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A Cross-sectional Study for the Impact of Primary Caesarean Section on Future Pregnancy Outcome at Rural Based Tertiary Care Centre in Gujarat, India

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Authors' contributions

This work was carried out in collaboration among all authors. Authors ABP and NR played main role in developed the concept, designed the proposal, reviewed the literature, collected and interpreted the data, wrote, reviewed and edited the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Background: The increasing trend of caesarean sections (CS) has raised significant concerns regarding the health and safety of both mothers and babies. Rising maternal age, obesity, diabetes, and other pre-existing health conditions contribute to more complex pregnancies, making CS a more common recommendation. However, CS face higher risks in future pregnancies, such as intraabdominal adhesions, uterine rupture, placenta previa, and placental accreta, potentially leading to severe bleeding. To address this trend, strategies to promote vaginal births after caesarean and minimizing unnecessary interventions, could help reduce the risks associated with overuse of CS.
Aim: To investigate the maternal and foetal outcomes of caesarean, including the prevalence of adhesions in secondary CS & the comparison of emergency versus elective procedures.
Study Design: Retrospective cross-sectional study.
Place: Shree Krishna Hospital, Karamsad, Anand, Gujarat.
Duration of Study: March 2023 to December 2023.
Methodology: This study analysed data from 811 patients who underwent caesarean delivery, of which 501 were CSs. We examined indications, operative risk factors, intraoperative findings, postoperative management, complications, and neonatal outcomes. Data were compared between primary and secondary CSs, as well as elective and emergency CSs, to identify significant differences in maternal and neonatal outcomes. Statistical analysis was performed to evaluate the findings. Detailed data were collected using Epi Info 7.2.5.0.
Results: Of 811 deliveries, 61.77% were CSs, with 43.71% being secondary. While primary and secondary CS did not differ significantly in ICU admission, PCV, prolonged antibiotics, or total hospital stay, CSs were associated with prolonged catheterization. Multiple previous CS increased the incidence of organ adhesions & scar dehiscence. Obesity was linked to denser adhesions & poorer fetal-maternal outcomes. Emergency CSs exhibited significantly higher rates of ICU admission, PCV requirement, antibiotic use, and longer hospital stays compared to elective procedures. Of 501 new-borns, 35.92% required NICU admission, with a higher rate after emergency CS. Emergency CS was also associated with increased fetal complications such as RDS, TTN, birth asphyxia, sepsis, and antibiotic use compared to elective procedures. Primary CS also showed more fetal complications than secondary CS.
Conclusion: Secondary CS posed significant maternal challenges, while fetal outcomes are more favourable in secondary CSs. The risk of adhesions increased with subsequent CSs. Emergency CS was associated with higher rates of maternal & foetal complications.

Keywords: Caesarean; adhesions; secondary caesarean; scar dehiscence; caesarean morbidity.

1. INTRODUCTION

One of the most frequent procedures performed worldwide, in any department of obstetrics and gynaecology department is a CS. This becomes more complicated in cases of high-risk pregnancy and its rate is increasing day by day**.** Once a CS, always a CS, is questionable however it is being followed by different set ups due to various reasons. The CS is a surgical technique of delivery that frequently saves the life of both the mother and the baby. According to WHO, CS rate in the world is continuously rising, now accounting for more than 1 in 5 (21%) of all childbirths and these rates are projected to continue increasing over the next decade (World Health Organization, 2021). In India, the prevalence of CS was 8.5% in NFHS-3; however, data from NFHS-4 and NFHS-5 indicate an increased rate of 17.2% and 21.5%, respectively (Roy et al., 2021). Hence, over the past 15 years, there has been a rise of about three times. Although many women, particularly in the Western world, only have one or two children and there are many nations and societies where larger families are the norm and effective contraception is less readily available. Recent data from the World Health Organization (WHO) on the prevalence of CS reveal that the sections have drastically grown globally during the past 20 years. This rise is independent of the stage of development of a country. However, there are no signs that the rate of CS will stop rising. Although the phenomena have not yet been fully understood, there are at least two main causes for this rise: the rise in primary CSs and the sharp decline in vaginal delivery after CSs. An increasing rate of CSs results inevitably in a rise

of multiple repeat caesarean deliveries. It is known that multiple CSs are associated with short- and long-term risks for both the mother and the baby. There are several significant maternal complications such as Adhesions, Obliterated Uterovesical fold, thinned out lower segment scar dehiscence, Caesarean hysterectomy, Broad ligament hematomas, visceral injury, uterine rupture, abnormal placentation, hysterectomy, bleeding and transfusions, etc, most of which increases with an increasing number of repeated CSs apart from maternal complications There are also neonatal risks; babies born via multiple repeat CSs are more likely to experience breathing difficulties and to require admission to neonatal intensive care. All these complications mentioned are associated with increase in rate of CSs is significant and it increases the morbidity and mortality of both mother and the newborn. Therefore, this study assessed mother and foetal outcomes and contrast the results of primary and secondary CSs as the rate of these procedures rises (Antoine & Young, 2021; Ryan et al., 2018; Metz et al., 2019; Chen & Mi, 2024).

