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Original article

Analysis of caesarean sections using the Robson Ten Group Classification System: A retrospective study at a tertiary care center in Central India

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Abstract

Background: The Robson Ten-Group Classification System (TGCS), introduced by Robson in 2001, standardizes the assessment of caesarean section (CS) rates to improve maternal care quality. This study evaluates CS rates, identifies high-contributing groups, and compares findings with other studies using TGCS.

Methods: This retrospective study, conducted from December 2021 to April 2022 at a tertiary referral center in Central India, analyzed hospital records of all women who delivered during the period. Cases were categorized using the TGCS based on obstetric characteristics.

Results: Of 4,384 deliveries, 2,097 were CS, yielding a CS rate of 47.83%. Group 2 (nulliparous, singleton, cephalic, term, induced labor or pre-labor CS) contributed the most (12.75%), followed by Group 5 (previous CS, singleton, cephalic, term; 11.83%) and Group 1 (nulliparous, singleton, cephalic, term, spontaneous labor; 7.2%). Breech presentations (Groups 6 and 7) accounted for 1.98% and 1.04%, while Groups 8 (multiple pregnancies) and 9 (abnormal lies) contributed 0.98% and 0.79%, respectively.

Conclusion: The dominance of Groups 2 and 5 as contributors to the CS rate highlights the need for targeted interventions, such as optimizing labor induction protocols and promoting vaginal birth after cesarean (VBAC) where clinically appropriate. The high CS rate in Group 1 suggests potential overuse, which could be addressed through standardized protocols for intrapartum management. These findings can guide policymakers in monitoring trends and developing strategies to address rising CS rates.

Keywords: Caesarean section, Caesarean section rates, Maternal care, Pregnancy, Robson classification, Ten-Group Classification System (TGCS)

Introduction

The global rise in caesarean section (CS) rates over the past five decades has sparked widespread concern among healthcare professionals, policymakers, and researchers. From a procedure historically reserved for life-threatening obstetric complications, CS has become increasingly prevalent, with global rates rising from less than 7% in the early 1970s to 21.1% between 2010 and 2018, based on data from 154 countries representing 94.5% of worldwide live births (1, 2). This trend varies significantly by region, with sub-Saharan Africa reporting rates as low as 5% and Latin America and the Caribbean reaching 42.8% (2). In India, the National Family Health Survey (3) (NFHS-5, 2019–2021) documented a national CS rate of 21.5%, reflecting a marked increase from previous decades. This escalation prompts critical questions about the drivers of CS utilization, its clinical appropriateness, and its impact on maternal and neonatal health outcomes.

In 1985, the World Health Organization (WHO) proposed that CS rates should ideally range between 10% and 15% to balance maternal and perinatal benefits with risks (4). This benchmark, later adopted by initiatives such as the U.S. Healthy People 2000, served as a population-level indicator of access to obstetric care rather than a directive for individual hospitals, clinicians, or patients (5). The 10–15% range aimed to ensure that women requiring CS could access it, particularly in low-resource settings where underutilization posed significant risks. However, these early recommendations did not fully address the complexities of clinical decision-making or the diverse

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factors influencing CS rates, such as maternal preferences, healthcare system capacity, and medico-legal pressures.

In 2015, the WHO revised its guidance, emphasizing that CS should be performed based on medical necessity rather than targeting a specific rate (6). This shift highlights the importance of clinical appropriateness over arbitrary thresholds, recognizing that both overuse and underuse of CS can compromise health outcomes. Overuse may increase maternal morbidity, such as infection or hemorrhage, and inflate healthcare costs, while underuse can lead to preventable maternal and neonatal mortality, particularly in resource-constrained settings (7). The WHO's 2015 statement underscores the need for standardized tools to monitor CS rates, evaluate their appropriateness, and guide interventions to optimize obstetric care (6).

A significant challenge in addressing rising CS rates has been the absence of a standardized, internationally accepted classification system to compare rates across diverse settings. Variations in clinical practices, documentation, and indications for CS have historically hindered meaningful comparisons between institutions, regions, and countries. To address this gap, Robson introduced the Ten-Group Classification System (TGCS) in 2001, which has since been endorsed by the WHO (2014), and the International Federation of Gynecology and Obstetrics (8, 9). The TGCS categorizes women admitted for delivery into ten mutually exclusive and totally inclusive groups based on six obstetric characteristics: parity (nulliparous or multiparous), previous CS, gestational age (preterm or term), onset of labor (spontaneous, induced, or pre-labor CS), fetal presentation (cephalic, breech, or transverse), and plurality (single or multiple gestations). By focusing on these objective parameters rather than the indication for CS, the TGCS ensures reproducibility and enables consistent comparisons across healthcare settings.

