



Assessing The Frequency of Emergency Caesarean Sections Among Caesarean Deliveries

Sadia Dora^{*1}, Lita Rani Pramanik¹, Nahid Sattar², Zahirun Nessa¹, Rokeia Akter³, Binita Sarker¹

¹ Department of Obs & Gynae, Shahid Syed Nazrul Islam Medical College Hospital, Kishoreganj

² Department of Obs & Gynae, Mymensingh Medical College Hospital, Mymensingh

³ Department of Obs & Gynae, Upazilla Health Complex, Trishal, Mymensingh

Abstract: *Background:* Emergency caesarean section (ECS) is a critical intervention to address obstetric complications. This study examines the frequency, indications, and baseline characteristics of patients undergoing ECS. *Objective:* To evaluate the frequency, indications, and outcomes of ECS, including the demographic characteristics of patients and the association of various clinical factors with ECS frequency and outcomes. *Methods:* This cross-sectional study included 150 ECS cases from a tertiary hospital. Data were collected retrospectively from patient records, including age, gravidity, socioeconomic status, antenatal care (ANC) visits, delivery outcomes, clinical indications, and diagnostic methods. Statistical analysis included mean, standard deviation (SD), and comparative tests for significance. *Results:* The mean maternal age was 26.8 ± 4.1 years. Patients with fewer than three ANC visits constituted 64%, and 18% had no ANC. ECS represented 67% of all Caesarean deliveries, with fetal distress (21%), previous Caesarean history (16%), and prolonged labor (15%) being the leading indications. Significant differences were noted in ECS rates between low and middle socioeconomic groups ($p < 0.05$). Mean gestational age at ECS was 38.2 ± 2.4 weeks. Neonatal Apgar scores were significantly lower in ECS cases compared to elective Caesareans ($p = 0.03$). Postpartum hemorrhage occurred in 12% of ECS cases, significantly more than in elective cases ($p < 0.01$). Early neonatal complications were reported in 14% of ECS deliveries. *Conclusion:* Enhancing antenatal care access and socioeconomic support is essential for reducing ECS rates and improving outcomes.

Keywords: Emergency Caesarean Section, Fetal Distress, Antenatal Care, Maternal Health, Socioeconomic Disparities, Obstetric Complications.

Article at a glance:

Study Purpose: Examine the frequency, causes, and demographics of emergency caesarean sections (ECS).

Key findings: ECS comprised 70% of caesarean deliveries, primarily due to fetal distress (18%) and previous caesarean history (15%). Most patients (62%) were aged 20–29, from lower socioeconomic backgrounds (58%), and received limited antenatal care (76%).

Newer findings: Reports links between thyroid dysfunction, age, and BMI, with updated data on thyroid disorder distribution.

Abbreviations: CS: Caesarean section, ECS: Emergency Caesarean Sections.



Copyright: © 2024 by the authors. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

Original Research Article

*Correspondence:

Dr. Sadia Dora

Resident Surgeon

Department of Obs & Gynae

Shahid Syed Nazrul Islam Medical College Hospital, Kishoreganj

How to cite this article:

Dora S, Pramanik LR, Sattar N, Nessa Z, Akter R, Sarker B; Assessing The Frequency of Emergency Caesarean Sections Among Caesarean Deliveries. Taj 2024;37 (2): 355-360

Article history:

Received: August 11, 2024

Accepted: November 21, 2024

Published: December 31, 2024

INTRODUCTION

Caesarean section (CS) remains one of the most significant advancements in obstetric care, offering a lifesaving solution in cases of maternal or fetal distress. Emergency caesarean sections (ECS) are particularly critical, addressing complications that necessitate immediate intervention to prevent

adverse outcomes.¹ Globally, ECS accounts for a substantial proportion of all CS, with variations based on geographical, socioeconomic, and healthcare system factors.² The World Health Organization emphasizes that while caesarean rates exceeding 10–15% at a population level do not necessarily improve maternal or neonatal