1.1 Objectives

1. To examine the feto-maternal outcomes in patients undergoing CS, both primary and secondary, with a focus on the prevalence of adhesions among women undergoing secondary CSs.
2. To compare the outcomes of emergency CSs versus elective CSs.

2. MATERIALS AND METHODS

A cross-sectional study was conducted in the department of Obstetrics and Gynaecology from 01st March 2023 to 31st December 2023. This was mainly record based observational study. All physical and EHR data of patients including OT note, Discharge summary, labour room record registers of the department of Obstetrics and Gynaecology, Pramukh Swami Medical College, tertiary care centre in Anand, Gujarat. For all CSs, including primary and secondary CSs, detailed demographic and clinical information—such as indications, operative risk factors, intraoperative findings, and maternal and neonatal outcomes was recorded in the Case Record Form (CRF) {Supplementary} using Epi Info 7.2.5.0.

From this Epi info data was exported in Microsoft excel sheet and analysis was performed with the help of different functions of excel programme and STATA version 14.2.A p-value of less than 0.05 was considered significant.

Descriptive statistics [mean (SD), frequency (%)] were used to depict the baseline characteristics of the study population like age, BMI, Parity etc. Pearson chi squared test / Fisher's exact were used to find association between categorial variables like adhesions, maternal outcome, foetal outcome etc.

3. RESULTS AND DISCUSSION

In our study period of 10 months, with 811 deliveries analysed, our hospital's CS rate stands at a striking 61.77%. Out of these, 310 deliveries were normal vaginal deliveries, while 501 were CSs. We found that out of the 501 CSs, 282 were categorized as primary CS, whereas 219 were classified as secondary CS. This reveals that secondary CSs constituted about 43.71% of all Caesarean deliveries. This high rate may be attributed to our status as a tertiary care centre and medical college, leading to a significant influx of referrals, accounting for approximately 37% of our patient population and in our institution we have implemented Robson's classification and vaginal delivery after CS but still the rate of CS is high because the referrals often present with complex obstetric conditions, necessitating surgical intervention and Indications for CS varied in different patients which includes foetal distress, cephalopelvic disproportion, and previous caesarean delivery.

To understand the impact of surgery on various maternal and fetal parameters, we conducted a comparative analysis between primary CSs and secondary c CSs, where ICU admission rates between primary and secondary CS, which showed 12% and 9% admission rates in primary and secondary CS respectively. However, this difference was not statistically significant, owing to ICU admission criteria related to complications like eclampsia, severe preeclampsia, severe anemia, AKI, multi-organ failure, and peri-partum cardiomyopathy. Then we assessed intraoperative or postoperative packed cell volume (PCV) transfusion requirements, and noted that the requirements were 21% in primary CS and 18% in secondary CS. This substantial PCV requirement may be attributed to factors such as patient's lack of antenatal care which resulted in anemia, and referrals with conditions like placenta previa, placenta accreta spectrum, abruptio placenta, and uterine rupture necessitating massive blood transfusions.

Additionally, we compared additional antibiotic requirements post-CS between primary and secondary CS, finding similar needs in both groups which indicated dependency on other factors. Furthermore, we analysed postoperative catheterization duration, revealing a statistically significant difference. While 68% of primary CS patients had their catheters removed within 48 hours and 38% of secondary CS patients required catheterization for 2-5 days. This discrepancy was may be due to bladder adherence to the uterus in secondary CS, necessitating postoperative bladder rest through catheterization [12,13]. Notably, 17 secondary CS patients required catheterization for more than 5 days. Four of which experienced intraoperative bladder injuries, requiring extended catheterization for up to 21 days.