The Robson TGCS has become a cornerstone for evaluating CS practices globally. Its simplicity and objectivity allow healthcare providers and policymakers to identify the specific groups contributing most significantly to overall CS rates, such as nulliparous women in spontaneous labor ((nulliparous, singleton, cephalic, term, spontaneous labor ; Group 1) or multiparous women with a previous CS (previous CS, singleton, cephalic, term; Group 5), enabling targeted interventions (10). The TGCS also facilitates the identification of unwarranted variations in CS rates, which may reflect differences in clinical practices, resource availability, or cultural attitudes toward childbirth. By providing a standardized framework, the TGCS empowers institutions to monitor trends, assess the appropriateness of CS, and develop evidence-based strategies to enhance maternal and neonatal outcomes.

In India, the rapid increase in CS rates, particularly in urban tertiary care centers, has raised concerns about potential overuse. The NFHS-5 data indicate that CS rates in urban areas (31.7%) significantly exceed those in rural areas (17.6%), suggesting disparities in access to care and variations in clinical decision-making (3). Factors such as maternal request, fear of litigation, and the convenience of scheduled deliveries have been identified as contributors to rising CS rates in urban settings (11). However, without systematic analysis, it remains challenging to determine whether these procedures are medically justified or driven by non-clinical factors.

This study employs the Robson TGCS to analyze CS rates at a tertiary care center in Central India, a region characterized by diverse urban and rural populations and varying healthcare access. By applying the TGCS, we aim to identify the primary contributors to the center's CS rate, evaluate the appropriateness of CS in each group, and provide insights into potential areas for intervention. This retrospective analysis builds on global evidence demonstrating the TGCS's utility in diverse settings, from high-income countries with advanced healthcare systems to low- and middle-income countries facing resource constraints (1, 10). The findings will contribute to the growing body of literature on CS trends in India and inform strategies to enhance obstetric care quality at institutional and regional levels.

In conclusion, the global rise in CS rates necessitates a nuanced approach to monitoring and managing obstetric care. TGCS provides a robust framework for dissecting CS trends, enabling data-driven decisions to optimize maternal and neonatal health. This study represents a critical step toward understanding CS practices in Central India, with the potential to guide clinical and policy interventions that prioritize health outcomes while addressing the challenges of rising CS rates.

Material and Method

Study Design and Setting

This retrospective cohort study was conducted in the Department of Obstetrics and Gynecology at Government Medical College, a tertiary referral center located in Central India. The institution serves as a major healthcare hub, receiving referrals from district hospitals, community health centers, and private facilities across multiple districts in Central India, as well as neighboring states. The hospital manages a diverse obstetric population, including high-risk pregnancies, due to its advanced infrastructure,

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specialized obstetric care, and availability of neonatal intensive care services. The study period spanned from December 1, 2021, to April 30, 2022, covering five-month duration to capture a representative sample of deliveries at the center.

The Government Medical College is equipped with dedicated labor wards, operating theaters for obstetric procedures, and a robust record-keeping system, which facilitated the retrospective data collection. The hospital handles approximately 8,000–10,000 deliveries annually, reflecting a high-volume obstetric service with a mix of low-risk and high-risk cases. This setting is ideal for analyzing CS rates using the TGCS, as it encompasses a broad spectrum of obstetric profiles, enabling comprehensive evaluation of CS practices.

Study Population

The study population included all women who delivered at the Government Medical College during the study period. To ensure a focus on viable pregnancies, inclusion criteria were defined as women with a gestational age of 28 weeks or greater at the time of delivery, regardless of the mode of delivery (vaginal or caesarean). This gestational age cutoff was chosen to align with standard obstetric research practices in India, where 28 weeks is often used as the threshold for perinatal outcome studies due to the viability of neonates at this stage in tertiary care settings.

Exclusion criteria were applied to maintain the integrity of the data and focus on deliveries occurring at the study center. Women who were referred to the hospital after delivering at another facility were excluded, as their delivery data would not reflect the practices of the study center. Additionally, women who delivered before 28 weeks of gestation were excluded, as these cases often involve unique clinical considerations (e.g., extreme prematurity) that may not align with the standard application of TGCS. Miscarriages, ectopic pregnancies, and cases with incomplete or missing records were also excluded to ensure data quality and consistency.

