Section: Community Medicine

Original Research Article

PREVALENCE OF CAESAREAN SECTIONS AND ITS CORRELATES AT GAUHATI MEDICAL COLLEGE AND HOSPITAL: A HOSPITAL BASED CROSS SECTIONAL STUDY

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ABSTRACT

Background: Caesarean sections (CS) are critical for lowering neonatal and maternal mortality. This study at Gauhati Medical College and Hospital focuses on implementing CS to reduce maternal mortality and neonatal complications, underscoring the need for improved clinical and demographic outcomes.
Objectives: CS are routine at Gauhati Medical College, and this study examines clinical indications, socioeconomic factors, and maternal education to influence the decision.
Materials and Methods: The study conducted a three-month cross-sectional study of 1001 births. Clinical indications, maternal demographics, and newborn outcomes were recorded. Chi-square, t-tests, and logistic regression were used to identify trends and predictors.
Results: The participants are mostly women aged 18 to 38, with education levels ranging from illiterate to graduate, and include housewives, self-employed people, and educators. CS prevalence was 29.31%, with women aged 30 and older accounting for 18.28% of all cases and 33.75% higher in rural than urban populations. Foetal distress (28.98%) prior caesarean section, and pregnancy-induced hypertension (11.22%). Women who had a previous caesarean section were 50.65% more likely to have another caesarean section ($p<0.01$). CS delivery mode and educational attainment significantly influence women's choices, with 80.91% affluent women opting for elective CS and 91.40% educated women choosing CS, compared to uneducated women. Maternal outcomes showed longer hospital stays for CS: 5.5 vs. 3 days ($p < 0.001$).
Conclusion: The study underscores the urgent need to tackle healthcare disparities and improve evidence-based obstetric practices, promoting equitable access to quality prenatal care through balanced policies in maternal and neonatal health.
Keywords: Caesarean Section (CS), Maternal Health, Newborn Outcomes, Socioeconomic Factors, Educational Correlates, Obstetric Practices, Public Health.

INTRODUCTION

Childbirth is a fundamental physiological process, with vaginal delivery being the predominant method. However, certain medical conditions necessitate the performance of a cesarean section (CS) to ensure the safety and health of both the mother and the infant. The refusal to conduct a CS in critical scenarios can lead to increased maternal and perinatal morbidity and mortality. As one of the oldest surgical procedures, CS involves delivering the fetus through

an abdominal incision and has seen a troubling rise in global prevalence. Recent statistics indicate that over 18 million cesarean births occur annually, representing approximately 19.1% of total births, which significantly surpasses the World Health Organization's (WHO) recommended threshold of 10–15%. This trend raises significant concerns among public health officials and obstetricians regarding the associated financial burdens and health risks compared to vaginal deliveries.[1]

Several factors, such as reduced training in instrumental vaginal delivery, medico-legal issues, the extensive use of electronic fetal heart rate monitoring, and maternal requests for cesarean deliveries, contribute to the rising rates of cesarean deliveries. In India, cesarean section rates have notably risen from 17.2% to 21.5% between 2019 and 2021, with private healthcare facilities reporting rates as high as 47.4%. This variety shows how important it is to look at the frequency of cesarean sections and the factors,[10] that affect them in a wide range of healthcare settings. This is especially important in public tertiary care hospitals like Gauhati Medical College and Hospital (GMCH), which treats a lot of high-risk pregnancies.

While cesarean sections can be life-saving interventions, their overutilization poses risks of increased maternal morbidity and complications in subsequent pregnancies. Conversely, inadequate access to cesarean deliveries in resource-limited settings can exacerbate maternal and neonatal mortality rates. Research suggests that maternal and newborn mortality decreases with rising CS rates, reaching a threshold between 9% and 16%, beyond which no further mortality reductions are observed. Therefore, understanding the prevalence and clinical indications,[2] for cesarean sections at GMCH is crucial for informing local practices and enhancing maternal-fetal outcomes.