In our study, 98.50% of cases undergoing primary CS showed no adhesions, while 1.5% exhibited adhesions. For those with one previous CS, 73.90% displayed no adhesions, whereas adhesions were detected in 26.10% of cases. Regarding individuals with two previous CS, 48.2% were devoid of adhesions while 51.8% manifested adhesions. Comparatively, Mercy et al.'s study reported no adhesions in 97.2% of primary CS cases with adhesions present in 2.8%**.** Similarly, in the context of one previous CS,48% of cases were devoid of adhesions while 52% exhibited adhesions. For those with two previous CS, 35% were adhesion-free while the remaining 65% displayed some form of adhesions (Nuamah et al., 2017). Categorization of adhesions into four groups was done into: no adhesion, flimsy, dense, and very dense adhesion. Conversely, Mercy et al. classified adhesions as none, mild, and severe. Additionally, our analysis maintained distinct data distributions for adhesions between the abdominal wall and uterus, unlike Mercy et al., who combined analysis for various adhesion sites (Nuamah et al., 2017). In patients with a history of one previous CS in our study, adhesions between the abdominal wall and uterus were reported as follows: flimsy 3.18%, dense 19.11%, and very dense 3.82%. For patients with a history of two previous CS, adhesion rates were: flimsy 7.14%, dense 19.64%, and very dense 25%. Regarding adhesions between the uterus and bladder, our study found that 97.8% of cases in the primary CS group had no adhesion. In patients with one previous CS, adhesion rates were: no adhesion 63%, flimsy adhesion 2.55%, dense adhesion 26.11%, and very dense adhesion 8.28%. In patients with two previous CS, rates were: no adhesion 37.5%, flimsy adhesion 3.57%, dense adhesion 25%, and very dense adhesion 33.93%. In our study, data from patients with a history of three previous CSs were also collected, comprising a small sample size of six patients. Among these four patients exhibited adhesions while two patients had no adhesions. However, due to the limited sample size, the findings from this subgroup were not applicable to the general population and thus should be interpreted with caution. According to Ghazala et al. study dense adhesion were found in 22% in previous 2 CS, 33% in previous 3 CS and 39% in previous 4 CS (Choudhary et al., 2015).

Although adhesions are typically not expected in primary CSs, our study revealed an approximate 2% incidence of adhesions. This occurrence could be attributed to various factors, including past abdominal surgeries, pelvic inflammatory disease, and other infections. These predisposing factors may contribute to the formation of adhesions despite the absence of prior uterine surgeries. The presence of adhesions during CS can lead to several disadvantages, including prolonged operation time, increased surgical difficulty, elevated blood loss, heightened risk of bladder or bowel injury, and potential for infection.

In our study, scar thinning or dehiscence, characterized by lower uterine segment thickness <2 mm, was noted in 25% of patients with a history of one previous CS and 35% of those with two previous CS. This contrasts significantly with the findings reported by Mohamad et al., where the incidence was 4.6% in secondary CS. The notable difference can be attributed to the tertiary care status of our hospital, which receives a high volume of referrals, often from patients who have undergone a trial of labour or have existing complications, potentially predisposing them to scar thinning or dehiscence (Ramadan et al., 2018).

In our study, 399 cases were emergency CS (80%) and 102 were elective CS (20%). Since our institute is a tertiary care centre, all high-risk patients are referred here for multidisciplinary consultation, combined care, ICU availability, and an onsite blood bank. Consequently, our emergency CS rate is notably high. We compared maternal intraoperative and postoperative complications between emergency CS and elective CS. Scar dehiscence rates were

29% in emergency CS and 24% in elective CS, which was statistically insignificant. This suggests that scar dehiscence is influenced by other factors. In emergency CS, 12% required ICU admission, while only 4% of elective CS cases needed ICU care. That suggests ICU requirement increases 3 times in emergency CS. This indicates that thorough preoperative monitoring and investigations could significantly reduce ICU admissions. Similarly, PCV requirement was 22% in emergency CS and 11% in elective CS. Thus, adequate antenatal care visits and investigations could decrease anemia and PCV requirements. When comparing days of catheterization between CS types, no statistically significant difference was found, as it is more dependent on factors like bladder-uterus adhesions and bladder injury. In emergency CS, 17% required antibiotic therapy upon admission due to previous labour trials at peripheral centres, multiple PV examinations, and poor hygiene maintenance. Prolonged hospitalization was significantly associated with emergency CS, with over 13% of patients requiring more than 9 days of hospital stay, compared to only 2% in elective CS cases (Al-Wassia & Saber, 2017).

Within this cohort, 296 neonates did not necessitate admission to the Neonatal Intensive Care Unit (NICU), while 180 infants necessitated NICU care. Among the latter, 34 neonates required intubation, 82 were managed with Continuous Positive Airway Pressure (CPAP), 30 were placed under an oxygen hood, and 34 were simply observed under room air conditions. Hence, the NICU requirement rate was calculated at 35.92%. Comparing our findings to existing literature, Heidi Al-Wassia et al. reported a NICU admission rate of merely 4.1% (10), while Mark A. Clapp et al. observed a slightly higher rate at 5.6% (11). Among the 180 neonates requiring NICU care in our study, 91 were diagnosed with respiratory distress syndrome (RDS) constituting 50% of NICU admissions. Whereas 22 cases (13%) were identified as Transient Tachypnoea of the Newborn (TTN), and 24 cases (13.5%) were attributed to birth asphyxia (Clapp et al., 2019).

