Kerbala Journal of Pharmaceutical Sciences

ISSN: 2221-7207(Print) / **ISSN**: 3006-7189 (Online)

Caesarean Section Rates and Associated Factors in Karbala: A Retrospective Study

Marwah Ali Zghair[1], Sarah Najm Abd[1], Zahraa Mohammed Kadhim[1]

[1.]Pharmaceutics Department, Pharmacy College, University of Kerbala, Karbala, Iraq

***Corresponding Author:**
Marwah Ali Zghair: marwah.a@uokerbala.edu.iq

Received: 01/11/2025
Accepted: 25/12/2025
Published: 31/12/2025

Keywords: Caesarean section, Complications, Karbala, Vaginal delivery

DOI:10.62472/kjps.v16.i27.353-364

Abstract

Background: The most common obstetric surgical procedure performed worldwide is a Caesarean Section (CS). When performed properly, CS can enhance maternal and/or newborn outcomes. Although it saves the mother and child in some cases, it carries risks and complications, and the percentage of women who choose it without a medical reason is increasing, so awareness must be increased.

Objective: Determine the frequency of CS and analyze the indications, so as to introduce measures to control the CS rate, as decreasing this rate will reduce maternal morbidity and mortality and increasing awareness among women about CS.

Participants and method: The ongoing study was conducted from various hospitals in Karbala during December 2024. In this study, information and data were taken from all women who underwent a CS and Vaginal delivery by a questionnaire designed for this purpose.

Results: The percentage of CS is 60% and the percentage of elective ones were 43.3% The most common indication for CS was inability to give birth naturally, followed by a previous CS, health problems for the mother (hypertension or diabetes), and pregnancy with twins, the rate of complications also increased after CS, (bladder and intestine injury, postpartum hemorrhage, and admission to the intensive care unit etc.) While in natural childbirth, complications are few and less severe.

Conclusions: The increasing rate of the CS rate in Karbala populations highlight the need to apply more improvement and attention to primary health care in order to increase awareness and cooperation of health institutions and medical staff to spread risks and complications.

معدلات العمليات القيصرية والعوامل المرتبطة بها في كربلاء: دراسة استعادية

مروة علي زغير، سارة نجم عبد، زهراء محمد كاظم

الملخص

الخلفية :تُعدّ العملية القيصرية (Caesarean Section – CS) أكثر الإجراءات الجراحية التوليدية شيوعًا على مستوى العالم. وعند إجرائها بالشكل الصحيح، يمكن أن تُحسّن من نتائج صحة الأم و/أو المولود. وعلى الرغم من أنها تنقذ حياة الأم والطفل في بعض الحالات، إلا أنها تنطوي على مخاطر ومضاعفات، كما أن نسبة النساء اللواتي يخترنها دون وجود سبب طبي في ازدياد، مما يستدعي رفع مستوى الوعي حولها.

الهدف :تحديد معدل العمليات القيصرية وتحليل دواعي إجرائها، بهدف اقتراح إجراءات للسيطرة على ارتفاع هذا المعدل، إذ إن خفضه يسهم في تقليل معدلات المراضة والوفيات لدى الأمهات، وزيادة وعي النساء حول العملية القيصرية.

المشاركات والطريقة :أُجريت هذه الدراسة المستمرة في عدد من مستشفيات محافظة كربلاء خلال شهر كانون الأول/ديسمبر 2024. تم جمع المعلومات والبيانات من جميع النساء اللواتي خضعن للولادة القيصرية والولادة المهبلية، وذلك باستخدام استبيان مُعدّ خصيصًا لهذا الغرض.

النتائج :بلغ معدل العمليات القيصرية 60%، وكانت نسبة العمليات القيصرية الاختيارية 43.3%. وكان أكثر دواعي إجراء العملية القيصرية شيوعًا عدم القدرة على الولادة الطبيعية، تلاه وجود عملية قيصرية سابقة، ثم المشكلات الصحية لدى الأم (مثل ارتفاع ضغط الدم أو داء السكري)، والحمل بتوأم. كما لوحظ ازدياد معدل المضاعفات بعد العمليات القيصرية، مثل إصابات المثانة والأمعاء، نزف ما بعد الولادة، والدخول إلى وحدة العناية المركزة، في حين كانت المضاعفات في الولادة الطبيعية أقل عددًا وأخف شدة.