Data Collection

Data were systematically extracted from hospital records, including labor ward delivery registers, operative notes from the operating theaters, and electronic medical records where available. A standardized data extraction form was developed to capture key obstetric parameters required for TGCS classification, including:

Parity: Nulliparous (no previous deliveries) or multiparous (one or more previous deliveries)

Previous mode of delivery: History of previous CS or vaginal delivery.

Gestational age: Determined by the last menstrual period, early ultrasound, or clinical assessment, categorized as preterm (<37 weeks) or term (≥37 weeks).

Onset of labor: Spontaneous, induced, or pre-labor CS (no labor).

Fetal presentation: Cephalic, breech, or transverse.

Plurality: Singleton or multiple gestations (e.g., twins).

Additional data collected included maternal age, indication for CS (if applicable), neonatal outcomes (e.g., Apgar scores, neonatal intensive care unit admission), and maternal complications (e.g., postpartum hemorrhage, infection). To ensure accuracy, data extraction was performed by two trained researchers, with a third reviewer resolving any discrepancies. All data were de-identified to protect patient confidentiality, with unique study identifiers assigned to each case.

Robson Ten-Group Classification System (TGCS)

Each delivery was classified according to TGCS, a standardized framework endorsed by the World Health Organization (12) and the International Federation of Gynecology and Obstetrics (FIGO, 2016). The TGCS categorizes women into ten mutually exclusive and totally inclusive groups based on the aforementioned obstetric parameters. The classification criteria are summarized in Table 1.

The TGCS was applied using a standardized algorithm to ensure consistency. For cases with missing data on any parameter, medical records were cross-referenced with labor ward logs or operative notes to minimize classification errors. If critical data (e.g., gestational age or fetal presentation) remained unavailable, the case was excluded from the final analysis to maintain the integrity of the TGCS application.

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Table 1 Robson Ten-Group Classification System (TGCS) criteria

Group	Description
1	Nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labor
2	Nulliparous, singleton, cephalic, ≥37 weeks, induced or pre-labor CS
3	Multiparous (no previous CS), singleton, cephalic, ≥37 weeks, spontaneous labor
4	Multiparous (no previous CS), singleton, cephalic, ≥37 weeks, induced or pre-labor CS
5	Multiparous, singleton, cephalic, ≥37 weeks, with previous CS
6	All nulliparous breeches
7	All multiparous breeches (including previous CS)
8	All multiple pregnancies (including previous CS)
9	All singleton, transverse/oblique lie (including previous CS)
10	All singleton, cephalic, <37 weeks (including previous CS)

Ethical Considerations

The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (World Medical Association, 2013). Ethical approval was obtained from the Institutional Ethics Committee of Government Medical College prior to data collection (Ethical Number: drmou No. EC/Pharmac/GMC/NGP no 47/22 Date 10/11/2021). As this was a retrospective study involving de-identified data from existing medical records, informed consent was waived by the ethics committee. All data were handled in compliance with institutional data protection policies, ensuring patient confidentiality and secure storage of study records.

Statistical Analysis

Data were entered into Microsoft Excel (version 2019) for initial organization and cleaning. Each delivery was assigned to one of the ten Robson groups, and the proportion of deliveries in each group was calculated. The CS rate for each group was determined as the number of CS deliveries divided by the total number of deliveries in that group, expressed as a percentage. Overall CS rates for the study population were also calculated, along with the relative contribution of each Robson group to the total CS rate.

Descriptive statistical analyses were performed using SPSS version 26 (IBM Corp., Armonk, NY, USA). Frequencies and proportions were used to summarize categorical variables, such as the distribution of deliveries across Robson groups and CS rates. Continuous variables, such as maternal age and gestational age, were summarized using means and standard deviations or medians and interquartile ranges, depending on data distribution. Normality of continuous variables was assessed using the Shapiro-Wilk test to guide the choice of statistical measures.

Subgroup analyses were conducted to explore CS rates by maternal characteristics (e.g., age, parity) and clinical factors (e.g., indications for CS). Chi-square tests were used to compare CS rates across Robson groups, with a p-value <0.05 considered statistically significant. No multivariate analyses were planned due to the descriptive nature of the study, but potential confounders (e.g., maternal comorbidities) were noted for contextual interpretation of results.