This study aims to investigate the prevalence,[3] of cesarean sections and their correlates at GMCH, contributing to the development of evidence-based guidelines and quality improvement initiatives. The secondary objectives are to determine the indicators of cesarean sections in patients admitted to GMCH, estimate the acceptance of post-partum sterilization or postpartum IUCD, and estimate the duration of hospital stay following cesarean section. By examining socio-demographic factors,[4] and the phenomenon of cesarean delivery upon maternal request, this research aligns with the Ministry of Health and Family Welfare's objectives to reduce maternal and neonatal mortality through improved service quality at Comprehensive Emergency Obstetric Care (CEmOC) facilities. Ultimately, this hospital-based cross-sectional study will provide valuable insights into local cesarean section patterns, their determinants, and implications for maternal and newborn health, thereby influencing clinical practice and policy decisions in India.

MATERIALS AND METHODS

This research utilized a hospital-based cross-sectional design carried out at GMCH over three months. The study sought to evaluate the prevalence of CS and their associated factors among patients admitted for cesarean delivery. The study population included all obstetric cases admitted for cesarean section throughout the study period. The sample size was determined based on the total number of cesarean sections conducted at GMCH from January 1, 2024, to March 31, 2024. A purposive sampling method was employed, yielding a total sample size of 1001 patients. This figure was derived by evaluating the aggregate number of cesarean deliveries performed within the designated period, taking into account the alternate deliveries of 2076 patients as a method of randomization. The inclusion criteria comprised all obstetric cases admitted for cesarean section. Conversely, instances with spontaneous vaginal birth and cesarean cases that did not respond to follow-up phone calls were removed from the study. Data collection commenced with the acquisition of requisite permits from the Principal of GMCH, the Head of the Department of Obstetrics and Gynecology, and the In-charge of the Medical Records Department, wherein the secondary data was obtained. The data gathering technique entailed randomly selecting one patient file from the Medical Records Department office and thereafter choosing every alternate file. The chosen cases were thereafter contacted by telephone, and following the acquisition of verbal agreement, their personal information was gathered using a semi-structured, pretested questionnaire. This questionnaire encompassed inquiries about the patients' socio-demographic profiles, medical history, menstrual history, current and previous obstetric history, and referral details, which may not have been documented in their admission files. When a patient failed to answer the phone call or refused to give consent, the subsequent file in the sequence was chosen for data collection. A pre-designed, pretested, and semi-structured schedule served as the principal data collection instrument, augmented by secondary data derived from patient records. The obtained data will be analyzed using suitable statistical tools viz. Statulator, R and Python v.3 to provide precise interpretation and visualization of the results, facilitating significant inferences on the prevalence of cesarean sections and their correlates,[12] at GMCH.

RESULTS

Educational Level Analysis

The study population comprised 1,001 individuals, revealing significant educational disparities. The largest proportion of participants had completed secondary school education (35.66%, n=357), followed closely by those with primary school education (30.67%, n=307). Higher education

attainment was notably limited, with only 17.68% (n=177) of participants being graduates and a mere 0.30% (n=3) achieving post-graduate status. Additionally, 8.29% (n=83) of the population were classified as illiterate. Intermediate educational categories, such as those with secondary education (3.40%, n=34) and matric pass (1.60%, n=16), were represented in smaller but meaningful proportions. This distribution underscores substantial variation in educational access within the study population, indicating a need for targeted educational interventions.

Table 1: Distribution on the basis of education level of participants

Category	Count	Percent
Illeterate	83	8.291708
primary education	325	32.46753
secondary education	409	40.85914
graduate	180	17.98202
post graduate	4	0.3996
Total	1001	100

Socioeconomic Status Distribution

An analysis of socioeconomic status (SES) was conducted on 1,001 participants, with 2.60% of data missing. The results indicated a predominance of mid-tier economic status (SE_3), accounting for 69.95% (n=682) of the population, particularly in rural areas. Upper-middle SES (SE_2) represented 17.95% (n=175), while lower-middle SES (SE_4) comprised 12.10% (n=118). Urban populations exhibited a similar SES stratification, albeit with smaller absolute numbers: SE_3 (n=167), SE_2 (n=35), and SE_4 (n=44). The rural-urban SES distribution highlights potential disparities in healthcare access that warrant further investigation.