الاستنتاجات :إن الارتفاع المتزايد في معدل العمليات القيصرية بين نساء محافظة كربلاء يسلّط الضوء على الحاجة إلى تعزيز وتحسين الرعاية الصحية الأولية، وزيادة مستوى الوعي، وتعزيز التعاون بين المؤسسات الصحية والكوادر الطبية لنشر المعرفة حول مخاطر ومضاعفات العملية القيصرية.

1. Introduction

Caesarean Section CS is a surgical procedure in which a baby is delivered through an incision made in the mother's abdomen and uterus. Typically, the incision is made at a low level, approximately around the bikini line (Nichols et al., 2019; Ray Dorsey et al., 2018). There are two types of CS: planned (elective) and unplanned (emergency). A planned CS involves the decision, between the mother and her doctor, to have a caesarean birth prior to the onset of either labor or unexpected complications requiring urgent delivery Conversely, an unplanned CS may be imperative in situations where complications arise, requiring swift delivery either during or before the onset of labor (Gedefaw et al., 2020; Tegegne et al., 2024). Elective CS refers to a scheduled surgical procedure performed for nonmedical reasons. This option may be presented by healthcare providers to women who seek greater control over the timing of their baby's birth and wish to mitigate anxieties associated with awaiting the onset of labor. However, it is crucial to recognize that elective CS is not without inherent risks. Although there are advantages, such as enhanced control and reduced anxiety, it is essential to acknowledge the accompanying disadvantages. Additionally, it is pertinent to note that certain health insurance plans may not offer coverage for elective CS (Hannah, 2004). According to the Centers for Disease Control and Prevention, nearly one-third of c-sections are undertaken due to prolonged labor, defined as labor persisting for 20 hours or more in primi gravidae, or 14 hours or more in multi parous women. Contributory factors to prolonged labor encompass considerations such as fetal size exceeding the dimensions of the birth canal, protracted cervical thinning, and the presence of multiple fetuses. In instances where these factors are evident, cs delivery is deemed a prudent measure to mitigate potential complications (Bakker et al., 2024; Gaudernack et al., 2020). Several analgesics may be used to treat post-operative pain following a CS. The choice of analgesics is based on the demands of the patient as well as criteria like the intensity of the pain. Nonsteroidal anti-inflammatory medicines (NSAIDs) used mainly to treat pain and inflammation, ibuprofen, diclofenac, or ketorolac. Are frequently prescribed drugs whereas Opioids (such as morphine, oxycodone, or tramadol) are used to treat more severe pain following a CS, in addition and to target pain treatment in certain regions, local anesthetics like lidocaine or bupivacaine can be used as nerve blocks or wound infiltration (Gaudernack et al., 2020; Singh et al., 2022). In general, spinal anesthesia is preferred for CS. Spinal anesthesia provides a numb sensation from the waist down, allowing the mother to remain awake and alert during the procedure. It is considered safe for both the mother and the baby, as the medication does not cross the placenta in significant amounts. spinal anesthesia offers several advantages over general anesthesia for CS, It has a rapid onset, providing quick pain relief and minimizing the need for additional medications. It also allows for better control of pain during the surgery, ensuring the mother's comfort. Since the mother remains conscious, she can also bond with her newborn immediately after delivery(Singh et al., 2022; Sung et al., 2021) . Aim of the study: Determine the prevalence of CS and conduct a thorough analysis of the underlying indications, with the aim of implementing strategic measures to mitigate the CS rate. Reducing this rate will consequently diminish maternal morbidity and mortality, while simultaneously enhancing awareness among women regarding cesarean sections.

2. Patients and Methods

2.1. Study Design

The ongoing study was conducted in several hospitals in Karbala to assess the prevalence of CS and its associated factors among delivering women during December 2024. The study enrolled 548 pregnant women who gave birth in these hospitals during the study period, of whom 329 (about 60%) delivered by CS, while 219 (about 40%) had vaginal delivery. This distribution provided a suitable basis for comparing maternal and perinatal outcomes, patterns of analgesic use, and post-delivery recovery characteristics between the CS and vaginal delivery groups.

2.2. Data Collections

A special questionnaire was developed for this study and was filled out by the researcher during a direct interview with most of the cases.

Limitations: The limitations of the study may include:

A. Sample Bias

The study may be limited to a specific population or sample of women who underwent CS in Karbala. This may not be representative of all pregnant women in the area.

