

Prevalence, Geographic Variation, and Factors Associated with Caesarean Section Delivery in Bangladesh: A Multilevel Analysis of MICS 2025

Md. Rafi Hasan

rafihrhassan@gmail.com

Shahjalal University of Science and Technology

Research Article

Keywords: Caesarean section, Bangladesh, Multiple Indicator Cluster Survey, Geographic variation, Mixed-effects logistic regression

Posted Date: October 22nd, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10768738/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background

Caesarean section (CS) delivery has increased substantially in Bangladesh, raising concerns about potentially unnecessary use and inequalities in access to and utilization of childbirth services. This study aimed to estimate the prevalence and geographic variation of CS delivery and identify associated factors among women in Bangladesh.

Methods

This cross-sectional study used data from the Bangladesh Multiple Indicator Cluster Survey (MICS) 2025. The analysis included 6,675 women with available information on delivery by CS. Descriptive statistics and weighted chi-square tests were used to examine the distribution of CS delivery across selected characteristics. A two-level mixed-effects logistic regression model was fitted. Four sequential models were estimated, with the full model incorporating individual and community-level characteristics. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported.

Results

Overall, 72.75% of women underwent CS delivery, equivalent to approximately 7 in every 10 women. Substantial geographic variation was observed, with the highest prevalence in Khulna (84.28%) and the lowest in Chattogram (58.24%). In the adjusted analysis, women from the richest households and those living in rural areas were also more likely to undergo CS delivery. Compared with Barishal, the likelihood of CS was higher in Khulna and Rangpur but lower in Chattogram. Women with three or more children were less likely to undergo CS. Women aged 35–49 years were more likely to undergo CS than those aged 15–24 years. Increasing antenatal care utilization showed a strong positive association, with higher likelihood among women reporting 4–7 and 8 + ANC visits.

Conclusion

CS delivery was highly prevalent among women in Bangladesh, with marked geographic and socioeconomic variation. The findings highlight the need for continued monitoring of CS practices and greater emphasis on clinically appropriate childbirth care, particularly across regions and population groups with disproportionately high utilization.

Introduction

Caesarean section (CS) has become an increasingly preferred mode of childbirth in both developed and developing countries [1–3]. Its utilization has risen substantially over the past decade [4], partly because

CS is perceived to reduce the risk of maternal and neonatal mortality associated with childbirth [5, 6]. The population-based CS rate serves as an important process indicator for assessing and monitoring maternal health outcomes [7]. Although an earlier WHO position suggested a population-level caesarean section rate of 10–15%, WHO subsequently clarified that it does not recommend a specific population-level target and emphasized that caesarean delivery should be performed when medically necessary [8–10]. Despite this recommendation, the prevalence of CS has increased considerably worldwide over the past decade. Evidence from both developed and developing countries indicated that the average population-based CS rate reached approximately 27% in 2013 [11, 12].

CS delivery in developing countries has been linked to increased maternal morbidity, particularly among women undergoing elective CS [13, 14]. The risk of adverse maternal outcomes may also be greater when CS is performed without a clear medical indication [15, 16]. Evidence further indicates that CS delivery in developing countries can be associated with increased infant morbidity and mortality [10, 17]. However, insufficient access to CS can also have serious consequences. In low-income settings, CS rates below 1% have been associated with elevated maternal and infant mortality, largely reflecting limited access to timely surgical intervention when medically indicated [13, 18]. Non-medically indicated procedures account for approximately one-third of the estimated 18.5 million caesarean sections performed globally each year, thereby contributing substantially to the growing number of potentially unnecessary CS deliveries [8]. The increasing prevalence of CS highlights the importance of systematically monitoring the indications for caesarean delivery across both public and private healthcare facilities [18].

In Bangladesh, caesarean delivery has increasingly been reported even in the absence of apparent obstetric complications. Previous studies have identified several socioeconomic and demographic characteristics associated with caesarean delivery, including maternal education, place of residence, household wealth, maternal age, age at marriage, age at first birth, parity, birth order, antenatal care utilization, husband's occupation, private-sector delivery, religion, and geographic region [19–23]. Evidence from other countries has similarly demonstrated that decisions surrounding institutional delivery are influenced by a combination of socioeconomic, demographic, healthcare facility, and community-level factors [24–27]. Bangladesh has experienced a substantial increase in CS delivery over time. According to the Bangladesh Demographic and Health Survey (BDHS) 2014, 37% of deliveries occurred in health facilities, of which 60% took place in for-profit private-sector facilities [28]. During the same period, the national CS rate increased markedly from 4% in 2004 to 23% in 2014, highlighting the rapid expansion of CS use in Bangladesh [28]. According to the BDHS 2022, caesarean section accounted for 45% of live births nationally, representing a substantial increase over previous survey rounds [29]. Among urban women, the prevalence was reported to be 52.37%, further highlighting the disproportionately high use of caesarean delivery in urban settings [30]. This level is considerably higher than the 10–15% range commonly referenced as the optimal population-level range for caesarean delivery [30].

Despite the growing burden of caesarean section delivery in Bangladesh, recent nationally representative evidence on its associated factors remains limited. Previous studies have largely relied on earlier national surveys, including the Bangladesh Demographic and Health Surveys (BDHS) [19, 20, 31–34] and previous rounds of the Multiple Indicator Cluster Survey [35–38] and may not adequately reflect current patterns and determinants of CS delivery. Furthermore, to author best knowledge, this is the first study to examine caesarean section delivery using the Bangladesh Multiple Indicator Cluster Survey (MICS) 2025, thereby addressing an important gap in contemporary evidence. This study aims to address this gap by utilizing the most recent Bangladesh MICS 2025 data and applying a multilevel mixed-effects logistic regression approach. Specifically, the study examines the individual, and community-level factors associated with CS delivery among women in Bangladesh, providing updated evidence to inform maternal healthcare policies and interventions.