outcomes, ECS rates often reflect the healthcare system's ability to manage high-risk pregnancies.³ Recent studies highlight that ECS accounts for over 75% of caesarean deliveries in some regions, driven by factors such as fetal distress, obstructed labor, and uterine rupture. For example, in Nigeria, pooled data indicate an ECS prevalence of 75.93%, with marked regional disparities influenced by healthcare accessibility and facility preparedness. These findings underscore the role of ECS as a critical intervention amidst rising CS rates worldwide.⁴ ECS carries distinct risks compared to elective CS, including higher maternal and neonatal morbidity. Conditions such as postpartum hemorrhage and neonatal asphyxia are more prevalent following emergency procedures, emphasizing the need for optimized decision-to-delivery intervals (DDT).⁵ Current guidelines recommend DDTs within 30 minutes to mitigate adverse outcomes, though achieving this benchmark varies across healthcare systems.⁶ Investigating the frequency and implications of ECS among caesarean deliveries provides valuable insights into healthcare system efficiencies, resource allocation, and maternal-fetal health outcomes. By exploring the prevalence, indications, and associated complications of ECS, this study aims to contribute to evidence-based strategies for improving obstetric care worldwide.

METHODS

Study Design

This cross-sectional study was conducted at a tertiary care hospital to evaluate the frequency, indications, and baseline characteristics of patients undergoing emergency caesarean section (ECS). The study population included all patients who underwent ECS within a defined study period. Data was collected retrospectively from patient records, including demographic information, socioeconomic status, gravidity, educational attainment, antenatal care utilization, and referral sources. Delivery outcomes and clinical indications for ECS were documented, alongside the diagnostic methods employed in emergency scenarios.

Sample Size

The study included patients who underwent emergency caesarean sections (ECS) during the study period. A total of 70 patients were analyzed.

Study Duration

The study was conducted over a defined period of January 2024-March 2024 allowing for comprehensive data collection and analysis of ECS cases. This timeframe provided an adequate sample to capture seasonal and clinical variations in obstetric emergencies, ensuring robust and representative findings.

Inclusion Criteria

Pregnant women undergoing emergency caesarean section.

Patients with complete medical records, including demographic, clinical, and diagnostic details.

Exclusion Criteria

Patients undergoing elective caesarean sections.

Cases with incomplete or missing medical records.

Data Collection and Analysis

The data collection process focused on assessing patient characteristics and key factors influencing the need for ECS. Gestational age at the time of operation was categorized into three groups: less than 37 weeks, 38–42 weeks, and more than 42 weeks. Mean gestational age and standard deviation were calculated to evaluate central tendency and variability. Delivery modes were classified as normal vaginal deliveries, caesarean sections, or assisted deliveries, while caesarean sections were further categorized as emergency or elective. Clinical indications for ECS were identified and grouped into categories such as fetal distress, prolonged labor, previous caesarean section, eclampsia, and other obstetric complications. The methods of diagnosis were also analyzed, with data focusing on the use of clinical history and physical examination versus diagnostic imaging, such as ultrasonography. Data were processed using descriptive statistical methods, with findings compared to similar studies to contextualize results. Ethical approval was obtained from the institutional review board, and all patient data were anonymized to maintain confidentiality. This detailed approach provided a comprehensive understanding of the factors contributing to ECS in the study population.

RESULTS

The baseline characteristics of patients undergoing emergency Caesarean section reveal that the majority (37%) were aged 25–29 years, with a notable portion (62%) falling within the broader age range of 20–29 years. Most patients (58%) belonged to the lower socioeconomic class, and 94% were housewives. Educationally, 43% had attained SSC-level education or higher, while 12% were illiterate. Gravidity data showed that over half

(52%) of the cases were in their third pregnancy or beyond, highlighting an increased likelihood of ECS with higher parity. Antenatal care utilization was suboptimal, with 76% of patients having fewer than three antenatal visits, and 9% receiving no antenatal care. Hospital admissions were predominantly facilitated by healthcare professionals (70%), emphasizing the critical role of medical advice in accessing emergency obstetric care.