Table 2: Distribution of participants Socio economic status (Rural Vs Urban)

SOCIOECONOMIC STATUS	Rural	Urban	Count	Percentage
SE_2 (Upper-middle)	140	35	175	17.94871795
SE_3 (Middle)	515	167	682	69.94871795
SE_4 (Lower-middle)	74	44	118	12.1025641
Total			975	100
Missing Values			26	2.597402597

Cesarean Section Indications

The analysis of cesarean section (CS) indications revealed that the most frequent reason for cesarean delivery was fetal distress,[5] accounting for 25.17% (n=252) of cases. This was followed by previous cesarean delivery (12.59%, n=126) and oligohydramnios (10.49%, n=105). Other significant indications included pregnancy-induced hypertension (PIH) at 9.39% (n=94) and intrauterine growth restriction (IUGR) at 5.00% (n=50). The dataset captured a total of 45 distinct indications for cesarean delivery, with 26 of these occurring in less than 1% of cases (e.g., cord prolapse, maternal tachycardia), demonstrating the complexity of decision-making in obstetric care.

B.G. Prasad's SES scale

Social class	Original classification based on monthly per-capita income (Rs.)	Updated scale for 2024 based on monthly per-capita income (Rs.)
I (Upper class)	100 and above	9,098 and above
II (Upper middle class)	50-99	4,549-9,097
III (Middle class)	30-49	2,729-4,548
IV (Lower middle class)	15-29	1,364-2,728
V (Lower class)	<15	<1,364

B. G. Prasad's SES scale updated for year 2024.

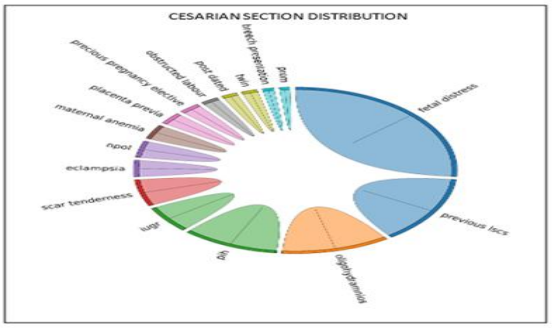

Figure 1: Distribution of Cesarian Section indicators

Table 3: Distribution on the basis Cesarian Section Indicators among participants

INDICATORS	COUNT	PERCENTAGE
FETAL DISTRESS	252	25.17482517
PREVIOUS LSCS	126	12.58741259
OLIGOHYDRAMNIOS	105	10.48951049
PIH	94	9.390609391
IUGR	50	4.995004995
SCAR TENDERNESS	50	4.995004995
ECLAMPSIA	31	3.096903097
NPOL	31	3.096903097

MATERNAL ANEMIA	27	2.697302697
PLACENTA PREVIA	22	2.197802198
OBSTRUCTED LABOUR	17	1.698301698
POST DATED	15	1.498501499
TWIN	15	1.498501499
BREECH PRESENTATION	11	1.098901099
PROM	10	0.999000999

Age Distribution and Bivariate Analysis

The mean age of the study population was 25.34 years (± 5.06), with a range from 18 to 46 years and a median age of 25 years (IQR: 22–28). Shapiro-Wilk testing confirmed a non-normal distribution (W = 0.93, p < 0.001). Bivariate analysis stratified by residence indicated marginal age differences, with urban residents (n=255) being younger (mean age: 24.91 ± 5.81) compared to their rural counterparts (n=746; mean age: 25.49 ± 4.76). The interquartile range (IQR) for urban residents was wider (20.5–28.0) compared to rural residents (22.0–28.0).

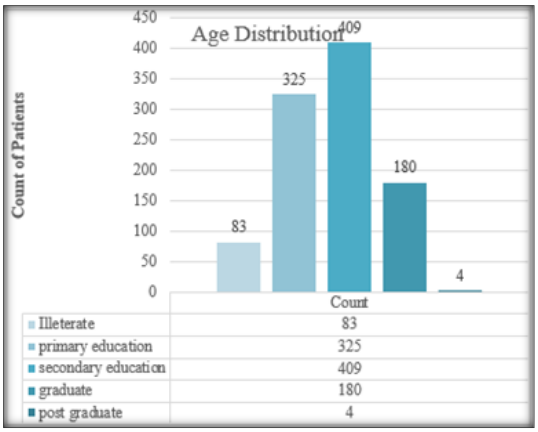

Figure 2: Age Distribution of CS Participants

Hospital Stay Duration

Among the 1,001 patients analyzed, the mean duration of hospitalization was 6.31 days (± 3.17), with a median stay of 5 days (IQR: 5–7), and a range from 3 to 32 days. The data exhibited a non-normal distribution (W = 0.62, p < 0.001), suggesting a skewness toward shorter hospital stays.