Methods

Data Source and Study Design

This study used quantitative cross-sectional data from the Bangladesh Multiple Indicator Cluster Survey, 2025, a nationally representative survey of women and children. The survey employed a two-stage stratified cluster sampling design, with census enumeration areas selected using probability proportional to size, followed by systematic selection of 20 households per selected cluster. Data were collected through Computer-Assisted Personal Interviewing (CAPI) using face-to-face household interviews. The survey data are publicly available through <https://mics.unicef.org/surveys>

Study Variables

Outcome variable

The primary outcome variable was delivery by caesarean section, which was available directly in the main MICS dataset. The variable was coded as a binary outcome, with 0 indicating No (delivery without caesarean section) and 1 indicating Yes (delivery by caesarean section). This binary variable was used as the dependent variable in the bivariate and multilevel mixed-effects logistic regression analyses.

Explanatory Variables

A range of sociodemographic, household, reproductive, healthcare-related, and technology-related characteristics were considered as explanatory variables. These included age group, education level, wealth index, place of residence, division, ethnicity of the household head, marital/union status, children ever born, current pregnancy status, antenatal care utilization, number of antenatal care visits, place of delivery, health insurance, smartphone ownership, internet usage, and functional difficulty. Detailed definitions and categories of all explanatory variables are presented in Table 1.

Table 1
Detailed definitions and categories of explanatory variables included in the study

Explanatory variable	Categories
Age group	15–24; 25–34; 35–49
Education level	Pre-primary or none; Primary; Lower Secondary; Secondary; Higher Secondary; Higher
Wealth index quintile	Poorest; Second; Middle; Fourth; Richest
Place of residence	Urban; Rural
Division	Barishal; Chattogram; Dhaka; Khulna; Mymensingh; Rajshahi; Rangpur; Sylhet
Ethnicity	Bangali; Other
Marital/union status	Currently married/in union; Formerly married/in union
Children ever born	1 child; 2 children; 3 + children
Received antenatal care	Yes; No
Number of antenatal care visits	1–3 visits; 4–7 visits; 8 + visits
Place of delivery	Public; Private
Health insurance	With insurance; Without insurance
Own a smartphone	Yes; No
Internet usage	Not at all; Less than once a week; At least once a week; Almost every day
Functional difficulty	Has functional difficulty; Has no functional difficulty

Multilevel Mixed-Effects Modeling

A two-level mixed-effects logistic regression model was used to identify factors associated with caesarean section delivery, considering women as the first level and primary sampling units (PSUs) as the second level. A random intercept for PSU was included to account for the potential correlation of women within the same sampling cluster and to capture unobserved between-cluster heterogeneity. Four nested models were fitted. Model 0 (null model) included only the random intercept and was used to assess baseline between-PSU variation. Model 1 included individual level characteristics, including age group, children ever born, current pregnancy status, antenatal care visits, health insurance, smartphone ownership, and internet use. Model 2 included community-level characteristics, namely place of residence, division, ethnicity, and household wealth index. Model 3 (full model) incorporated all variables from Models 1 and 2 simultaneously to obtain mutually adjusted associations. Sampling

weights were incorporated into the mixed effect logistics regression models to account for the unequal probabilities of selection and to improve the representativeness of the estimates. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported. The intra-class correlation coefficient (ICC) was estimated to quantify the proportion of residual variance attributable to differences between PSUs. Model fit was assessed using the log-likelihood, Akaike Information Criterion (AIC), and Bayesian Information Criterion (BIC), with lower AIC and BIC values and a higher log-likelihood indicating comparatively better model fit.

Statistical Analysis

All statistical analyses were conducted using Stata. Descriptive statistics were used to summarize the characteristics of the study population, with categorical variables presented as frequencies and percentages. The association between each explanatory variable and caesarean section delivery was initially assessed using the weight adjusted chi-square test. Variables showing evidence of association at $p < 0.20$ in the bivariate analysis were considered for inclusion in the multivariable modeling. Observations with missing information on the outcome variable were excluded. A total of 6,675 women were included in the present analysis. A two-level mixed-effects logistic regression model was subsequently fitted, with women nested within PSUs. Four sequential models were estimated: Model 0 (null model), Model I (individual level factors), Model II (community level factors), and Model III (full model). Sampling weights were incorporated into the mixed effect logistics models, and a random intercept for PSU was included to account for clustering. Associations were reported as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). Statistical significance was determined at $p < 0.05$. Prior to the final multivariable analysis, multicollinearity among the explanatory variables was assessed using the variance inflation factor (VIF). Education level, marital/union status, receipt of antenatal care, and place of delivery and functional difficulties were excluded from the final model because of high multicollinearity. After removing these variables, the average VIF of the final model was 2.31, indicating an acceptable level of multicollinearity among the retained explanatory variables.

Results

Prevalence of Caesarean Section Delivery among Women in Bangladesh

The study found that 72.75% of women had delivered by caesarean section, while 27.25% had delivered vaginally. In practical terms, approximately 7 in every 10 women had undergone caesarean section delivery, indicating a high prevalence of caesarean delivery in the study population [Fig. 1].

Prevalence of Caesarean Section Delivery across Divisions in Bangladesh

The study found substantial geographic variation in the prevalence of caesarean section delivery across the eight administrative divisions of Bangladesh. Khulna recorded the highest prevalence (84.28%), meaning that approximately 8 in every 10 women had undergone caesarean section, followed by Dhaka (80.76%). In contrast, the lowest prevalence was observed in Chattogram (58.24%) and Sylhet (60.67%). The prevalence was 75.49% in Barishal, 75.04% in Rajshahi, 75.01% in Rangpur, and 72.25% in Mymensingh. Overall, the map demonstrates a marked geographic disparity in caesarean section delivery, with particularly high prevalence in Khulna and Dhaka and comparatively lower prevalence in Chattogram and Sylhet [Fig. 2].