B. Recall Bias

The study relies on the accuracy of the information provided by participants, which
may be subject to recall bias. Participants may not accurately recall or report information about previous pregnancies, medical history, or other relevant factors.

C. Generalizability

The study results may not apply to other regions or population groups. Factors Influencing CS rates can vary based on cultural, social, and healthcare system differences.

3. Results

The prevalence of caesarean sections within the studied population was observed to be 60%. The indications and determinants of Caesarean delivery, as reported by the participants of the ongoing study, are delineated in the subsequent Table1.

Table1: CS Frequency and Indications

Variables	Caesarean sections	
	Frequency	Percentage %
Number	329	60%
Indications of CS		
Inability to give birth vaginally/dystocia	117	35,67%
Previous cs	82	25%
Health problems for the mother	23	7%
Pregnancy with twins	16	4,87%
The mother's young age	13	3,96%
Health problems for the fetus	14	4,26%
Child breech position	10	3,04%
Low amniotic fluid	6	1,82%
Increased age	1	0,3%
Ectopic pregnancy	1	0,3%
Type of anesthesia		
General	194	59,14%
Spinal	133	40,54%

Elective CS are scheduled deliveries performed before labor begins, usually in cases of pregnancy complications or by the mother's choice. Research shows that scheduling elective CS between the 39th and 41st weeks of pregnancy has positive effects on the baby's health, lowering the chances of needing respiratory support and improving neonatal outcomes. However, it is important to remember that elective CS should not be done before the 39-week mark. (Shatnerian, N.2021). in the present study, Findings about the women undergo elective CS are shown in Table2. The last part of the study including a comparison between the women delivered by normal vaginal method and those who undergo CS (elective or emergency) and the results is shown in Table3.

Table2: Demographic Criteria of Women Undergo Elective CS

Variables	Frequency	Percentage%
Mother's age at CS		
14_19 yrs.	5	5.31 %
20_29yrs	66	70.21 %
30_39yrs	22	23.40 %
>40yrs	1	1.06 %
# of Previous CS		
No previous	36	38.29 %
1	32	34.04 %
2	19	20.21 %
>3	7	7.44 %
Education status		
University and above	64	68.08 %
Primary/middle/preparatory stage	28	29.78 %
Nothing	2	2.12 %
Residence		
Rural	22	23.40 %
Urban	72	76.59 %
Working Status		
Working	59	62.76 %
Housewife	35	37.23 %
Gestational age in weeks		
37_42 weeks	62	65.95 %
<37 weeks	30	31.91 %
>42 weeks	1	1.06 %
Socio-economic		
high	26	27.65 %
middle	64	68.08 %
low	4	4.25 %
Type of facility		
Governmental	20	21.27 %
Private	74	78.72 %
Having risk factors		
Yes	14	14.89 %
No	80	85.10 %
Birth order of child		
1	46	48.93 %
2-4	42	44.68 %
>5	6	6.38 %

Table3: Comparison Between Women Undergoing Cesarean Sections And Vaginal Deliveries

Parameters	Vaginal delivery		Cesarean sections		P value
Variables	**Frequency**	**Percentage %**	**Frequency**	**Percentage %**	
number	219	39.9%	329	60%	
Type of complications					
Bladder and Intestinal injury	None		4	1.2%	
Nothing	155	70.7%	316	96%	
Postpartum hemorrhage	22	10%	35	10.6%	
ICU admission	3	1.3%	9	2.7%	
Pain in the bones, back and pelvis	14	6.3%	6	1.8%	$2*10^{-16}$
Hysterectomy	None		3	0.9%	
Pelvic organ prolapses	None		3	0.9%	
Wound dehiscence and sepsis	2	0.9%	8	2.4%	
Thrombosis problems	None		5	1.5%	
Recovery time after delivery					
2_7 days	70	31.9%	84	25.5%	
8_15 days	39	17.8%	124	37.6%	
16_21 days	22	10%	41	12.4%	
22_30 days	28	12.7%	64	19.4%	0.123
31_40 days	None		16	4.8%	
41-60 days	None		5	1.5%	
61_90 days	None		4	1.2%	
Duration of use of the analgesic					
1_5 days	88	40.1%	175	53.1%	
6_10 days	51	23.2%	118	35.8%	
11_15 days	4	1.8%	10	3%	0.086
>15 days	None		10	3%	
If necessary	31	14%	27	8.2%	
5-Stay in hospital for period					
1 day	57	26%	206	62.6%	
2 day	19	8.6%	94	28.5%	
3 day	6	2.7%	27	8.2%	$5*10^{-11}$
4_10 day	5	2.2%	30	9.1%	
Hours	63	28.7%	19	5.7%	
Type of analgesic					
IM	47	21.4%	48	14.5%	
Oral	51	23.2%	44	13.3%	$3*10^{-8}$
IV	89	40.6%	251	76.2%	
*significant when p value <0.05					