Education and Socioeconomic Status (SES)

The educational attainment of the study population was predominantly at the secondary school level (35.66%, n=357) or primary school level (30.67%, n=307), with limited representation of higher education (post-graduate: 0.30%, n=3). The SES distribution (B.G. prasad scale) indicated that 69.95% (n=682) of participants fell within the mid-tier SES category (SE_3), while upper-middle (SE_2: 17.95%, n=175) and lower-middle tiers (SE_4: 12.10%, n=118) were less frequent. The majority of participants resided in rural areas (74.5%, n=746), with urban areas comprising 25.5% (n=255).

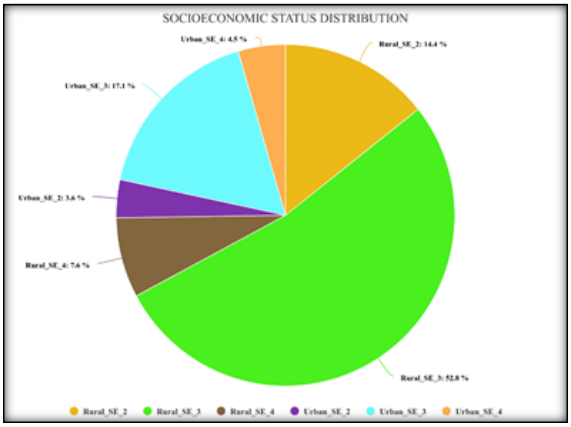

Figure 3: Socioeconomic Status Distribution

Post Op Sterilization Acceptance

The study presents a breakdown of post-operative sterilization outcomes based on socio-economic status. Out of a total of 1,001 cases, 663 individuals did not undergo sterilization, while 266 did. The majority of those who did not undergo sterilization were in the socio-economic categories 2 and 3, while a smaller number of individuals in these categories opted for sterilization. Additionally, there were 71 cases with unspecified socio-economic status. The analysis of the post-operative sterilization data reveals significant trends related to socio-economic status. Overall, the data suggests a correlation between socio-economic status and the decision to undergo sterilization, highlighting potential areas for targeted health education and outreach.

Table 4: Distribution on the basis of post operation sterilization

POST OP STERILIZATION	2	3	4	(blank)	Grand Total
NO	116	449	76	22	663
YES	55	176	32	4	266
(BLANK)	4	57	10		71
GRAND TOTAL	175	682	118	26	1001

Additional Demographic and Clinical Parameters

The cohort exhibited a young adult demographic, with a mean age of 25.34 years. Educational stratification revealed that individuals with secondary education had a mean age of 24.93 years (± 4.73), while those with primary education had a mean age of 23.83 years (± 4.42). Higher education was rare, with post-graduates having a mean age of 35.67 years (± 7.51). The SES analysis indicated that individuals in the mid-tier SES category had a mean

age of 25.18 years (± 5.00), while those in lower and upper tiers had mean ages of 26.73 years (± 4.68) and 23.96 years (± 5.37), respectively.

Table 5: Distribution of participants on the basis of Socio-economic status

SE status									
Frequency	**%**	**Valid %**	**Mean**	**Median**	**Mode**	**Sum**	**Std. Deviation**	**Variance**	**Minimum**
682	68.13%	69.95%	25.18	24	23	17174	5	25	18
175	17.48%	17.95%	26.73	26	23	4677	4.68	21.88	18
118	11.79%	12.10%	23.96	23	19	2827	5.37	28.88	18

Maximum	**Range**	**Quartile 1**	**Quartile 2**	**Quartile 3**	**Interquartile Range**	**Median absolute deviation**	**Skew**	**Kurtosis**	**Number of valid values**	**95% Confidence interval for mean**	**Mean ± Std.**
46	28	21	24	28	7	3	1.1	1.65	682	24.8 - 25.56	25.18 ± 5
44	26	23	26	29	6	3	0.77	0.87	175	26.02 - 27.43	26.73 ± 4.68
44	26	20	23	26	6	3	1.45	2.43	118	22.98 - 24.94	23.96 ± 5.37

Occupational data highlighted housewives as the largest group (79.52%, mean age: 24.99 ± 5.19), followed by self-employed individuals (9.99%, mean age: 25.79 ± 4.11) and teachers (3.50%, mean age: 28.60 ± 4.81).