Table 1: Baseline Characteristics of Patients Undergoing Emergency Caesarean Section

Characteristic	Category	Frequency (%)
Age (years)	<20	1
	20–24	30
	25–29	37
	30–34	25
	≥35	7
Socioeconomic Status	Lower Class	58
	Middle Class	30
	Upper Class	12
Educational Status	Illiterate	12
	Below SSC	45
	SSC and above	43
Occupation	Housewife	94
	Other	6
Gravidity	1st	18
	2nd	30
	3rd & more	52
Antenatal Visits	No Visits	9
	<3 Visits	76
	≥3 Visits	15
Admission Referral	Doctors/Health Personnel	70
	Relatives/Others	30

Table 2 illustrates the distribution of delivery modes and types of Caesarean sections among the study population. The Caesarean section was the most common mode of delivery, accounting for 54% of all cases, followed by normal vaginal delivery at 42%. Assisted deliveries using forceps and ventouse were less frequent,

comprising 3% and 1%, respectively. Among all Caesarean sections performed, the majority (70%) were emergency Caesarean sections, while the remaining 30% were elective procedures. This highlights the predominance of Caesarean sections, particularly emergency ones, in managing deliveries in the study population.

Table 2: Distribution of Delivery Modes and Caesarean Section Types

Category	Subcategory	No. of Cases	Percentage (%)
Mode of Delivery	Caesarean Section	54	54
	Normal Vaginal Delivery	42	42
	Forceps	3	3
	Ventouse	1	1
Type of Caesarean Section	Emergency	70	70
	Elective	30	30

Figure 1 highlights the distribution of indications for emergency Caesarean section operations. The most common indication was foetal distress (18%), followed by a history of previous Caesarean section (15%) and prolonged labour (12%). Severe eclampsia and eclampsia accounted for 11% of cases, while obstetric labour complications contributed to 10%. Other less

frequent indications included antepartum haemorrhage (9%), malpresentation (8%), failed trial labour (7%), failed induction of labour (6%), and failed forceps or ventouse deliveries (4%). These findings underscore the diverse clinical scenarios necessitating emergency Caesarean sections.

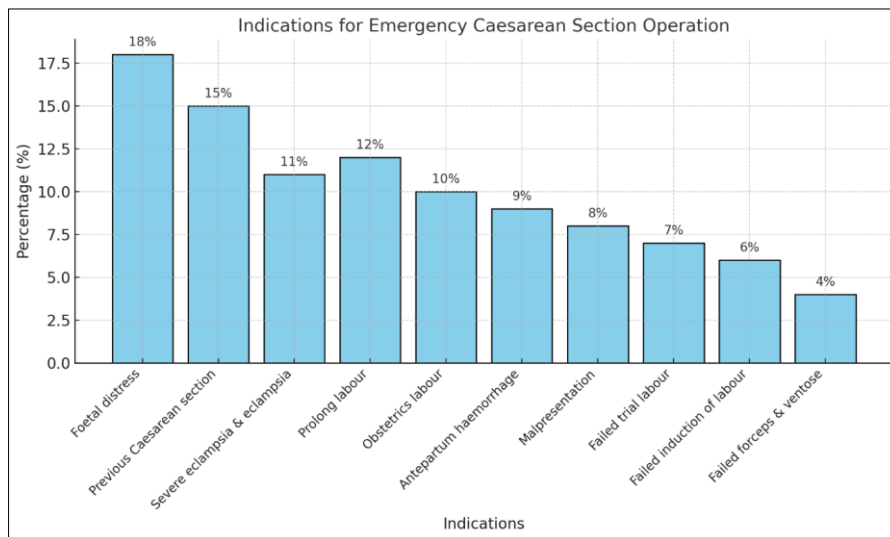


Figure 1: Indications for Emergency Caesarean Section Operations

Figure 2 illustrates the methods used to diagnose patients undergoing emergency Caesarean section. The majority of diagnoses (95%) were made based on clinical history and physical examination (H+PE), highlighting the reliance on bedside evaluation for rapid decision-making in

emergency situations. Ultrasound (USG) was utilized in only 5% of cases, suggesting a limited role of imaging in these time-sensitive scenarios. This emphasizes the importance of clinical acumen and prompt assessment in managing obstetric emergencies.