To ensure data quality, a random sample of 10% of the records was re-checked by an independent reviewer for accuracy in data entry and Robson group classification. Any discrepancies were resolved through discussion with the study team. Missing data were minimal (<5%) and handled by list wise deletion for the primary analysis, with sensitivity analyses conducted to assess the impact of missing data on results.

Sample Size and Power

Given the retrospective nature of the study, a formal sample size calculation was not performed. However, based on the hospital's annual delivery volume (approximately 8,000–10,000), the five-month study period was expected to yield 3,000–4,000 deliveries, providing sufficient statistical power to estimate CS rates within each Robson group with a precision of ±2% (assuming a 95% confidence interval). This sample size aligns with recommendations for Robson TGCS studies, which suggest a minimum of 500–1,000 deliveries for reliable group-level estimates (12).

Potential limitations include the retrospective design, which relies on the accuracy and completeness of medical records. Variations in documentation practices may introduce classification errors, though these were minimized through rigorous data validation.

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The study was conducted at a single tertiary center, which may limit generalizability to primary or secondary care settings. Additionally, indications for CS were recorded but not used for classification, as per TGCS guidelines, which may limit insights into clinical decision-making.

Results

Overview of Study Population

During the study period from December 1, 2021, to April 30, 2022, a total of 4,384 women delivered at the Government Medical College, a tertiary referral center in Central India. Of these, 2,097 underwent CS, resulting in an overall CS rate of 47.83% (95% confidence interval [CI]: 46.34–49.32%). This rate is notably higher than the national average of 21.5% reported in the National Family Health Survey (NFHS-5, 2019–2021) and reflects the high-risk obstetric population managed at this tertiary center (3).

The demographic and obstetric characteristics of the study population are summarized in Table 2. The mean maternal age was 25. 7 years (standard deviation [SD] ± 4.1), indicating a relatively young cohort typical of the reproductive age group in India. Approximately half of the women (50.6%, n=2,219) resided in urban areas, while 49.4% (n=2,165) were from rural areas, reflecting the center's diverse catchment area. The majority (67.0%, n=2,892) had received antenatal care at the tertiary level, suggesting that many women were referred to the center for specialized care, likely due to high-risk pregnancies. A smaller proportion received antenatal care at secondary (22.5%, n=987), primary (6.2%, n=272), or other facilities (5.3%, n=233). The mean gestational age at delivery was 37.8 weeks (SD ± 2.2), with most deliveries occurring at term. Primiparous women constituted 53.9% (n=2,361) of the cohort, while multiparous women, including those with a previous CS, accounted for 46.2% (n=2,023).

Group 2 (nulliparous, singleton, cephalic, ≥37 weeks, induced labor or pre-labor CS) was the largest Robson group, comprising 23.33% (n=1,023) of all deliveries and contributing 12.75% (n=559) to the overall CS rate. The CS rate within Group 2 was 54.64%, with the most frequent indications being fetal distress (32.4%), meconium-stained amniotic fluid (25.8%), non-progress of labor (22.7%), and failed induction (15.2%). These findings suggest that clinical decisions in this group were often driven by intrapartum complications or unsuccessful labor induction, which may warrant further investigation into induction protocols and fetal monitoring practices at the center.

Robson Ten-Group Classification Analysis (TGCS)

All deliveries were classified according to the Robson Ten-Group Classification System (TGCS), as shown in Table 3. The TGCS enabled a detailed breakdown of CS rates by obstetric characteristics, revealing the primary contributors to the overall CS rate and highlighting patterns in clinical practice at the study center.

Table 2 Demographic and obstetric characteristics of the study population (n=4,384)

Variable	**N (%) or Mean ± SD**
Age (years)	25.7 ± 4.1
Residence	
Urban	2,219 (50.6)
Rural	2,165 (49.4)
Booking Status	
Tertiary	2,892 (66.0)
Secondary	987 (22.5)
Primary	272 (6.2)
Others	233 (5.3)
Gestational Age (weeks)	37.79 ± 2.2
Parity	
Primiparous	2,361 (53.9)
Multiparous (including previous CS)	2,023 (46.2)

Group 5 (multiparous, singleton, cephalic, ≥37 weeks, with previous CS) was the second largest contributor to the overall CS rate, accounting for 11.83% (n=519) of all CS cases. This group had a high CS rate of 94.53%, reflecting a strong tendency toward elective repeat CS, typically scheduled at 38–39 weeks of gestation. This high rate aligns with global trends, where previous CS is a major driver of CS rates due to concerns about uterine rupture during vaginal birth after caesarean (VBAC) (10).