Table 6: Distribution of Participants' Occupational Distribution

Occupation	**Frequency**	**%**	**Valid %**	**Mean**	**Median**	**Mode**	**Sum**	**Std. Deviation**	**Variance**
housewife	796	79.52%	79.52%	24.99	24	23	19891	5.19	26.93
self-employed	100	9.99%	9.99%	25.79	26	26	2579	4.11	16.85
teacher	35	3.50%	3.50%	28.6	28	32	1001	4.81	23.13
business	23	2.30%	2.30%	26.26	26	24	604	4.59	21.11
Govt Service	17	1.70%	1.70%	28.18	28	27	479	3.11	9.65
private company	6	0.60%	0.60%	25.83	24	23	155	4.62	21.37
buisness	4	0.40%	0.40%	26.5	26.5	23	106	4.04	16.33
govt. job	4	0.40%	0.40%	27	27	26	108	1.15	1.33
govt. service	2	0.20%	0.20%	28	28	28	56	0	0
clerk	2	0.20%	0.20%	29.5	29.5	28	59	2.12	4.5
house help	2	0.20%	0.20%	30.5	30.5	24	61	9.19	84.5
Farmer	1	0.10%	0.10%	25	25	25	25	NaN	
Receptionist	1	0.10%	0.10%	30	30	30	30	NaN	
Shopping assistant	1	0.10%	0.10%	26	26	26	26	NaN	
daily wage	1	0.10%	0.10%	25	25	25	25	NaN	
shop keeper	1	0.10%	0.10%	26	26	26	26	NaN	
service	1	0.10%	0.10%	29	29	29	29	NaN	
Shopkeeper	1	0.10%	0.10%	30	30	30	30	NaN	
ousewife	1	0.10%	0.10%	21	21	21	21	NaN	
ASHA	1	0.10%	0.10%	23	23	23	23	NaN	

Minimum	**Maximum**	**Range**	**Quartile 1**	**Quartile 2**	**Quartile 3**	**Interquartile Range**	**Median absolute deviation**	**Skew**	**Kurtosis**	**Number of valid values**	**95% Confidence interval for mean**	**Mean ± Std.**
18	46	28	21	24	28	7	3	1.17	1.74	796	24.63 - 25.35	24.99 ± 5.19
18	37	19	22.75	26	28.25	5.5	3	0.44	-0.2	100	24.98 - 26.6	25.79 ± 4.11
22	40	18	25	28	32	7	4	0.81	0.1	35	26.95 - 30.25	28.6 ± 4.81
20	36	16	23.5	26	29	5.5	3	0.83	0.11	23	24.27 - 28.25	26.26 ± 4.59
24	34	10	27	28	29	2	1	0.41	-0.46	17	26.58 - 29.77	28.18 ± 3.11
23	35	12	23.25	24	25.5	2.25	1	2.16	4.81	6	20.98 - 30.69	25.83 ± 4.62
23	30	7	23	26.5	30	7	3.5	0	-6	4	20.07 - 32.93	26.5 ± 4.04
26	28	2	26	27	28	2	1	0	-6	4	25.16 - 28.84	27 ± 1.15

28	28	0	28	28	28	0	0			2	28 - 28	28 ± 0
28	31	3	28.75	29.5	30.25	1.5	1.5			2	10.44 - 48.57	29.5 ± 2.12
24	37	13	27.25	30.5	33.75	6.5	6.5			2	-165.23	30.5 ± 9.19
25	25	0	25	25	25	0	0			1	NaN - NaN	25 ± NaN
30	30	0	30	30	30	0	0			1	NaN - NaN	30 ± NaN
26	26	0	26	26	26	0	0			1	NaN - NaN	26 ± NaN
25	25	0	25	25	25	0	0			1	NaN - NaN	25 ± NaN
26	26	0	26	26	26	0	0			1	NaN - NaN	26 ± NaN
29	29	0	29	29	29	0	0			1	NaN - NaN	29 ± NaN
30	30	0	30	30	30	0	0			1	NaN - NaN	30 ± NaN
21	21	0	21	21	21	0	0			1	NaN - NaN	21 ± NaN
23	23	0	23	23	23	0	0			1	NaN - NaN	23 ± NaN