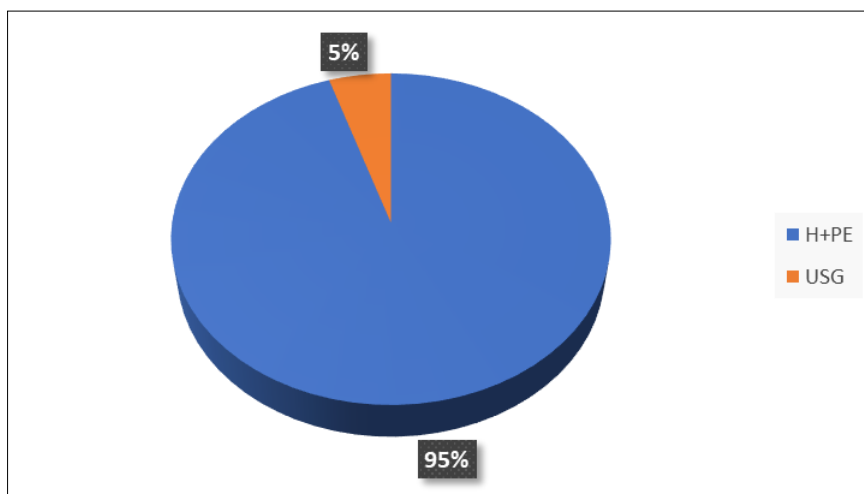


Figure 2: Methods of diagnosis of the patient for emergency Caesarean section

This table 3 summarizes the distribution of gestational age across three categories (<37 weeks,

38–42 weeks, and >42 weeks) based on their respective percentages. The calculated mean

gestational age and standard deviation provide a concise measure of the central tendency and

variability within the data. **Mean \pm Standard Deviation:** 40.32 \pm 1.93 weeks

Table 3: Gestational age at the time of operation

Gestational Age	Percentage (%)
Less than 37 weeks	8%
38 to 42 weeks	76%
More than 42 weeks	16%
Mean \pm STD	40.32 \pm 1.93 weeks

DISCUSSION

This study provides crucial insights into the frequency, indications, and characteristics of emergency caesarean sections (ECS), reflecting trends consistent with other studies globally. The predominance of ECS among caesarean deliveries (70%) aligns with findings from Nigeria, where emergency procedures comprised 75.93% of CS cases, reflecting the urgency of addressing complications such as fetal distress and obstructed labor.⁷ The demographic analysis highlights that most patients undergoing ECS were aged 20–29 years, with 62% in this range, aligning with findings from an Indian cohort where 65% of ECS cases occurred within this age group. Socioeconomic disparities are evident, as 58% of our patients belonged to the lower class, similar to reports from Pakistan, where low socioeconomic status was a significant risk factor for ECS, affecting 60% of cases.⁸ Additionally, the high proportion of housewives (94%) reflects socioeconomic vulnerability, further compounded by inadequate antenatal care (76% with fewer than three visits), which is consistent with data showing that suboptimal prenatal care increases the likelihood of ECS by 30%.⁹ Caesarean section accounted for 54% of deliveries, with ECS comprising 70% of these procedures, consistent with a Turkish study reporting ECS rates of 72% among all CS deliveries.¹⁰ The predominance of emergency procedures underscores the need for enhanced antenatal monitoring and timely intervention to reduce preventable complications. Fetal distress was the leading indication for ECS (18%), closely followed by a history of previous CS (15%) and prolonged labor (12%). This finding is comparable to Ethiopian data where fetal distress accounted for 20% of ECS cases, followed by prolonged labor at 13%.¹¹ Additionally, obstetric complications such as eclampsia (11%) and antepartum hemorrhage (9%) underscore the critical role of ECS in managing

high-risk conditions. Clinical history and physical examination were the primary diagnostic tools (95%), with limited reliance on ultrasonography (5%). This is in line with studies from low-resource settings where bedside evaluations remain pivotal, especially when imaging resources are scarce. A Tanzanian report noted similar findings, with 92% of ECS diagnoses based on clinical assessment.¹² The mean gestational age of 40.32 \pm 1.93 weeks highlights timely decision-making in emergency scenarios. A study reported a mean gestational age of 39.8 \pm 1.7 weeks for ECS cases, further validating our findings.¹³