In our study, we observed that primary CS exhibited a NICU stay prevalence of 43.97%, whereas secondary CS displayed a lower rate of 32.42%, a statistically significant discrepancy. This disparity could potentially be attributed to the increased occurrence of planned CSs in secondary CS scenarios. Consequently, elective CS procedures afford ample opportunities for comprehensive fetal monitoring and thorough investigation, thereby minimizing the necessity for NICU admission. Similarly, this trend appears to extend to the incidence of complications such as birth asphyxia, transient tachypnoea of the newborn (TTN), and respiratory distress syndrome (RDS), which manifest at lower rates in secondary CS cases. Specifically, RDS was observed in 59.34% of primary CS instances compared to 40.66% in secondary CS cases, TTN affected 59.09% in primary CS and 40.91% in secondary CS, while birth asphyxia occurred in 87.50% of primary CS deliveries as opposed to 12.50% in secondary CS, which is 7 times higher in primary CS as compare to secondary CS. This suggests that the meticulous antenatal care and optimized delivery planning associated with secondary CS contribute to a decreased incidence of these adverse fetal outcome (Basbug et al., 2020).

In our comparative analysis of fetal outcomes and complications between emergency and elective CS, a notable disparity emerged in the requirement for Neonatal Intensive Care Unit (NICU) admission. Specifically, we observed that 45% of infants delivered via emergency CS necessitated NICU care, contrasting starkly with the 15% incidence among those from elective CS procedures. This discrepancy underscores the meticulous micro-planning undertaken to optimize maternal and fetal well-being in elective CS scenarios. Furthermore, our investigation into the distribution of ventilation modalities revealed significant differences between emergency and elective CS deliveries. Notably, the utilization of invasive measures such as intubation and Continuous Positive Airway Pressure (CPAP) was markedly higher in emergency CS, accounting for 29% of cases, compared to a mere 6% in elective CS, a disparity deemed statistically significant. Expanding our analysis to fetal complications, we observed a strikingly lower incidence in elective CS compared to emergency CS. For instance, the overwhelming majority of cases of birth asphyxia were associated with emergency CS, with only one reported case in elective CS. Similarly, the incidence of respiratory distress syndrome (RDS) was predominantly linked to emergency CS, constituting 97% of cases, with only three cases observed in elective CS. Likewise, Transient Tachypnoea of the Newborn (TTN) was predominantly encountered in emergency CS, representing 82% of cases while elective CS exhibited a significantly lower incidence at 18%. Moreover, antibiotic requirements were notably

higher in emergency CS, with 13% of cases necessitating antibiotics, compared to 5% in elective CS. These findings collectively underscore the critical importance of comprehensive risk assessment and meticulous planning in optimizing foetal outcomes, particularly in emergency CS scenarios (Rahman et al., 2009).

In our analysis we have a robust dataset comprising of 501 patients, it is a substantial sample size of our study. Comparative analysis between primary and secondary CS with these multiple parameters were thoroughly assessed. Our study is a retrospective analysis based on existing records, which imposes limitations and precluded the execution of a comprehensive longitudinal study that could have offered more nuanced insights over time. Conversely, a prospective longitudinal design could provide more detailed data. Our analysis reveals that secondary CSs are associated with an increased incidence of maternal complications. Ultimately, addressing ways to reduce the rate of primary CSs could potentially lead to a reduction in the rate of secondary CSs, can't it!

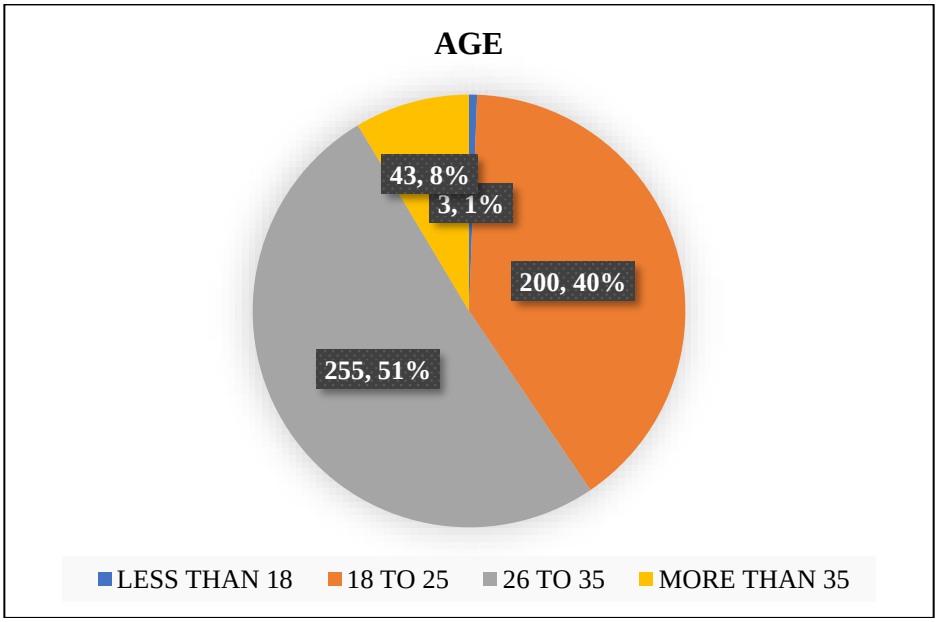

Fig. 1. Age distribution [N=501]