Bivariate association between selected characteristics and caesarean section delivery

Table 2 shows significant associations between caesarean section delivery and age, education, wealth, division, ethnicity, number of children ever born, antenatal care utilization, place of delivery, health insurance, smartphone ownership, and internet use (all $p < 0.05$). Caesarean delivery increased with maternal age, from 71.01% among women aged 15–24 years to 75.50% among those aged 35–49 years ($p = 0.02$), and showed a clear educational gradient, rising from 59.96% among women with pre-primary/no education to 81.87% among those with higher education ($p < 0.01$). Similarly, caesarean delivery increased across wealth categories, from 65.25% among the poorest women to 77.67% among the richest ($p < 0.01$). Marked geographic variation was observed, with the highest prevalence in Khulna (84.28%), followed by Dhaka (80.76%), while the lowest was observed in Chattogram (58.24%) and Sylhet (60.67%) ($p < 0.01$). Caesarean delivery was also higher among women with two children (74.64%) than those with three or more children (68.16%; $p < 0.01$). A strong gradient was observed for antenatal care, with caesarean delivery increasing from 67.59% among women with 1–3 ANC visits to 76.83% among those with 4–7 visits and 85.14% among those with 8 + visits ($p < 0.01$). The largest difference was observed by place of delivery: 85.86% of private-facility deliveries were caesarean compared with only 33.25% of public-facility deliveries ($p < 0.01$). Caesarean delivery was also more common among women with health insurance (89.09% vs. 72.65%), smartphone owners (76.36% vs. 70.22%), and women using the internet almost every day (76.13% vs. 67.94% among those with no internet use) (all $p < 0.01$). In contrast, place of residence, marital/union status, and functional difficulty were not significantly associated with caesarean section delivery.

Table 2
Bivariate association between selected characteristics and caesarean section delivery

Variables	Categories	No Weighted n (%)	Yes Weighted n (%)	P- value
Age group	15–24	1009.33 (28.99)	2472.88 (71.01)	0.02
	25–34	787.73 (25.87)	2256.87 (74.13)	
	35–49	166.90 (24.50)	514.26 (75.50)	
Education level	Pre-primary or none	86.41 (40.04)	129.38 (59.96)	< 0.01
	Primary	287.91 (33.24)	578.22 (66.76)	
	Lower Secondary	475.12 (28.60)	1185.86 (71.40)	
	Secondary	649.36 (28.77)	1607.79 (71.23)	
	Higher Secondary	282.99 (23.58)	917.31 (76.42)	
	Higher	182.17 (18.13)	822.40 (81.87)	
Wealth index quintile	Poorest	324.26 (34.75)	608.91 (65.25)	< 0.01
	Second	355.63 (30.19)	822.45 (69.81)	
	Middle	392.90 (27.24)	1049.36 (72.76)	
	Fourth	465.87 (26.62)	1284.25 (73.38)	
	Richest	425.30 (22.33)	1479.06 (77.67)	
Place of residence	Urban	606.43 (26.94)	1644.82 (73.06)	0.76
	Rural	1357.53 (27.39)	3599.20 (72.61)	
Division	Barishal	62.43 (24.51)	192.32 (75.49)	< 0.01

Variables	Categories	No Weighted n (%)	Yes Weighted n (%)	P- value
	Chattogram	753.58 (41.76)	1050.86 (58.24)	
	Dhaka	413.10 (19.24)	1733.67 (80.76)	
	Khulna	132.77 (15.72)	711.94 (84.28)	
	Mymensingh	124.92 (27.75)	325.30 (72.25)	
	Rajshahi	196.14 (24.96)	589.68 (75.04)	
	Rangpur	141.66 (24.99)	425.27 (75.01)	
	Sylhet	139.37 (39.33)	214.97 (60.67)	
Ethnicity	Bangali	1948.09 (27.12)	5233.89 (72.88)	< 0.01
	Other	15.86 (61.04)	10.13 (38.96)	
Marital/union status	Currently married/in union	1956.71 (27.29)	5213.15 (72.71)	0.30
	Formerly married/in union	7.24 (19.01)	30.87 (80.99)	
Children ever born	1 child	806.16 (26.30)	2258.70 (73.70)	< 0.01
	2 children	631.28 (25.36)	1858.04 (74.64)	
	3 + children	526.51 (31.84)	1127.29 (68.16)	
Received antenatal care	Yes	1868.94 (26.71)	5128.70 (73.29)	< 0.01
	No	95.02 (45.17)	115.32 (54.83)	
Number of antenatal care visits	1–3 visits	1025.30 (32.41)	2138.61 (67.59)	< 0.01
	4–7 visits	763.17 (23.17)	2530.62 (76.83)	

Variables	Categories	No Weighted n (%)	Yes Weighted n (%)	P- value
	8 + visits	78.26 (14.86)	448.45 (85.14)	
Place of delivery	Public	1123.95 (66.75)	559.95 (33.25)	< 0.01
	Private	759.36 (14.14)	4610.14 (85.86)	
Health insurance	With insurance	4.92 (10.91)	40.20 (89.09)	< 0.01
	Without insurance	1959.03 (27.35)	5203.82 (72.65)	
Own a smartphone	Yes	994.27 (23.64)	3211.29 (76.36)	< 0.01
	No	459.00 (29.78)	1082.16 (70.22)	
Internet usage	Not at all	52.74 (32.06)	111.74 (67.94)	< 0.01
	Less than once a week	127.68 (31.45)	278.32 (68.55)	
	At least once a week	183.55 (31.74)	394.67 (68.26)	
	Almost every day	769.72 (23.87)	2454.75 (76.13)	
Functional difficulty	Has functional difficulty	21.63 (29.46)	51.79 (70.54)	0.73
	Has no functional difficulty	1859.60 (27.09)	5005.87 (72.91)	

Random-effects model diagnostics for multilevel mixed-effects logistic regression analysis

The model diagnostics indicated that Model III (full model) provided the best overall fit, with the lowest AIC (3751.88) and BIC (3916.63) and the highest log-likelihood (– 1848.94) among the fitted models. The PSU-level variance was 1.96 (95% CI: 1.44–2.67), indicating substantial heterogeneity in caesarean section delivery across primary sampling units. The ICC was 37.35%, suggesting that a considerable proportion of the residual variation in caesarean section delivery was attributable to differences between PSUs [Table 3].