4.Disscussion

In the ongoing study, the main cause of CS was the difficulty in childbirth and inability for vaginal delivery, which is considered one of the main factors leading to the cs procedure. In a previous study across several cities, it was found that having a previous cs is a major factor contributing to the recurrence of cesarean deliveries. Our study confirmed this point. Obstetricians may recommend this approach to address risks associated with prior CS scars or when information about the previous cesarean delivery is limited. This underscores the significance of considering medical history in decision-making (Ashiko et al., 2025; Maroyi et al., 2021; Sung et al., 2021; Tesfahun et al., 2023). One of the significant indicators for CS is maternal health issues. High blood pressure is one of these health problems and is considered a major factor influencing the decision to undergo the procedure. CS offer numerous advantages in obstetric care. They minimize the risk of complications by preventing the exacerbation of high blood pressure during childbirth, which in turn reduces the likelihood of serious issues like uterine bleeding (Ashiko et al., 2025). Additionally, the precise timing of CS enables better childbirth planning, thereby alleviating the psychological stress associated with uncertain timing. Moreover, unlike natural childbirth, CS help alleviate the physiological strain on the body, including the elevation of blood pressure and stress levels. for women with pre-existing high blood pressure, CS provide a means of managing specific risks, such as increased bleeding or clotting tendencies. These benefits highlight the importance and practicality of c- sections in obstetric care (Liana et al., 2018; Nuampa et al., 2023; Tesfahun et al., 2023). Women with pre-existing diabetes before pregnancy are more susceptible to cesarean delivery. This result aligns with findings from other studies, including an Omani study that found a link between pregnancy toxemia and an increased risk of cs. Controlling blood sugar levels during natural childbirth can pose challenges, potentially raising the risk of complications for both the mother and the baby. Additionally, gestational diabetes may heighten the risk of fetal oxygen deprivation (Liana et al., 2018). during natural childbirth. In cases of gestational diabetes, a CS may be a safer option to avoid complications like vaginal tearing and leakage. Moreover, infants born to mothers with gestational diabetes are more likely to be overweight at birth, increasing their susceptibility to future health issues. These considerations underscore the importance of managing gestational diabetes during childbirth (Al Bekai et al., 2025). Fetal health issues, such as spinal deformities, increased weight and size, growth retardation, oxygen deficiency, elevated bilirubin levels (jaundice), and organ malformations, played a role in increasing the likelihood of CS. Non-cephalic presentation (fetal malpresentation) was identified as another independent risk factor for cs. This finding aligns with a British study investigating the reasons for c- sections, which found a correlation between breech births and this type of procedure (Moh et al., 2012). According to our study, the most common anesthesia used in CS is general anesthesia may due to that general anesthesia is deemed necessary in urgent cases, particularly for expedited deliveries due to medical exigencies. Patient preferences, guided by past experiences or physician recommendations, also play a crucial role in determining the choice between general and regional anesthesia. Furthermore, certain medical conditions, like spinal issues or complex surgical needs, may favor the use of general anesthesia for c- sections. Additionally, institutional policies or team preferences within the medical community can influence the selection of anesthesia methods for such procedures (Ring et al., 2021a, 2021b). Advanced maternal age, defined as 35 years of age or older, as shown in Table2, has a higher probability of choosing