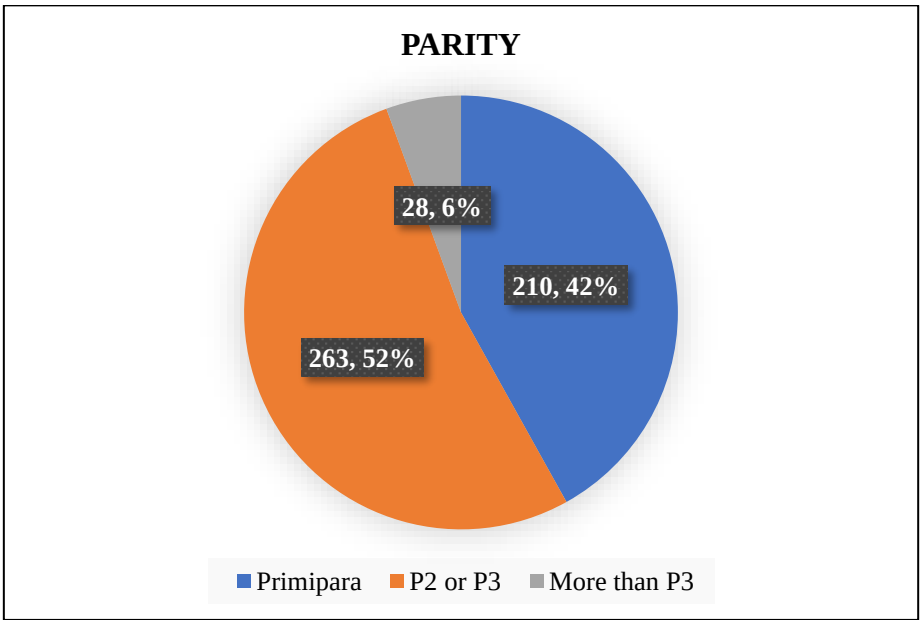

Fig. 2. Participant distribution by parity [N=501]

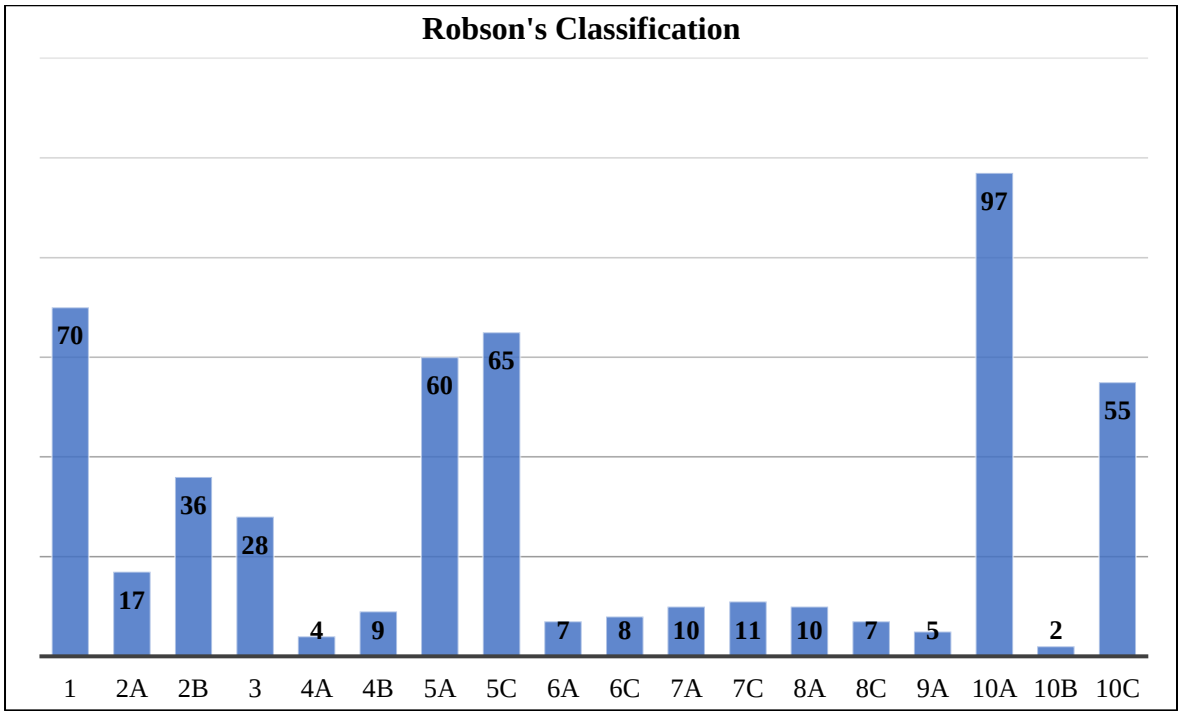

Fig. 3. Participants' obstetric characteristics by Robson's Classification [N=501]