The religious distribution showed that Hindus constituted the majority (64.56%, mean age: 25.81 ± 5.04), followed by Muslims (34.93%, mean age: 24.49 ± 4.99). Menstrual cycle regularity was reported by 92.96% of participants (mean age: 25.16 ± 4.99), while irregular cycles (6.74%, mean age: 27.64 ± 5.53) were associated with older age.

Table 7: Distribution of Participants on the basis of menstrual cycle

Menstrual Cycle														
Frequency		**%**	**Valid %**	**Mean**	**Median**	**Mode**	**Sum**	**Std. Deviation**	**Variance**	**Minimum**	**Maximum**	**Range**	**Quartile 1**	**Quartile 2**
Regular	924	92.31%	92.96%	25.16	24	23	23245	4.99	24.95	18	46	28	21	24
Irregular	67	6.69%	6.74%	27.64	27	29	1852	5.53	30.63	19	45	26	24	27
Regularly irregular	2	0.20%	0.20%	23.5	23.5	21	47	3.54	12.5	21	26	5	22.25	23.5
Irregular irregular	1	0.10%	0.10%	34	34	34	34	NaN		34	34	0	34	34

Blood group analysis revealed O+ as the most common blood type (41.16%, mean age: 25.58 ± 5.18), followed by B+ (29.07%, mean age: 25.02 ± 4.71).

Table 8: Distribution of participants on the basis of Blood Group of participants

Blood Group	Frequency	%	Valid %	Mean	Median	Mode	Sum	Std. Deviation
O+	412	41.16%	41.16%	25.58	25	25	10541	5.18
B+	291	29.07%	29.07%	25.02	25	23	7280	4.71
A+	149	14.89%	14.89%	25.6	24	23	3814	5.33
AB+	87	8.69%	8.69%	25.02	24	23	2177	5.31
A-	20	2%	2%	25.85	25	22	517	5.98
O-	15	1.50%	1.50%	25.73	26	23	386	5.26
B-	13	1.30%	1.30%	25.15	24	24	327	2.88
AB-	12	1.20%	1.20%	22.83	22.5	18	274	3.24
A	1	0.10%	0.10%	28	28	28	28	NaN
O	1	0.10%	0.10%	19	19	19	19	NaN

Quartile 1	Quartile 2	Quartile 3	Interquartile Range	Median absolute deviation	Skew	Kurtosis	Number of valid values	95% Confidence interval for mean	Mean ± Std.
22	25	28	6	3	1.07	1.48	412	25.08 - 26.09	25.58 ± 5.18
21	25	28	7	3	0.97	1.68	291	24.47 - 25.56	25.02 ± 4.71
21	24	29	8	3	0.9	0.56	149	24.73 - 26.46	25.6 ± 5.33
21	24	28	7	4	0.95	0.81	87	23.89 - 26.16	25.02 ± 5.31
22	25	27.5	5.5	3	1.62	3.38	20	23.05 - 28.65	25.85 ± 5.98

22.5	26	28	5.5	3	0.65	0.21	15	22.82 - 28.64	25.73 ± 5.26
24	24	26	2	2	1.72	4.14	13	23.41 - 26.9	25.15 ± 2.88
21	22.5	24.5	3.5	1.5	0.2	-0.09	12	20.77 - 24.89	22.83 ± 3.24
28	28	28	0	0			1	NaN - NaN	28 ± NaN
19	19	19	0	0			1	NaN - NaN	19 ± NaN

Parity data indicated that primigravida constituted 45.95% of the population (mean age: 23.09 ± 4.51), with increasing age observed in higher gravidity categories (e.g., G4P2: 2.10%, mean age: 32.10 ± 3.94).