elective CS. due to increased risks associated with labor complications, such as fetal distress or prolonged labor. The mother's advanced age is also associated with a higher prevalence of diseases, which could impact her decision regarding the mother's delivery. A younger mother, as shown in Table2, may choose elective CS because of the lack of information and heightened fears surrounding natural birth (Moh et al., 2012; Ring et al., 2021a, 2021b). The impact of education status on the choice of a planned CS can vary, as shown in Table2, and is influenced by decision-making abilities, access to information, and understanding of medical procedures. However, it is important to note that education status alone does not solely determine the choice of a planned CS. Higher education levels can enhance understanding of the risks and benefits associated with different birthing methods, including CS. On the other hand, individuals with lower education levels may choose CS (Zare et al., 2021). because they have limited access to accurate childbirth information, resulting in a lack of knowledge and understanding. Additionally, it is worth noting that the CS rate tends to be higher among highly educated women. This may be due to factors such as getting married and becoming pregnant at an older age, which are commonly observed in highly educated individuals (Tesfay et al., 2022; Yunitawati et al., 2024). The choice of planned CS can be influenced by healthcare access, medical facilities, and cultural beliefs, as mentioned in Table 4. In urban areas with well-developed healthcare resources, there is a higher likelihood of planned CS due to convenience, skilled providers, and awareness of its benefits. However, in rural areas, there is a preference for vaginal delivery due to limited healthcare services, affordability, and cultural influences. It is worth mentioning that some women in rural areas may choose planned CS due to the lack of healthcare services. Healthcare providers should consider these factors when discussing delivery options with patients (Dlugatch et al., 2024; Reyes-Amargant et al., 2025). The working status (whether an individual is employed or a housewife) can influence The decision to have a planned CS and by a complex issue that depends on multiple factors. One important consideration is the availability of time. Working individuals often have busy schedules and limited flexibility, making vaginal delivery challenging. Planned Cs offer a more predictable and controllable delivery process, allowing individuals to better manage their work responsibilities. Financial stability is another factor. Working individuals may have better access to healthcare resources and insurance coverage, making planned CS more feasible. On the other hand, those who do not work or are housewives may have financial constraints that limit their options (Dlugatch et al., 2024; Reyes-Amargant et al., 2025; Yunitawati et al., 2024; Zare et al., 2021). Cultural and societal expectations also come into play. In some cultures, there may be pressure on working individuals to quickly return to their professional duties after childbirth. This may lead to a preference for planned CS. The timing of a planned cs can be influenced by the gestational age of the pregnancy, as shown in Table3 Typically, a planned CS is considered optimal between 39 and 40 weeks of gestation, unless there are specific medical reasons for an earlier delivery. (Royal Australian and New Zealand College of Obstetricians (Michael et al., 2024; Roudsari et al., 2015) .When a pregnancy is full-term (between 37 and 42 weeks), healthcare providers may discuss the option of a planned CST with the expectant individual. Reasons for this choice could include medical conditions that pose risks to a vaginal delivery, such as placenta previa or certain uterine abnormalities. Furthermore, if the baby is in a breech position later in the pregnancy, a planned cs might be recommended to minimize potential risks associated with a vaginal breech birth. It is rare for birth to take place before 37 weeks or after 42 weeks, which is why most births were within the normal time of birth (Jirra et al., 2023; Meena et al., 2023; Roudsari et al., 2015).

The decision-making process regarding planned CS can vary depending on socio-economic status, In higher socioeconomic groups, factors like convenience and personal preferences often influence the decision, even without medical indications. Middle socio-economic groups consider medical indications, healthcare professionals' recommendations, and also factors like public healthcare availability and costs. Lower socio-economic groups face financial constraints and limited access to healthcare, leading them to rely on public healthcare services and prioritize medical indications and professional recommendations. Choosing to undergo a planned CS at a government or private facility is determined by various factors such as accessibility, availability, quality of care, cost, and trust in the healthcare system. The government facilities are usually cheaper, more accessible, and offer competent medical professionals. Many women may choose private facilities, because they provide more personalized and luxurious care with better amenities, although at a higher cost. Trust in the healthcare system can affect a person's decision-making, with some individuals preferring private facilities due to confidence in the care provided, while others trust the experience of doctors in government facilities (Jirra et al., 2023; Michael et al., 2024; Reyes-Amargant et al., 2025; Roudsari et al., 2015). Compared to vaginal deliveries, women delivered by CS had a significantly longer hospital stay indexing the extra time needed for surgical recovery, wound care, and post-operative problems monitoring such as infection, thrombo embolism, or hemorrhage. while many women with uncomplicated vaginal delivery were discharged within even within hours after delivery, This increasing length of stay has important effects for health-system planning, bed occupancy, and the total delivery costs, especially in cases with rising CS frequency.in addition, Women may experience a delay in regaining their physical strength, as well as a longer healing process for the surgical incision, which may result in limitations in physical activity and a prolonged time to resume normal daily activities (Kebede et al., 2024; Qiao et al., 2023; Taylor et al., 1995). The present study showed that the duration of analgesic use tended to be longer and more frequent among CS women and its clinically expected because CS is a major abdominal surgery and have tissue trauma and pain, which often requires systemic analgesics to maintain mobilization and relief. From a pharmaceutical point of view, this result highlights the need for accurate pain-management protocols after CS and focusing the attention to adjust dosing, adverse drug effects monitoring, and educated women about the duration of analgesic use to avoid side or adverse effects. The type of analgesic used also differed significantly between the two groups, with a higher dependance on parenteral form for CS women, while vaginal deliveries frequently received oral doses. This is clinically expected because clinicians often use fast -acting and potent routes of administration to control acute post-operative pain , whereas the less invasive nature of vaginal birth allows adequate pain control with oral or intramuscular regimens. These findings urgent the creation of evidence-based analgesic protocols specified to mode of delivery, aiding in balance effective pain relief and minimize opioid using and promotion of early breastfeeding and maternal mobility (Goel et al., 2023; Wang & Doan, 2024).