Table 3
Random-effects model diagnostics for multilevel mixed-effects logistic regression analysis

Random Effects Model	Model 0	Model I	Model II	Model III (Full Model)
PSU variance (95% CI)	0.76 (0.57–1.00)	2.28 (1.71–3.02)	1.08 (0.86–1.36)	1.96 (1.44–2.67)
ICC (%)	18.74%	40.90%	24.70%	37.35%
Log-likelihood	–3,874.68	–1,911.00	–3,856.82	–1,848.94
AIC	7,753.35	3,850.01	7,743.65	3,751.88
BIC	7,766.96	3,935.44	7,845.71	3,916.63
MOR	2.30	4.22	2.69	3.80

Multilevel mixed-effects logistic regression analysis of factors associated with caesarean section delivery

Table 4 presents the multilevel mixed-effects logistic regression analysis of factors associated with caesarean section delivery. Maternal age, wealth status, place of residence, division, number of children ever born, current pregnancy status, and number of ANC visits were significantly associated with caesarean section delivery. Women aged 35–49 years were more likely to undergo caesarean section than those aged 15–24 years (AOR = 2.56, 95% CI: 1.37–4.77, $p < 0.01$). Women in the richest wealth quintile were also more likely to undergo caesarean section than those in the poorest quintile (AOR = 1.76, 95% CI: 1.01–3.06, $p = 0.04$). Similarly, women residing in rural areas were more likely to undergo caesarean section than their urban counterparts (AOR = 1.39, 95% CI: 1.04–1.86, $p = 0.02$). Significant geographic differences were observed. Compared with women from Barishal, those from Chattogram were less likely to undergo caesarean section (AOR = 0.33, 95% CI: 0.19–0.55, $p < 0.01$), whereas women from Khulna (AOR = 1.84, 95% CI: 1.03–3.29, $p = 0.04$) and Rangpur (AOR = 1.94, 95% CI: 1.04–3.61, $p = 0.03$) were more likely to undergo caesarean section. Women with three or more children ever born were less likely to undergo caesarean section than those with one child (AOR = 0.65, 95% CI: 0.43–0.99, $p = 0.04$). A strong positive association was observed between ANC visits and caesarean section delivery. Compared with women reporting 1–3 ANC visits, those with 4–7 visits were more likely to undergo caesarean section (AOR = 1.86, 95% CI: 1.40–2.48, $p < 0.01$), while those with 8 or more visits were substantially more likely to undergo caesarean section (AOR = 3.18, 95% CI: 1.75–5.75, $p < 0.01$).

Table 4
Multilevel mixed-effects logistic regression analysis of factors associated with
caesarean section delivery

Explanatory variables	Categories	AOR	95% CI	P-value
Age group	15–24 (Ref.)	1.00		
	25–34	1.12	0.82–1.54	0.47
	35–49	2.56	1.37–4.77	< 0.01
Wealth index	Poorest (Ref.)	1.00		
	Second	0.94	0.54–1.63	0.83
	Middle	1.28	0.76–2.13	0.35
	Fourth	1.17	0.70–1.96	0.54
	Richest	1.76	1.01–3.06	0.04
Place of residence	Urban (Ref.)	1.00		
	Rural	1.39	1.04–1.86	0.02
Division	Barishal (Ref.)	1.00		
	Chattogram	0.33	0.19–0.55	< 0.01
	Dhaka	1.35	0.79–2.29	0.27
	Khulna	1.84	1.03–3.29	0.04
	Mymensingh	1.15	0.53–2.47	0.72
	Rajshahi	1.09	0.60–1.97	0.78
	Rangpur	1.94	1.04–3.61	0.03
	Sylhet	0.60	0.31–1.18	0.13
Ethnicity	Bangali (Ref.)	1.00		
	Other	1.51	0.46–4.96	0.49
Children ever born	1 child (Ref.)	1.00		
	2 children	0.89	0.64–1.24	0.48
	3 + children	0.65	0.43–0.99	0.04
ANC visits	1–3 visits (Ref.)	1.00		
	4–7 visits	1.86	1.40–2.48	< 0.01
	8 + visits	3.18	1.75–5.75	< 0.01

Explanatory variables	Categories	AOR	95% CI	P-value
Health insurance	With insurance (Ref.)	1.00		
	Without insurance	0.49	0.14–1.66	0.25
Own a smartphone	Yes (Ref.)	1.00		
	No	0.79	0.54–1.17	0.24
Internet usage	Not at all (Ref.)	1.00		
	Less than once a week	1.17	0.57–2.43	0.66
	At least once a week	1.13	0.54–2.36	0.75
	Almost every day	1.55	0.78–3.07	0.21

Discussion

The study found a high prevalence of caesarean section delivery, with 72.75% of women undergoing caesarean delivery, equivalent to approximately 7 in every 10 women. Substantial geographic variation was observed, with the highest prevalence in Khulna (84.28%) and the lowest in Chattogram (58.24%). In the adjusted analysis, women aged 35–49 years, those in the richest wealth quintile, and rural residents were more likely to undergo caesarean delivery. Women in Khulna and Rangpur were more likely, whereas those in Chattogram were less likely, to undergo caesarean delivery compared with women in Barishal. Women with three or more children were less likely to undergo caesarean delivery. Increasing ANC utilization showed a strong positive association, with women reporting 4–7 and 8 + visits being 1.86 and 3.18 times more likely, respectively, to undergo caesarean delivery.