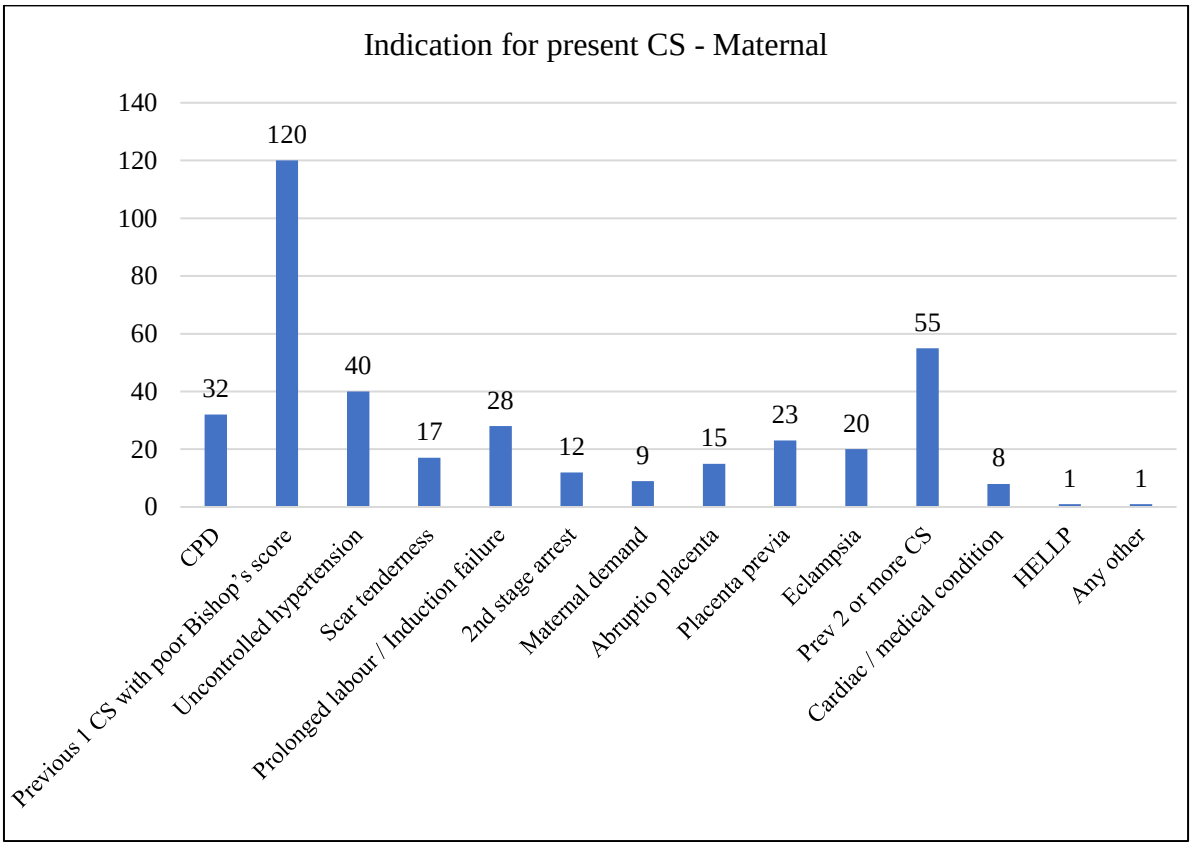

Fig. 4. Participant distribution by maternal indication for present CS [N=381]
**Some of the patient had more than 1 indication of CS*