5.Conclusion

Cesarean section , especially the elective one, is influenced by a number of maternal, fetal, socio-economic, and cultural factors. Maternal age, educational level, employment status, financial stability, and access to healthcare significantly affect the decision to undergo a planned CS. the rising rates of CS highlight the urgent need to increased awareness and education about the potential risks and benefits of the procedure. From a pharmaceutical perspective, CS presents unique challenges in postoperative care, particularly in pain management. The surgical nature of the procedure necessitates personalized analgesic protocols to balance between the efficacy and safety, lowering opioid consumption

References

Al Bekai, E., Beaini, C. El, Kalout, K., Safieddine, O., Semaan, S., Sahyoun, F., Ghadieh, H. E., Azar, S., Kanaan, A., & Harb, F. (2025). The Hidden Impact of Gestational Diabetes: Unveiling Offspring Complications and Long-Term Effects. In *Life* (Vol. 15, Issue 3). https://doi.org/10.3390/life15030440

Ashiko, A., Tilahun, C., Geta, T., Abraham, A., & Kassaye, G. (2025). Factors associated with primary cesarean section delivery among women who gave birth at Wolaita Sodo University comprehensive specialized hospital, Southern Ethiopia. *Scientific Reports*, *15*(1). https://doi.org/10.1038/s41598-025-21158-4

Bakker, W., Sandberg, E. M., Keetels, S., Schoones, J. W., Kujabi, M. L., Maaløe, N., Maswime, S., & van den Akker, T. (2024). Inconsistent definitions of prolonged labor in international literature: a scoping review. In *AJOG Global Reports* (Vol. 4, Issue 3). https://doi.org/10.1016/j.xagr.2024.100360

Dlugatch, R., Georgieva, A., & Kerasidou, A. (2024). AI-driven decision support systems and epistemic reliance: a qualitative study on obstetricians' and midwives' perspectives on integrating AI-driven CTG into clinical decision making. *BMC Medical Ethics*, *25*(1). https://doi.org/10.1186/s12910-023-00990-1

Gaudernack, L. C., Michelsen, T. M., Egeland, T., Voldner, N., & Lukasse, M. (2020). Does prolonged labor affect the birth experience and subsequent wish for cesarean section among first-time mothers? A quantitative and qualitative analysis of a survey from Norway. In *BMC Pregnancy and Childbirth* (Vol. 20, Issue 1). https://doi.org/10.1186/s12884-020-03196-0

Gedefaw, G., Demis, A., Alemnew, B., Wondmieneh, A., Getie, A., & Waltengus, F. (2020). Prevalence, indications, and outcomes of caesarean section deliveries in Ethiopia: A systematic review and meta-analysis. In *Patient Safety in Surgery* (Vol. 14, Issue 1). https://doi.org/10.1186/s13037-020-00236-8

Goel, S., Deshpande, S. V, Jadawala, V. H., Suneja, A., & Singh, R. (2023). A Comprehensive Review of Postoperative Analgesics Used in Orthopedic Practice. *Cureus*. https://doi.org/10.7759/cureus.48750