The present study indicates that approximately 7 in 10 women in Bangladesh undergo caesarean delivery. This finding reflects the substantial rise in caesarean section use in the country, with the national rate increasing from 3.5% in 2004 to 23% in 2014, highlighting the growing prevalence of caesarean births among Bangladeshi women [39]. Moreover, the prevalence of caesarean section was 67.4% among Bangladeshi women, according to data from the 2019 Multiple Indicator Cluster Survey, suggesting the substantial rise in caesarean deliveries over time [35]. Similarly, according to the 2022 Bangladesh Demographic and Health Survey (BDHS), the proportion of hospital births delivered by caesarean section increased substantially from 32% in 1999/2000 to 69% in 2022, further highlighting the rapid rise in caesarean delivery in Bangladesh [40]. Furthermore, this increasing reliance on caesarean delivery may also be influenced by women's interactions with healthcare providers, as studies have shown that, despite a strong preference for normal vaginal delivery, many women accepted providers' recommendations for caesarean birth, while others requested caesarean delivery due to unsupportive nursing behavior, fear of episiotomy, and concerns about fetal death [41].

The study further suggests substantial geographic variation in caesarean delivery prevalence across Bangladesh, with the highest prevalence observed in Khulna (84.28%) and the lowest in Chattogram (58.24%). A study using 2019 MICS data similarly reported substantial regional disparities in elective caesarean section rates, with the highest prevalence observed in Khulna (30.8%) and Dhaka (27.3%), while Chattogram (12.0%) and Sylhet (12.8%) recorded the lowest rates [42]. Consistent with the present findings, previous research reported that caesarean delivery was most prevalent in rural areas of the Khulna division across all survey years (1993-94 to 2017-18), followed by Dhaka, Rajshahi, and Chattogram during the two most recent survey periods (2014 to 2017-18) [33]. Furthermore, another study reported substantial geographic variation in caesarean section rates across Bangladesh, with the highest prevalence observed in Khulna (35.2%), followed by Dhaka (32.9%) and Rajshahi (28.0%) [43]. The higher prevalence of caesarean delivery in Khulna may be attributed to regional factors, including fewer vacant healthcare-provider positions and greater availability of accessible public-sector emergency obstetric care facilities, which may contribute to increased utilization of maternity services. Moreover, women from wealthier households in Khulna were considerably more likely to undergo caesarean delivery [44]. Furthermore, another study identified the greater availability of healthcare facilities offering caesarean section services as a potential explanation for the relatively higher rates of caesarean delivery observed in the Khulna and Rajshahi divisions [34].

Women from the richest households were more likely to undergo caesarean section delivery than those from the poorest households. This finding may be explained by socioeconomic differences in preferences and access to childbirth services. Women from wealthier households may have greater financial capacity to access private healthcare, stronger preferences for perceived convenience and safety associated with caesarean delivery, and greater exposure to modern childbirth practices, which may contribute to higher use of CS. In Bangladesh, the substantially higher CS rate among women in the highest wealth quintile (51.4%) compared with those in the lowest quintile (6.7%) further supports the role of socioeconomic position in the increasing use of caesarean delivery [45]. Higher-income and better-educated women may have greater financial capacity to access advanced healthcare services and may perceive caesarean delivery as a marker of higher-quality or more modern obstetric care. Moreover, factors beyond clinical indications, including maternal preferences and greater ability to choose among available delivery options within pluralistic healthcare systems, may contribute to the unequal distribution of caesarean sections [46]. Another study suggests that the ability to afford caesarean delivery and a preference for CS are likely explanations for the substantial difference in CS utilization between women in the highest wealth quintile and those in other wealth groups [47].

The current study further indicates that women with three or more children were less likely to undergo caesarean delivery. Similarly, previous research found an inverse association between birth order and caesarean delivery, with the prevalence of caesarean section declining significantly as birth order increased. Compared with first-order births, second- and higher-order births were less likely to be delivered by caesarean section. This pattern may be partly explained by greater maternal fear and anxiety associated with the first childbirth experience [48]. Furthermore, increased parity was identified as a negative predictor of caesarean delivery, indicating that women with more previous births were less

likely to undergo caesarean section. The use of uterotonics to induce or augment labour was also associated with a substantially lower likelihood of caesarean delivery, reducing the odds by nearly 85% [49]. However, contrasting evidence suggests that the likelihood of caesarean delivery decreased with lower birth order but increased among women with higher socioeconomic status, greater educational attainment, and older maternal age [50].

Women living in rural areas were more likely to undergo caesarean section delivery than those living in urban areas. A study conducted across nine South and Southeast Asian countries reported that women living in urban areas had 2.60 times higher odds of undergoing caesarean section compared with those living in rural areas [51]. However, findings from other settings have also reported a higher utilization of caesarean delivery among urban women. For example, a study across 28 sub-Saharan African countries found that the pooled prevalence of caesarean delivery was higher in urban areas (10.37%) than in rural areas (3.78%) [52]. Similarly, evidence from Vietnam showed that women living in urban areas had approximately twice the likelihood of undergoing caesarean section compared with those living in rural areas [53]. In West Bengal, India, the prevalence of caesarean section delivery was substantially higher than the national and state averages, particularly in rural areas. Among women who underwent caesarean delivery on maternal request, commonly reported reasons included perceptions that vaginal delivery was risky, painful, or inconvenient [54]. In Matlab, Bangladesh, the caesarean section rate in the rural study setting was 29%, exceeding the national average of 23%, suggesting that caesarean delivery may also be relatively common in rural areas. This may be partly explained by the influence of primary healthcare providers and clinic brokers on women's choice of delivery facility, with brokers potentially directing more women to obstetricians who favor caesarean delivery, thereby contributing to potentially non-indicated procedures in rural private facilities [55].