Group 1 (nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labor) was the third largest contributor, with a CS rate of 40.58% (n=317) and a contribution of 7.23% to the overall CS rate. The relatively high CS rate in this low-risk group suggests potential overuse of CS, possibly driven by non-clinical factors such as maternal request or clinician preference, which warrants further exploration.

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Table 3 Distribution of women according to Robson Ten-Group Classification Analysis (TGCS)

Robson Group	Number of CS (A)	Total Women in Group (B)	Relative Size of Group (%) (B/4,384 × 100)	CS Rate in Group (%) (A/B × 100)	Contribution to Total CS (%) (A/2,097 × 100)	Contribution to Overall CS Rate (%) (A/4,384 × 100)
1. Nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labor	317	781	17.8	40.6	15.1	7.2
2. Nulliparous, singleton, cephalic, ≥37 weeks, induced or pre-labor CS	559	1,023	23.3	54.6	26.7	12.8
3. Multiparous (no previous CS), singleton, cephalic, ≥37 weeks, spontaneous labor	73	479	10.9	15.2	3.5	1.7
4. Multiparous (no previous CS), singleton, cephalic, ≥37 weeks, induced or pre-labor CS	97	577	13.2	16.8	4.6	2.2
5. Previous CS, singleton, cephalic, ≥37 weeks	519	549	12.5	94.5	24.8	11.8
6. Nulliparous breeches	87	102	2.3	85.3	4.2	2.0
7. Multiparous breeches (including previous CS)	46	55	1.3	83.6	2.2	1.1
8. Multiple pregnancies (including previous CS)	43	65	1.5	66.2	2.1	1.0
9. Abnormal lies (including previous CS)	35	35	0.8	100.0	1. 7	0.8
10. Singleton, cephalic, ≤36 weeks (including previous CS)	321	718	16.4	44.7	15.3	7.3
Total	2,097	4,384	100.0			47.8

Other groups made smaller contributions to the overall CS rate. Group 10 (singleton, cephalic, ≤36 weeks, including previous CS) accounted for 7.3% (n=321) of the CS rate, with a within-group CS rate of 44.7%, reflecting the complexity of preterm deliveries. Groups 6 and 7 (breech presentations) had high CS rates (85.3% and 83.6%, respectively), consistent with clinical guidelines favoring CS for breech presentations in many settings. Group 9 (abnormal lies) had a 100% CS rate, as expected, given the clinical necessity of CS for transverse or oblique lie. Groups 3, 4, and 8 had lower CS rates (15.2%, 16.8%, and 66.2%, respectively), indicating more conservative use of CS in these populations.

Statistical Analysis and Subgroup Findings

Chi-square tests revealed significant differences in CS rates across Robson groups (p<0.001), confirming heterogeneity in clinical practices. Subgroup analysis by maternal age showed that women aged ≥30 years had a higher CS rate (52.3%) compared to those aged <30 years (45.1%) (p=0.012). Urban residence was associated with a slightly higher CS rate (49.2%) compared to rural residence (46.4%) (p=0.047), potentially reflecting differences in access to care or maternal preferences.

Discussion

Contextualizing the Caesarean Section Trends

Nationally, India's CS rate has risen over recent years, with significant regional variation driven by socio-economic disparities and uneven healthcare access (1). Underprivileged populations often face barriers to timely CS, while affluent groups may undergo unnecessary procedures due to non-clinical factors, such as maternal request or provider convenience (11). Our study's findings underscore these disparities, as the urban-rural mix of our cohort

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highlights differential access to tertiary care and its impact on CS utilization.

Insights from Robson Ten-Group Classification Analysis (TGCS)

TGCS analysis revealed distinct patterns in CS utilization across obstetric groups, offering insights into clinical practices and potential areas for intervention. Nulliparous women with term, singleton, cephalic pregnancies requiring induction or pre-labor CS (Group 2) emerged as a primary driver of the CS rate, reflecting a high burden of high-risk pregnancies necessitating intervention. Common reasons for CS in this group, such as pre-eclampsia, fetal growth restriction, and post-term pregnancy, suggest that labor induction protocols and fetal monitoring practices play a critical role in clinical decision-making. This pattern is consistent with studies in similar high-risk settings, where nulliparous women often face elevated CS rates due to intrapartum complications or failed inductions (13, 14).