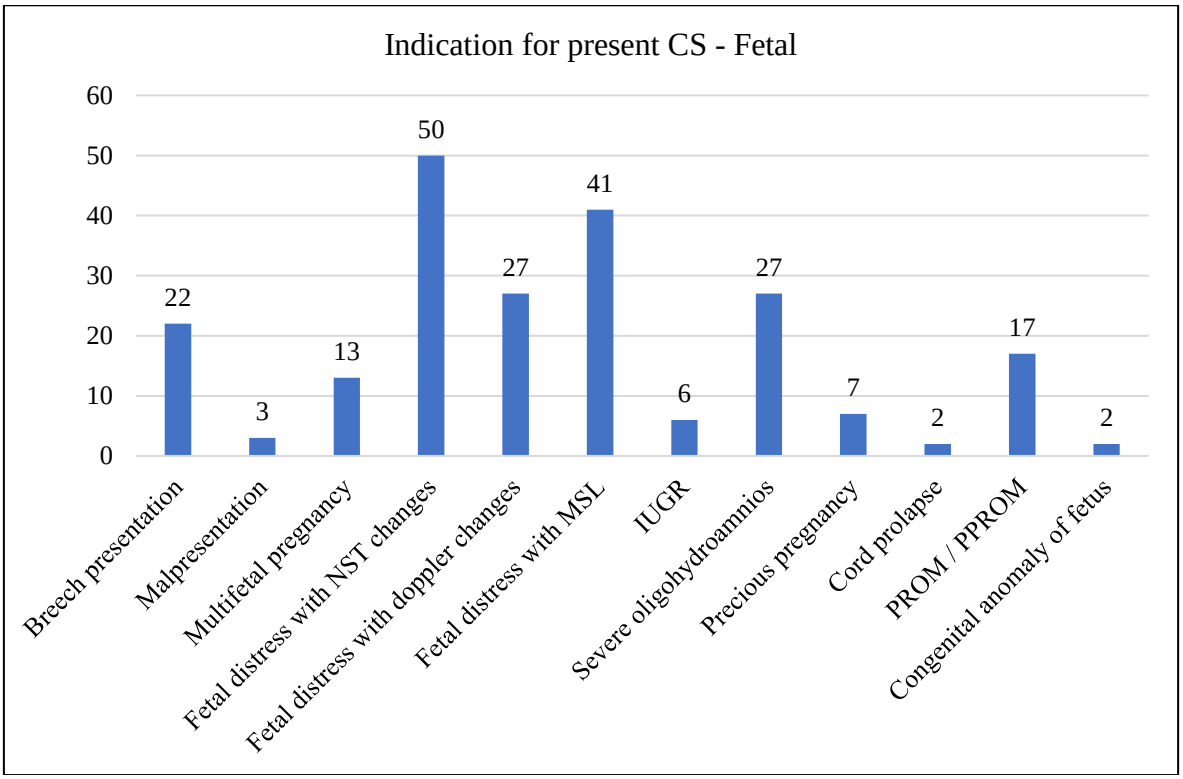

Fig. 5. Participant distribution by fetal indication for present CS [N=217]
**Some of the patient had more than 1 indication of CS*

Frequency distribution for age showed that about 91% women were in the age range of 18 to 35 years, with more than half (51%) belonging to the age-group 26 to 35 years. The women below the age of 18 and more than 35 years were <1% and 8%, respectively.

With regards to parity, more than half (52%) of women in our study have given birth two or three times, followed by primiparous (42%).

With regards to obstetric characteristics among study participants following the distribution by Robson's Classification, about third of participants (32%) were categorized under 10C (All singleton cephalic, ≤ 36 weeks (including previous Caesarean section)) and quarter (25%) each under 2B (Nullipara, singleton cephalic, > 37 weeks, caesarean section before labour) and 5C (Previous Caesarean section, singleton cephalic, > 37 weeks, caesarean section delivery before the onset of labor).

Table 1. Maternal outcome in primary CS vs secondary CS

Maternal complication		**Primary CS N = 282**	**Secondary CS N = 219**	**P-value**
Requirement of ICU admission	No Yes	248(87.94%) 34(12.06%)	200(91.32%) 19(8.68%)	**0.222** Not significant
Intraoperative PCV requirement	No Yes	221(78.37%) 61(21.63 %)	179(81.74%) 40(18.26%)	**0.352** Not significant
Days of catheterization	less than 24 hours 24 to 48 hours 2 to 5 days more than 5 days	106(37.59%) 87(30.85%) 81(28.72%) 8(2.84%)	42(19.18%) 77(35.16%) 83(37.90%) 17(7.76%)	**<0.001** Significant
Requirement of prolonged additional antibiotics	No Yes	234(82.98%) 48(17.02%)	190(86.76%) 29(13.24%)	**0.245** Not Significant

Table 2. Adhesions of uterus and anterior abdominal wall or bladder with previous type of delivery

Adhesions		Primi-gravida	All NVD	Prev 1 CS	Prev 2 CS	Prev 3 or more CS	Total	p-value
		N=210	N=72	N=157	N=56	N=6	501	
Adhesions between Uterus and anterior abdominal wall	None	208 99.05%	70 97.22%	116 73.89%	27 48.21%	2 33.33%	423	**<0.001** Significant
	Flimsy	0 0%	1 1.39%	5 3.18%	4 7.14%	1 16.67%	11	
	Dense	2 0.95%	1 1.39%	30 19.11%	11 19.64%	1 16.67%	45	
	Very Dense	2 0.95%	1 1.39%	30 19.11%	11 19.64%	1 16.67%	45	
Adhesions between Uterus and Bladder	None	207 98.57%	69 95.83%	99 63.06%	21 37.50%	2 33.33%	398	**<0.001** Significant
	Flimsy	1 0.48%	2 2.78%	4 2.55%	2 3.57%	0 0%	9	
	Dense	2 0.95%	1 1.39%	41 26.11%	14 25%	3 50%	61	
	Very dense	0 0%	0 0%	13 8.28%	19 33.93%	1 16.67%	33	