Higher utilization of antenatal care was strongly associated with caesarean delivery, with women who attended 4–7 ANC visits and 8 or more visits having higher odds of undergoing caesarean section. The strong association between frequent antenatal care utilization and caesarean delivery may be attributed to greater exposure to the healthcare system, particularly in poorly regulated settings, where increased contact with healthcare providers may predispose women to surgical delivery [56]. The association between adequate antenatal care and a higher likelihood of caesarean delivery may reflect greater interaction with the healthcare system and broader patterns of medicalization. Frequent contact with healthcare providers through multiple ANC visits may increase exposure to clinical interventions and, consequently, contribute to greater utilization of caesarean delivery [57]. Furthermore, the higher frequency of antenatal care visits may contribute to increased caesarean delivery through maternal preferences and provider recommendations, as anxious mothers may opt for caesarean section, while physicians may recommend it to mitigate potential pregnancy-related complications. Moreover, a greater number of ANC visits is often associated with higher educational attainment and better socioeconomic status, which may also contribute to the increased likelihood of caesarean delivery [58].

Strengths of the Study

This study has several important strengths. First, to our knowledge, it is the first study to examine caesarean section delivery using the MICS 2025, providing timely evidence based on the most recent nationally representative data. Second, the study used nationally representative survey data, enhancing the generalizability of the findings to women across Bangladesh. Third, the analysis accounted for the hierarchical structure of the survey using a two-level mixed-effects logistic regression model, while incorporating sampling weights to improve the representativeness of the estimates. Fourth, the study assessed geographic variation in caesarean section delivery across all eight divisions of Bangladesh and examined a broad range of sociodemographic, household, reproductive, and healthcare-related factors.

Limitations of the Study

Several limitations should be considered when interpreting the findings. First, the cross-sectional nature of the MICS 2025 data precludes establishing temporal or causal relationships between the explanatory variables and caesarean section delivery. Second, as this was a secondary data analysis, the study was restricted to variables available in the dataset and could not assess potentially important clinical factors, including obstetric complications, medical indications for caesarean delivery, previous caesarean delivery, and maternal or provider preferences. Third, some explanatory variables were excluded from the final model because of high multicollinearity, potentially limiting assessment of their independent associations. Fourth, despite accounting for PSU-level clustering, residual confounding from unmeasured individual, and community level factors may remain. Finally, the observed associations should not be interpreted as causal relationships.

Conclusion

This study demonstrates a high prevalence of caesarean section delivery among women in Bangladesh, with substantial geographic variation across the country. The likelihood of caesarean delivery differed according to maternal age, household wealth, place of residence, geographic division, parity, pregnancy status, and antenatal care utilization. In particular, older women, those from the richest households, rural residents, and women with higher numbers of ANC visits were more likely to undergo caesarean delivery, while women with three or more children were less likely to do so. The marked regional differences further highlight important inequalities in childbirth practices across Bangladesh. These findings underscore the need for evidence-based monitoring of caesarean delivery practices, particularly across geographic and socioeconomic groups, and for strengthening appropriate use of caesarean delivery based on clinical need. Further research incorporating detailed obstetric indications and facility-level factors is warranted to better understand the drivers of the high caesarean section rate in Bangladesh.

Abbreviations

ANC

Antenatal Care

AOR

Adjusted Odds Ratio
AIC
Akaike Information Criterion
BBS
Bangladesh Bureau of Statistics
BIC
Bayesian Information Criterion
CAPI
Computer-Assisted Personal Interviewing
CI
Confidence Interval
CS
Caesarean Section
ICC
Intra-Class Correlation Coefficient
MICS
Multiple Indicator Cluster Survey
MOR
Median Odds Ratio
OR
Odds Ratio
PSU
Primary Sampling Unit
VIF
Variance Inflation Factor
WHO
World Health Organization

Declarations

Ethical approval and consent to participate

As this study utilized secondary, publicly available MICS data, separate ethical approval was not required for the present analysis. The Bangladesh MICS 2025 survey protocol received approval from the relevant technical committee of the Government of Bangladesh, led by the Bangladesh Bureau of Statistics (BBS). Informed consent was obtained from participants before data collection. The dataset was accessed and used with authorization from the MICS team.

Competing interests

The author declares that there are no competing interests.

Data availability

The dataset used in this study is publicly and freely available through the UNICEF Multiple Indicator Cluster Surveys website <https://mics.unicef.org/surveys>

Authors Contributions

MRH conceptualized the study, developed the methodology, conducted the data management and statistical analysis, interpreted the findings, and drafted the manuscript. MRH also reviewed and revised the manuscript critically and approved the final version for publication.

Funding

The author received no specific funding for this study.

Acknowledgments

The authors wish to acknowledge UNICEF and MICS for providing access to the data set.

References

1. Leone T, Padmadas SS, Matthews Z. Community factors affecting rising caesarean section rates in developing countries: An analysis of six countries. *Soc Sci Med*. 2008;67:1236–46. <https://doi.org/10.1016/j.socscimed.2008.06.032>.
2. Betran AP, Torloni MR, Zhang J, Ye J, Mikolajczyk R, Deneux-Tharaux C, et al. What is the optimal rate of caesarean section at population level? A systematic review of ecologic studies. *Reprod Health*. 2015;12:57. <https://doi.org/10.1186/s12978-015-0043-6>.
3. Chavan N. Caesarean Delivery. *Labour Room Emergencies*. Springer; 2019. pp. 297–303.
4. Osterman MJ, Hamilton BE, Martin JA, Driscoll AK, Valenzuela CP. National vital statistics reports. *Natl Vital Stat Rep* 2014;63.
5. Lauer JA, Betrán AP, Merialdi M, Wojdyla D. Determinants of caesarean section rates in developed countries: supply, demand and opportunities for control. *World Health Rep*. 2010;29:1–22.
6. Anderson GM. Making sense of rising caesarean section rates. *BMJ*. 2004;329:696–7. <https://doi.org/10.1136/bmj.329.7468.696>.
7. Technical Working Group on Indicators to Monitor Maternal Health Goals. (1993: Geneva), World Health Organization. Maternal Health and Safe Motherhood Programme, UNICEf, editors. Indicators to monitor maternal health goals: report of a technical working group, Geneva, 8–12 November 1993. Geneva: World Health Organization; 1994.
8. Betrán AP, Merialdi M, Lauer JA, Bing-Shun W, Thomas J, Van Look P, et al. Rates of caesarean section: analysis of global, regional and national estimates. *Paediatr Perinat Epidemiol*. 2007;21:98–113. <https://doi.org/10.1111/j.1365-3016.2007.00786.x>.
9. Dumont A, de Bernis L, Bouvier-olle M-H, Bréart G. Caesarean section rate for maternal indication in sub-Saharan Africa: a systematic review. *Lancet*. 2001;358:1328–33.