Table 9: Distribution of participants on the basis of parity

Parity	Frequency	%	Valid %	Mean	Median	Mode	Sum	Std. Deviation	Variance	Minimum	Maximum	Range	Quartile 1	Quartile 2
primigravida	460	45.95%	45.95 %	23.09	22	19	10623	4.51	20.38	18	45	27	20	22
G2P1	281	28.07%	28.07 %	26.31	26	23	7393	3.75	14.04	18	40	22	24	26
G3P1	75	7.49 %	7.49 %	28.24	28	25	2118	4.22	17.83	21	40	19	25	28
G2P0	50	5%	5%	23.96	24	24	1198	3.31	10.98	18	36	18	21.25	24
G3P2	41	4.10 %	4.10 %	28.59	29	29	1172	3.56	12.65	21	35	14	26	29
G4P2	21	2.10 %	2.10 %	32.1	32	33	674	3.94	15.49	25	39	14	29	32
G4P1	18	1.80 %	1.80 %	29.11	27	25	524	5.52	30.46	24	44	20	25.25	27
G3P0	12	1.20 %	1.20 %	27	25	22	324	6.66	44.36	22	46	24	23	25
G3P2L1	9	0.90 %	0.90 %	28.33	30	30	255	2.74	7.5	24	32	8	26	30
G2P1L0	6	0.60 %	0.60 %	23.83	24	24	143	2.93	8.57	20	27	7	21.75	24
G4P3	6	0.60 %	0.60 %	37.17	37.5	40	223	4.96	24.57	31	44	13	33.5	37.5
G5P4	3	0.30 %	0.30 %	35	33	29	105	7.21	52	29	43	14	31	33
G5P2	3	0.30 %	0.30 %	37.67	37	35	113	3.06	9.33	35	41	6	36	37
G3P2L0	2	0.20 %	0.20 %	29	29	24	58	7.07	50	24	34	10	26.5	29
G5P1	2	0.20 %	0.20 %	27	27	27	54	0	0	27	27	0	27	27
G2P1L1	2	0.20 %	0.20 %	22.5	22.5	21	45	2.12	4.5	21	24	3	21.75	22.5
G5P3+1	2	0.20 %	0.20 %	38.5	38.5	33	77	7.78	60.5	33	44	11	35.75	38.5
G4P2L1	1	0.10 %	0.10 %	30	30	30	30	NaN		30	30	0	30	30
G2P2	1	0.10 %	0.10 %	24	24	24	24	NaN		24	24	0	24	24
Primigravida	1	0.10 %	0.10 %	26	26	26	26	NaN		26	26	0	26	26
G6P3	1	0.10 %	0.10 %	30	30	30	30	NaN		30	30	0	30	30
G2P1+0	1	0.10 %	0.10 %	22	22	22	22	NaN		22	22	0	22	22
G6P4+1	1	0.10 %	0.10 %	46	46	46	46	NaN		46	46	0	46	46
G7P4	1	0.10 %	0.10 %	44	44	44	44	NaN		44	44	0	44	44

A history of fetal loss was reported by 15.78% of participants (mean age: 27.56 ± 5.29), significantly older than those without such a history (mean age: 24.94 ± 4.92).

Table 10: Distribution of particioants on the basis of fetal loss

History of fetal loss	Frequency	%	Mean	Median	Mode	Sum	Std. Deviation	Variance	Minimum	Maximum	Range
no	830	82.92 %	24.94	24	23	20699	4.92	24.25	18	46	28

yes	158	15.78 %	27.56	27	24	4355	5.29	28.03	18	46	28	

Quartile 1	Quartile 2	Quartile 3	Interquartile Range	Median absolute deviation	Skew	Kurtosis	Number of valid values	95% Confidence interval for mean	Mean ± Std.
21	24	28	7	3	1.03	1.39	830	24.6 - 25.27	24.94 ± 4.92
24	27	30	6	3	1.06	1.26	158	26.73 - 28.4	27.56 ± 5.29

The results of this analysis reveal significant educational disparities and a predominantly mid-tier socioeconomic status among the study population, with a notable rural predominance. The cesarean section data indicate fetal distress as the primary indication for cesarean deliveries, followed by repeat cesarean deliveries,[6] and maternal-fetal health complications. These findings underscore the need for targeted educational interventions and highlight important patterns in obstetric care decision-making that merit further research in similar populations. The comprehensive categorization of demographic and clinical characteristics provides a robust foundation for future health policy and clinical practice investigations.