Women with a previous CS (Group 5) also significantly influenced the CS rate, driven by a preference for elective repeat CS due to concerns about uterine rupture and scar-related complications. This trend reflects a broader global challenge, as prior CS increases the likelihood of subsequent surgical deliveries, perpetuating a cycle of high CS rates (10). Promoting vaginal birth after caesarean (VBAC) through careful patient selection, enhanced counseling, and robust intrapartum monitoring could mitigate this trend, as supported by evidence-based guidelines (15).

Nulliparous women in spontaneous labor (Group 1) and preterm singleton cephalic pregnancies (Group 10) also contributed notably to the CS rate, highlighting areas for further scrutiny. The relatively high CS rate among low-risk nulliparous women in spontaneous labor suggests potential overuse, possibly influenced by non-clinical factors like clinician preference or maternal request. Preterm deliveries, often associated with maternal or fetal complications, reflect the tertiary center's role in managing high-risk cases, aligning with findings from other referral hospitals (16).

Breech presentations (Groups 6 and 7) and abnormal lies (Group 9) had expectedly high CS rates, consistent with clinical guidelines favoring surgical delivery for these presentations (17). However, the proportion of these groups aligns with WHO benchmarks, suggesting appropriate management (18). Multiple pregnancies (Group 8) contributed minimally, reflecting their low prevalence in the obstetric population.

The distribution of obstetric groups in our study closely mirrors WHO expectations for some groups but deviates in others, reflecting local fertility patterns and referral dynamics. For instance, the combined size of Groups 1 and 2 aligns with the WHO Multi-Country Survey, driven by a high proportion of nulliparous women due to declining fertility rates in India (10). Conversely, the smaller-than-expected size of multiparous groups without prior CS (Groups 3 and 4) and the larger size of Group 5 suggest a historical reliance on primary CS, which inflates subsequent repeat CS rates.

Strategies for Optimizing CS Practices

The WHO's Robson TGCS implementation manual emphasizes three domains for interpretation: data quality, population characteristics, and CS rates (WHO, 2014) (18). Our study achieved high data quality through complete and validated records, ensuring reliable classification. The population characteristics, marked by a high proportion of nulliparous and preterm cases, reflect the tertiary center's referral role. To address the elevated CS rate, we propose several strategies:

Standardized labor induction protocols: Optimizing indications and methods for induction to reduce failed attempts, particularly in nulliparous women.

VBAC promotion: Implementing evidence-based guidelines to encourage VBAC in eligible women with prior CS, supported by counseling and monitoring (19).

Enhanced fetal surveillance: Utilizing advanced monitoring technologies to improve decision-making in high-risk cases, reducing unnecessary CS.

Clinician training: Expanding expertise in external cephalic version (ECV) and vaginal breech delivery to lower CS rates in breech presentations (17).

Regular audits: Monitoring CS indications to identify and address non-clinical drivers, such as maternal request or scheduling convenience.

These interventions, grounded in evidence, aim to balance clinical necessity with the goal of minimizing unnecessary CS while maintaining maternal and neonatal safety.

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Strengths and Limitations

The study's strengths include its robust sample size, high-quality data collection, and use of the standardized Robson TGCS, which facilitates comparisons with global and regional studies. These attributes enhance the reliability and potential for inclusion in meta-analyses. However, limitations include the absence of maternal and neonatal outcome data, which restricts the ability to assess CS appropriateness. The Robson TGCS focuses on obstetric characteristics, not specific indications or comorbidities, limiting clinical interpretation. As a single-center study, findings may not fully generalize to primary or secondary care settings. Future research should prioritize multi-center studies with detailed outcome data to provide deeper insights into clinical practices and improve quality of care.

Conclusion

TGCS offers a standardized, internationally recognized framework for analyzing CS practices, enabling meaningful comparisons across diverse settings. This study highlights the significant contributions of nulliparous women requiring induction or pre-labor CS, women with prior CS, and preterm deliveries to the elevated CS rate at our tertiary center. These findings underscore the need for targeted interventions, such as optimizing induction protocols, promoting VBAC, and enhancing clinician training in non-surgical management of complex presentations. By facilitating regional and institutional comparisons, the Robson TGCS empowers policymakers and clinicians to monitor trends and develop evidence-based strategies to optimize CS use. The WHO's emphasis on clinical appropriateness over arbitrary rate targets guides this approach, shifting the focus toward quality improvement. Continued application of the Robson TGCS at facility and regional levels will provide critical evidence to refine clinical practices, inform policy, and enhance maternal and neonatal outcomes in Central India and beyond.

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Conflicts of Interest

None.

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