[https://doi.org/10.1016/S0140-6736\(01\)06414-5](https://doi.org/10.1016/S0140-6736(01)06414-5).

10. Althabe F, Sosa C, Belizán JM, Gibbons L, Jacquerioz F, Bergel E. Cesarean section rates and maternal and neonatal mortality in low-, medium-, and high-income countries: an ecological study. *Birth*. 2006;33:270–7. <https://doi.org/10.1111/j.1523-536X.2006.00118.x>.
11. Festin MR, Laopaiboon M, Pattanittum P, Ewens MR, Henderson-Smart DJ, Crowther CA, et al. Caesarean section in four South East Asian countries: reasons for, rates, associated care practices and health outcomes. *BMC Pregnancy Childbirth*. 2009;9:17. <https://doi.org/10.1186/1471-2393-9-17>.
12. OECD. Health at a Glance 2013: OECD Indicators. Health at a Glance 2013;2013. https://doi.org/10.1787/health_glance-2013-en
13. Althabe F, Sosa C, Belizán JM, Gibbons L, Jacquerioz F, Bergel E. Cesarean section rates and maternal and neonatal mortality in low-, medium-, and high-income countries: an ecological study. *Birth*. 2006;33:270–7. <https://doi.org/10.1111/j.1523-536X.2006.00118.x>.
14. Hofmeyr GJ, Say L, Gülmezoglu AM. WHO systematic review of maternal mortality and morbidity: the prevalence of uterine rupture. *BJOG*. 2005;112:1221–8. <https://doi.org/10.1111/j.1471-0528.2005.00725.x>.
15. Oladapo OT, Lamina MA, Sule-Odu AO. Maternal morbidity and mortality associated with elective Caesarean delivery at a university hospital in Nigeria. *Aust N Z J Obstet Gynaecol*. 2007;47:110–4. <https://doi.org/10.1111/j.1479-828X.2007.00695.x>.
16. MacDorman MF, Declercq E, Menacker F, Malloy MH. Infant and neonatal mortality for primary cesarean and vaginal births to women with no indicated risk, United States, 1998–2001 birth cohorts. *Birth*. 2006;33:175–82. <https://doi.org/10.1111/j.1523-536X.2006.00102.x>.
17. Villar J, Valladares E, Wojdyla D, Zavaleta N, Carroli G, Velazco A, et al. Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. *Lancet*. 2006;367:1819–29. [https://doi.org/10.1016/S0140-6736\(06\)68704-7](https://doi.org/10.1016/S0140-6736(06)68704-7).
18. Ronsmans C, Holtz S, Stanton C. Socioeconomic differentials in caesarean rates in developing countries: a retrospective analysis. *Lancet*. 2006;368:1516–23. [https://doi.org/10.1016/S0140-6736\(06\)69639-6](https://doi.org/10.1016/S0140-6736(06)69639-6).
19. Hasan F, Alam MM, Hossain MG. Associated factors and their individual contributions to caesarean delivery among married women in Bangladesh: analysis of Bangladesh demographic and health survey data. *BMC Pregnancy Childbirth*. 2019;19:433. <https://doi.org/10.1186/s12884-019-2588-9>.
20. Rahman MM, Haider MR, Moinuddin M, Rahman AE, Ahmed S, Khan MM. Determinants of caesarean section in Bangladesh: Cross-sectional analysis of Bangladesh Demographic and Health Survey 2014 Data. *PLoS ONE*. 2018;13:e0202879. <https://doi.org/10.1371/journal.pone.0202879>.
21. Kamal SMM. Preference for institutional delivery and caesarean sections in Bangladesh. *J Health Popul Nutr*. 2013;31:96–109. <https://doi.org/10.3329/jhpn.v31i1.14754>.
22. Kassak KM, Ali AM, Abdallah AM. Opting for a cesarean: what determines the decision? *Public Adm Manage*. 2009;14:100.