DISCUSSION

The findings of this study provide critical insights into the prevalence of cesarean sections (CS) and their correlates at Gauhati Medical College and Hospital (GMCH). With a CS prevalence of 29.31%, this study highlights a significant trend that aligns with the increasing rates of cesarean deliveries,[7] observed globally and within India. The World Health Organization (WHO) recommends a CS rate of 10-15% to ensure maternal and neonatal safety, indicating that the observed prevalence at GMCH is above this threshold. This raises important questions regarding the appropriateness of cesarean deliveries in the context of clinical indications and the potential overutilization of surgical interventions in obstetric care. The demographic analysis revealed that the majority of participants were women aged between 18 and 38 years, with a notable proportion of cesarean deliveries occurring in women aged 30 and older (18.28%). This finding is consistent with existing literature that suggests advanced maternal age is associated with higher rates of cesarean deliveries due to increased risks of complications such as fetal distress and pregnancy-induced hypertension (PIH). The study identified fetal distress as the most common indication for cesarean delivery (28.98%), followed by previous cesarean sections (12.59%) and PIH (11.22%). These results underscore the importance of careful monitoring and management of high-risk pregnancies, particularly in older mothers, to mitigate the need for surgical interventions.

Socioeconomic factors and educational attainment emerged as significant correlates influencing the decision to undergo cesarean delivery. The study found that 80.91% of affluent women opted for elective cesarean sections, and 91.40% of educated women chose CS compared to their uneducated counterparts. This trend suggests that higher socioeconomic status and education levels may empower women to make informed choices regarding their childbirth methods, potentially reflecting a preference for perceived safety associated with cesarean deliveries. However, it also raises concerns about the potential for elective cesarean sections being driven by non-medical factors, such as maternal request or convenience, rather than clinical necessity. This phenomenon necessitates a critical examination of the motivations behind cesarean deliveries and the need for comprehensive counseling to ensure that women are making informed decisions based on their health needs. The analysis of hospital stay duration revealed that women undergoing cesarean deliveries had longer hospital stays (mean of 6.31 days) compared to those with vaginal deliveries (mean of 3 days). This finding is consistent with existing literature that indicates cesarean deliveries are associated with increased postoperative recovery times and complications. The longer hospital stays not only reflect the physical recovery required after surgical intervention but also highlight the potential economic burden on families and the healthcare system. Addressing these issues through improved prenatal care and risk assessment,[9] could help reduce the necessity for cesarean deliveries and associated complications.

Our study also identified significant disparities in educational attainment and socioeconomic status among the participants. With 35.66% of women having completed secondary education and only 0.30% achieving post-graduate status, there is a clear need for targeted educational interventions to improve maternal health literacy. The predominance of mid-tier socioeconomic status (69.95%) among all participants, particularly in rural areas, suggests that access to quality healthcare services may be limited. This is particularly concerning given the association between lower socioeconomic status and higher maternal and neonatal morbidity and mortality rates. Efforts to enhance access to quality prenatal care, education, and resources for women in rural areas are essential to address these disparities,[8] and improve overall maternal and neonatal health outcomes.

This study underscores the urgent need to address healthcare disparities and improve evidence-based obstetric practices at GMCH. The findings highlight the importance of promoting equitable access to quality prenatal care and the need for balanced policies in maternal and neonatal health. By understanding the prevalence and correlates of

cesarean sections, healthcare providers can develop targeted interventions to reduce unnecessary surgical deliveries and improve maternal and neonatal outcomes. Future research should focus on longitudinal studies to assess the long-term implications of cesarean deliveries on maternal and child health, as well as the effectiveness of educational interventions aimed at improving health literacy among expectant mothers. Ultimately, the insights gained from this study can inform clinical practice and policy decisions, contributing to the overarching goal of reducing maternal and neonatal mortality in India.

CONCLUSION

This study highlights the urgent need to tackle healthcare disparities and advance evidence-based practices in obstetrics. Policies in maternal and neonatal health ought to ensure balance while promoting equitable access to quality prenatal care.

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