early mobilization	United Kingdom ¹³	32% of physicians mobilize patients within 12 h postoperatively
		France ¹²	7.9% of physicians recommend early mobilization 6 h postoperatively
		Serbia ¹⁴	53% of units recommend early mobilization <24 h postoperatively
15.	Time to discharge the patient	United Kingdom ¹³	62% of physicians discharge patients on the second postoperative day
		France ¹²	88.9% of physicians discharge patients >72 h postoperatively
		Tunisia ¹¹	43% of doctors discharge patients 48 h after surgery
		Serbia ¹⁴	76% of physicians discharge patients 3–6 d postoperatively

ERAS: enhanced recovery after surgery.

United Kingdom and Serbia were about the same, mostly 12 hours postoperatively. It seems that health care professionals' attitudes towards this protocol do not differ much between the 2 countries.^{13,14} This may have contributed to the lower catheter removal rates at <24 hours in the United Kingdom, Tunisia, and Serbia.

Health care workers' attitudes towards the timing of first meal and drink was almost the same in France and Tunisia.^{11,12} Prolonged postoperative fasting occurs in Serbia, where 44% of hospitals recommend eating and drinking only after the first 24 hours postoperatively. This may have contributed to the low postoperative use of chewing gum in Serbia.¹⁴ One of the main concerns regarding early feeding after cesarean delivery is that it can increase the incidence of postoperative ileus.²⁷ In the United Kingdom, 78.5% of decisions about first feeding after cesarean delivery are made by midwives. The concerns that underlie midwives' attitudes about providing the first postoperative meal are the ability to retain oral fluids, hunger, thirst, bowel sounds, and flatulence. Nausea and vomiting are still considered contraindications to initial feeding.²⁸

Skin-to-skin contact is done by more than half of hospitals in the United Kingdom and Serbia.^{13,14} There are several reasons why skin-to-skin contact has not been fully implemented, including the cold temperature in the operating room, the need for additional staff in some institutions, and concerns about increasing the risk of dropping babies.²⁹

The poor implementation of ERAS protocol in the studies reviewed indicates that it is likely that ERAS is still unfamiliar or not well accepted by health workers. Accordingly, support from all health systems involved is needed so that the ERAS program can be implemented properly.³⁰

Implications for Future Research

Research on health care workers' attitudes regarding the ERAS method for cesarean delivery is currently very limited. The available articles do not discuss why such attitudes occur. Future research can discuss in more detail the attitudes of health care workers towards the ERAS protocol for cesarean delivery, their perceptions of each element of the ERAS protocol, the reasons why they have this attitude, and the factors inhibiting implementation of the ERAS program. This is important to know so that policymakers can introduce the ERAS program for cesarean delivery to health care workers so that it will be more easily accepted and they can determine which ERAS program protocols will be adopted in their respective institutions.

Limitations

This study was a scoping review that extensively discussed other studies' results, so there was no assessment of the articles' quality. The available research is still minimal, so not many articles were included in the study. The available articles also did not discuss in detail the attitudes of health care workers towards each element of ERAS and how to better support the ERAS program.

CONCLUSION

The attitudes of health care workers towards the ERAS protocol for cesarean delivery still vary widely among countries. Many ERAS protocols have not been applied by health care workers in managing cesarean delivery patients, and some doctors still use old methods in their routine practice. This may have an impact on the length of hospital stay after cesarean delivery.

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