Table 3. Impact of emergency CS on maternal outcome

Maternal complications		Emergency CS	Elective CS	Total	P-value
Scar dehiscence	Yes	44 (29.33%)	17 (24.63%)	61 (27.85%)	**0.471** Not Significant
	No	106 (70.67%)	52 (75.37%)	158 (72.15%)	
	Grand Total	150	69	219	
ICU admission	No	351 (87.96%)	97 (95.09%)	448 (89.42%)	**0.037** Significant
	Yes	48 (12.04%)	5 (4.91%)	53 (10.58%)	
	Grand Total	399	102	501	
PCV requirement	No	310 (77.69%)	90 (88.23%)	448 (89.42%)	**0.018** Significant
	Yes	89 (22.31%)	12 (11.77%)	53 (10.58%)	
	Grand Total	399	102	501	
Days of catheterization	Less than 24 hours	111 (27.81%)	37 (36.27%)	148 (29.54%)	0.315 Not Significant
	24 to 48 hours	132 (33.08%)	32 (31.37%)	164 (32.73%)	
	2 to 5 days	134 (33.58%)	30 (29.41%)	164 (32.73%)	
	More than 5 days	22 (5.51%)	3 (2.94%)	25 (4.99%)	
	Grand Total	399	102	501	
Additional antibiotic to mother	No	329 (82.45%)	95 (93.13%)	424 (84.63%)	**0.008** Significant
	Yes	70 (17.55%)	7 (6.87%)	77 (15.36%)	
	Grand Total	399	102	501	
Days of hospitalization	3 to 5 days	217 (54.38%)	81 (79.41%)	298 (59.48%)	**<0.001** Significant
	6 to 8	131 (32.83%)	19 (18.62%)	150 (29.94%)	
	9 to 12	38 (9.52%)	1 (0.98%)	39 (7.78%)	
	More than 12 days	13 (3.25%)	1 (0.98%)	14 (2.79%)	
	Grand Total	399	102	501	

Table 4. Impact of emergency CS on fetal outcome

Mode of ventilation	Emergency CS	Elective CS	Grand Total	P-value
Room air	30 (7.97%)	4 (4%)	34 (7.14%)	**<0.001** Significant
O2 hood	27 (7.18%)	3 (3%)	30 (6.30%)	
CPAP	79 (21.01%)	3 (3%)	82 (17.22%)	
Intubated	31 (8.24%)	3 (3%)	34 (71.42%)	
No requirement	209 (55.58%)	87 (87%)	296 (62.18%)	
Grand Total	376	100	476	

**DAMA and IUFD neonates are excluded*

Table 5. Participant distribution by maternal risk factors other than previous CS

High risk factors	Frequency	Percentage
Eclampsia	23	4.6
Hypertensive disorder	115	23.0
Hypothyroidism / Hyperthyroidism	65	13.0
GDM / Overt DM	18	3.6
Anemia	66	13.2
Cardiac Condition	17	3.4
Elderly Age	26	5.2
Uterine anomaly	1	.2
Sero positive	9	1.8
Negative blood group	16	3.2
H/o any other surgery	14	2.8
Any other	41	8.2
None	198	39.5

**Some of the patient had more than 1 risk factor*

Table 6. Relation between Neonatal complications and type of CS

Complication of fetus	Primary CS	Secondary CS	Total	P-value
TTN	13 (59.09%)	9 (40.91%)	22	0.017 Significant
RDS	54 (59.34%)	37 (40.66%)	91	
Sepsis	4 (80%)	1 (20%)	5	
NEC	2 (50%)	2 (50%)	4	
Fetal injury	1 (100%)	0 (0%)	1	
Hypoglycemia	2 (100%)	0 (0%)	2	
Birth asphyxia	21 (87.50%)	3 (12.50%)	24	
HIE	2 (100%)	0 (0%)	2	
None	172 (53.08%)	152 (46.92%)	324	
Any other	1 (100%)	0 (0%)	1	
Grand Total	272 (57.14%)	204 (42.86%)	476	

**DAMA and IUFD neonates are excluded*

Among indications for present CS, about a quarter of women (24%) had previous 1 CS with poor Bishop's score. Previous 2 or more CS (11%), uncontrolled hypertension (8%), CPD (6.4%), and prolonged labour / induction failure (5.6%) were among other reasons for opting CS.

With regards to other maternal risk factors, hypertensive disorder was recorded among one fifth (23%) of participants, followed by anemia (13.2%) and hypo/hyperthyroidism 13%). Eclampsia was also recorded among <5% study participants.

The Neonatal complication find statistically significant association with CS type (p=0.017)

4. CONCLUSION

Secondary CSs had significant maternal problems, while no significant differences were found in foetal outcomes between primary and secondary CS. Adhesions increased with

subsequent CS procedures. Emergency CSs had more maternal and foetal complications.

SUPPLEMENTARY MATERIALS

Supplementary materials available in this link: https://journalarjgo.com/index.php/ARJGO/libraryFiles/downloadPublic/6

CONSENT AND ETHICAL APPROVAL

It is not applicable.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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