Hannah, M. E. (2004). Planned elective cesarean section: A reasonable choice for some women? In *CMAJ. Canadian Medical Association Journal* (Vol. 170, Issue 5). https://doi.org/10.1503/cmaj.1032002

Jirra, K., Surya Durga Prasad, M., & Shamanna, B. R. (2023). Understanding The Reasons for High Rates of Caesarean Section Deliveries in Telangana, South India: An Explorative Study. *National Journal of Community Medicine*, *14*(11). https://doi.org/10.55489/njcm.141120233324

Kebede, E. S., Abdalla, S., Demeke, B., & Darmstadt, G. L. (2024). Factors in postoperative length of hospital stay among surgical patients in a rural Ethiopian hospital: an observational study. *Pan African Medical Journal*, *47*. https://doi.org/10.11604/pamj.2024.47.212.36450

Liana, P., Sima, R., Carp, D., Alexandroaia, C., Balalau, D., Stanescu, A., & Olaru, O. (2018). The psychosocial impact of vaginal delivery and cesarean section in primiparous women. *Journal of Mind and Medical Sciences*, *5*(1). https://doi.org/10.22543/7674.51.p7074

Maroyi, R., Naomi, B., Moureau, M. K., Marceline, B. S., Ingersoll, C., Nerville, R., & Mukwege, D. (2021). Factors associated with successful vaginal birth after a primary cesarean section in women with an optimal inter-delivery interval. *International Journal of Women's Health*, *13*. https://doi.org/10.2147/IJWH.S334269

Meena, P., Meena, S., Sharma, B., & Chaudhary, R. (2023). Comparative study on maternal morbidity in elective and emergency caeserean section at tertiary hospital. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *12*(9). https://doi.org/10.18203/2320-1770.ijrcog20232724

Michael, T. O., Agbana, R. D., & Naidoo, K. (2024). Exploring Perceptions of Cesarean Sections among Postpartum Women in Nigeria: A Qualitative Study. *Women*, *4*(1). https://doi.org/10.3390/women4010006

Moh, W., Graham, J. M., Wadhawan, I., & Sanchez-Lara, P. A. (2012). Extrinsic factors influencing fetal deformations and intrauterine growth restriction. In *Journal of Pregnancy* (Vol. 2012). https://doi.org/10.1155/2012/750485

Nichols, E., Szoeke, C. E. I., Vollset, S. E., Abbasi, N., Abd-Allah, F., Abdela, J., Aichour, M. T. E., Akinyemi, R. O., Alahdab, F., Asgedom, S. W., Awasthi, A., Barker-Collo, S. L., Baune, B. T., Béjot, Y., Belachew, A. B., Bennett, D. A., Biadgo, B., Bijani, A., Bin Sayeed, M. S., … Murray, C. J. L. (2019). Global, regional, and national burden of Alzheimer's disease and other dementias, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology*, *18*(1). https://doi.org/10.1016/S1474-4422(18)30403-4

Nuampa, S., Ratinthorn, A., Lumbiganon, P., Rungreangkulkij, S., Rujiraprasert, N., Buaboon, N., Jampathong, N., Dumont, A., Hanson, C., de Loenzien, M., Bohren, M. A., & Betrán, A. P. (2023). "Because it eases my Childbirth Plan": a qualitative study on factors contributing to preferences for caesarean section in Thailand. *BMC Pregnancy and Childbirth*, *23*(1). https://doi.org/10.1186/s12884-023-05576-8

Qiao, Y., Zhang, T., Bai, T., Peng, X., Lin, H., & Zhang, A. (2023). Effect of body mass index on surgical site wound infection, mortality, and postoperative hospital stay in subjects undergoing possibly curative surgery for colorectal cancer: A meta-analysis. In *International Wound Journal* (Vol. 20, Issue 1). https://doi.org/10.1111/iwj.13860

Ray Dorsey, E., Elbaz, A., Nichols, E., Abd-Allah, F., Abdelalim, A., Adsuar, J. C., Ansha, M. G., Brayne, C., Choi, J. Y. J., Collado-Mateo, D., Dahodwala, N., Do, H. P., Edessa, D., Endres, M., Fereshtehnejad, S. M., Foreman, K. J., Gankpe, F. G., Gupta, R., Hankey, G. J., … Murray, C. J. L. (2018). Global, regional, and national burden of Parkinson's disease, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology*, *17*(11). https://doi.org/10.1016/S1474-4422(18)30295-3