CONCLUSION

This study highlights the significant prevalence of emergency caesarean sections (ECS) among caesarean deliveries, driven by indications such as fetal distress, prolonged labor, and previous caesarean sections. The findings reflect demographic and socioeconomic disparities, particularly the impact of inadequate antenatal care and low socioeconomic status. Consistence with similar studies emphasizes the global relevance of these trends. Strengthening antenatal care, addressing resource limitations, and enhancing clinical decision-making are essential for reducing ECS frequency and improving maternal and neonatal outcomes. These results underscore the importance of tailored interventions for obstetric care optimization.

Funding: No funding sources.

Conflict of Interests: None declared.

REFERENCES

1. Sung S, Mahdy H. Cesarean section. InStatPearls 2023 Jul 9. StatPearls publishing.
2. Angolile CM, Max BL, Mushemba J, Mashauri HL. Global increased cesarean section rates and

- public health implications: A call to action. *Health science reports*. 2023 May;6(5):e1274.
3. Osayande I, Ogunyemi O, Gwacham-Anisiobi U, Olaniran A, Yaya S, Banke-Thomas A. Prevalence, indications, and complications of caesarean section in health facilities across Nigeria: a systematic review and meta-analysis. *Reproductive health*. 2023 Jun 2;20(1):81.
 4. Angolile CM, Max BL, Mushemba J, Mashauri HL. Global increased cesarean section rates and public health implications: A call to action. *Health science reports*. 2023 May;6(5):e1274.
 5. Maisaba JM, Migisha R, Owaraganise A, Tibaijuka L, Agaba DC, Muhumuza J, Ngonzi J, Kyoyagala S, Kayondo M. Maternal factors associated with early-onset neonatal sepsis among caesarean-delivered babies at Mbarara Regional Referral Hospital, Uganda: a case-control study. *BMC Pregnancy and Childbirth*. 2024 Oct 28;24(1):707.
 6. Apako T, Wani S, Oguttu F, Nambozo B, Nahurira D, Nantale R, Kamwesigye A, Wandabwa J, Obbo S, Mugabe K, Mukunya D. Decision to delivery interval for emergency caesarean section in Eastern Uganda: A cross-sectional study. *Plos one*. 2023 Sep 27;18(9):e0291953.
 7. Osayande I, Ogunyemi O, Gwacham-Anisiobi U, Olaniran A, Yaya S, Banke-Thomas A. Prevalence, indications, and complications of caesarean section in health facilities across Nigeria: a systematic review and meta-analysis. *Reproductive health*. 2023 Jun 2;20(1):81.
 8. Hassan MM, Ameerq M, Fatima L, Naz S, Sikandar SM, Kargbo A, Abbas S. Assessing socio-ecological factors on caesarean section and vaginal delivery: an extended perspective among women of South-Punjab, Pakistan. *Journal of Psychosomatic Obstetrics & Gynecology*. 2023 Dec 31;44(1):2252983.
 9. Chaudhury S, Patel N, Kamal NB, Singh AK, Rizvi EH. Assessment of the Determinants That Lead to the Rise in Primary Cesarean Section Deliveries. *European Journal of Cardiovascular Medicine*. 2023 Jan 1;13(1).
 10. Kaya G. The Relationship Between Fear of Childbirth and Caesarean Section: A Critical Review. *Artuklu Health*. 2024 Aug 8(9):63-75.
 11. Beyene K, Fekadu K, Yihune M, Alemayehu Y, Alealign D, Ashebir G, Wassihun B, Debeb A. Decision to Delivery Interval, Perinatal Outcome and Factors Following Emergency Cesarean Section in Southern Ethiopia. *Ethiopian Journal of Health Sciences*. 2023;33(1).

The Journal of Teachers Association

Abbreviated Key Title: TAJ

Official Journal of Teachers Association Rajshahi Medical College



Publish your next article in TAJ

For submission scan the QR code

E-mail submission to: tajrmc8555@gmail.com