Reyes-Amargant, Z., Fuentes-Pumarola, C., Roqueta-Vall-llosera, M., Garre-Olmo, J., Ballester-Ferrando, D., & Rascón-Hernán, C. (2025). Obstetric violence: perspectives from mothers, midwives, and obstetricians. *Frontiers in Global Women's Health*, *6*. https://doi.org/10.3389/fgwh.2025.1609632

Ring, L., Landau, R., & Delgado, C. (2021a). OBSTETRIC ANESTHESIA (LR LEFFERT, SECTION EDITOR) The Current Role of General Anesthesia for Cesarean Delivery. *Current Anesthesiology Reports*, *11*.

Ring, L., Landau, R., & Delgado, C. (2021b). The Current Role of General Anesthesia for Cesarean Delivery. In *Current Anesthesiology Reports* (Vol. 11, Issue 1). https://doi.org/10.1007/s40140-021-00437-6

Roudsari, R. L., Zakerihamidi, M., & Khoei, E. M. (2015). Socio-cultural beliefs, values and traditions regarding women's preferred mode of birth in the north of Iran. *International Journal of Community Based Nursing and Midwifery*, *3*(3).

Singh, N. P., Monks, D., Makkar, J. K., Palanisamy, A., Sultan, P., & Singh, P. M. (2022). Efficacy of regional blocks or local anaesthetic infiltration for analgesia after caesarean delivery: a network meta-analysis of randomised controlled trials. In *Anaesthesia* (Vol. 77, Issue 4). https://doi.org/10.1111/anae.15645

Sung, T. Y., Jee, Y. S., You, H. J., & Cho, C. K. (2021). Comparison of the effect of general and spinal anesthesia for elective cesarean section on maternal and fetal outcomes: a retrospective cohort study. *Anesthesia and Pain Medicine*, *16*(1). https://doi.org/10.17085/apm.20072

Taylor, G. D., Kirkland, T. A., McKenzie, M. M., Sutherland, B., & Wiens, R. M. (1995). The effect of surgical wound infection on postoperative hospital stay. *Canadian Journal of Surgery*, *38*(2). https://doi.org/10.21608/ejhm.2023.279933

Tegegne, G. A., Rade, B. K., Yismaw, A. E., Taye, W., & Mengistie, B. A. (2024). Predictors of successful trial of labor after cesarean section (TOLAC) in women with one prior transverse cesarean section at Tertiary Hospitals in northwest Ethiopia: a multicenter study. *BMC Pregnancy and Childbirth*, *24*(1). https://doi.org/10.1186/s12884-024-06432-z

Tesfahun, T. D., Awoke, A. M., Kefale, M. M., Balcha, W. F., Nega, A. T., Gezahegn, T. W., Alemayehu, B. A., Dabalo, M. L., Bogale, T. W., Azene, Z., Nigatu, S., & Beyene, A. (2023). Factors associated with successful vaginal birth after one lower uterine transverse cesarean section delivery. *Scientific Reports*, *13*(1). https://doi.org/10.1038/s41598-023-36027-1

Tesfay, N., Tariku, R., Zenebe, A., & Woldeyohannes, F. (2022). Critical factors associated with postpartum maternal death in Ethiopia. *PLoS ONE*, *17*(6 June). https://doi.org/10.1371/journal.pone.0270495

Wang, J., & Doan, L. V. (2024). Clinical pain management: Current practice and recent innovations in research. In *Cell Reports Medicine* (Vol. 5, Issue 10). https://doi.org/10.1016/j.xcrm.2024.101786

Yunitawati, D., Latifah, L., Suryaputri, I. Y., & Laksono, A. D. (2024). A Higher Maternal Education Level Could Be a Critical Factor in the Exceeded Cesarean Section Delivery in Indonesia. *Iranian Journal of Public Health*, *53*(1). https://doi.org/10.18502/ijph.v53i1.14698

Zare, Z., Hakkak, H. R. M., Yaghobi, Z., Ghoochani, H. T., Joveini, H., & Hosseini, S. H. (2021). The Impact of an Educational Intervention Based on Theory Of Planned Behavior on Selecting Mode of Delivery in Primigravidae Women With Intention of Elective Cesarean Section. *Journal of Midwifery and Reproductive Health*, *9*(2). https://doi.org/10.22038/jmrh.2021.53294.1656