23. Rahman M, Shariff AA, Saaïd R, Shafie A. Age at marriage, maternal age and caesarean delivery of first birth in the northern region of Bangladesh: a study on curve estimation. *Man India*. 2012;92:93–113.
24. Babalola S, Fatusi A. Determinants of use of maternal health services in Nigeria—looking beyond individual and household factors. *BMC Pregnancy Childbirth*. 2009;9:43. <https://doi.org/10.1186/1471-2393-9-43>.
25. Padmadas SS, Kumar S, Nair SB, Kumari A. Caesarean section delivery in Kerala, India: evidence from a National Family Health Survey. *Soc Sci Med*. 2000;51:511–21. [https://doi.org/10.1016/s0277-9536\(99\)00491-8](https://doi.org/10.1016/s0277-9536(99)00491-8).
26. Aremu O, Lawoko S, Dalal K. The Influence of Individual and Contextual Socioeconomic Status on Obstetric Care Utilization in the Democratic Republic of Congo: A Population-based Study. *Int J Prev Med*. 2012;3:278–85.
27. Gabrysch S, Campbell OMR. Still too far to walk: literature review of the determinants of delivery service use. *BMC Pregnancy Childbirth*. 2009;9:34. <https://doi.org/10.1186/1471-2393-9-34>.
28. National Institute of Population Research and Training - NIPORT/Bangladesh, Mitra and, Associates. ICF International. Bangladesh Demographic and Health Survey 2014. Dhaka, Bangladesh: NIPORT, Mitra and Associates, and ICF International; 2016.
29. National Institute of Population Research and Training, Medical Education and Family Welfare Division. Ministry of Health and Family Welfare, ICF. Bangladesh Demographic and Health Survey 2022: Final Report. Dhaka, Bangladesh, and Rockville. Maryland, USA: NIPORT and ICF; 2024.
30. Sujon MSH, Sumon IH, Ahmmad J, Asif MS, Hossain MM. Determinants of cesarean section in urban areas of Bangladesh: Insights from the Bangladesh Demographic and Health Survey-2022. *Womens Health (Lond Engl)*. 2025;21:17455057251356806. <https://doi.org/10.1177/17455057251356806>.
31. Haider MR, Rahman MM, Moinuddin M, Rahman AE, Ahmed S, Khan MM. Ever-increasing Caesarean section and its economic burden in Bangladesh. *PLoS ONE*. 2018;13:e0208623. <https://doi.org/10.1371/journal.pone.0208623>.
32. Khan MN, Kabir MA, Shariff AA, Rahman MM. Too many yet too few caesarean section deliveries in Bangladesh: Evidence from Bangladesh Demographic and Health Surveys data. *PLOS Global Public Health*. 2022;2:e0000091. <https://doi.org/10.1371/journal.pgph.0000091>.
33. Abdulla F, Hossain MM, Rahman MM, Rahman MS, Rahman A. Risk factors of caesarean deliveries in urban–rural areas of Bangladesh. *Front Reprod Health* 2023;5. <https://doi.org/10.3389/frph.2023.1101400>
34. Khan MN, Islam MM, Akter S. Spatial distribution of caesarean deliveries and their determinants in Bangladesh: evidence from linked data of population and health facility survey. *Lancet Reg Health – Southeast Asia* 2023;14. <https://doi.org/10.1016/j.lansea.2023.100153>
35. Ahmed MS, Islam M, Jahan I, Shaon IF. Multilevel analysis to identify the factors associated with caesarean section in Bangladesh: evidence from a nationally representative survey. *Int Health*.

- 2023;15:30–6. <https://doi.org/10.1093/inthealth/ihac006>.
36. Islam MM, Noor FM. Prevalence and factors of cesarean delivery among Bangladeshi reproductive aged women: evidence from multiple Indicator cluster survey 2019 data. *J Public Health (Berl)*. 2022;30:2103–12. <https://doi.org/10.1007/s10389-021-01551-9>.
 37. Alam MI, Sultana N. Skilled birth attendants and caesarean sections: a case in Bangladesh. *J Public Health (Berl)*. 2025;33:435–43. <https://doi.org/10.1007/s10389-023-01966-6>.
 38. Hasan MN, Chowdhury MAB, Jahan J, Jahan S, Ahmed NU, Uddin MJ. Cesarean delivery and early childhood diseases in Bangladesh: An analysis of Demographic and Health Survey (BDHS) and Multiple Indicator Cluster Survey (MICS). *PLoS ONE*. 2020;15:e0242864. <https://doi.org/10.1371/journal.pone.0242864>.
 39. Khan MN, Islam MM, Shariff AA, Alam MM, Rahman MM. Socio-demographic predictors and average annual rates of caesarean section in Bangladesh between 2004 and 2014. *PLoS ONE*. 2017;12:e0177579. <https://doi.org/10.1371/journal.pone.0177579>.
 40. Khan MN, Alam MB, Khanam SJ, Islam MM, Billah MA. Trends, district-level variations, and socioeconomic disparities in cesarean section delivery in Bangladesh. *PLoS ONE*. 2025;20:e0334931. <https://doi.org/10.1371/journal.pone.0334931>.
 41. Begum T, Ellis C, Sarker M, Rostoker J-F, Rahman A, Anwar I, et al. A qualitative study to explore the attitudes of women and obstetricians towards caesarean delivery in rural Bangladesh. *BMC Pregnancy Childbirth*. 2018;18:368. <https://doi.org/10.1186/s12884-018-1993-9>.
 42. Afiaz A, Arusha AR, Ananna N, Kabir E, Biswas RK. A national assessment of elective cesarean sections in Bangladesh and the need for health literacy and accessibility. *Sci Rep*. 2021;11:16854. <https://doi.org/10.1038/s41598-021-96337-0>.
 43. Sizear MI, Rashid M. Urgent need to address increasing caesarean section rates in lower-middle-income countries like Bangladesh. *Front Glob Women's Health* 2024;5. <https://doi.org/10.3389/fgwh.2024.1365504>
 44. Karmakar G, Tariqujjaman M, Alam A, Haque MA, Naila NN, Ahmed T. Region-specific variation and determinants of caesarean delivery among ever-married women in Bangladesh. *PLoS ONE*. 2025;20:e0328830. <https://doi.org/10.1371/journal.pone.0328830>.
 45. Akhter S, Schech S. Choosing caesareans? The perceptions and experiences of childbirth among mothers from higher socio-economic households in Dhaka. *Health Care Women Int*. 2018;39:1177–92. <https://doi.org/10.1080/07399332.2018.1470181>.
 46. Béhague DP, Victora CG, Barros FC. Consumer demand for caesarean sections in Brazil: informed decision making, patient choice, or social inequality? A population based birth cohort study linking ethnographic and epidemiological methods. *BMJ*. 2002;324:942. <https://doi.org/10.1136/bmj.324.7343.942>.
 47. Khan MN, Islam MM, Rahman MM. Inequality in utilization of cesarean delivery in Bangladesh: a decomposition analysis using nationally representative data. *Public Health*. 2018;157:111–20. <https://doi.org/10.1016/j.puhe.2018.01.015>.

48. Ahmmed F, Manik MMR, Hossain MJ. Caesarian section (CS) delivery in Bangladesh: A nationally representative cross-sectional study. PLoS ONE. 2021;16:e0254777.
<https://doi.org/10.1371/journal.pone.0254777>.
49. Begum T, Nababan H, Rahman A, Islam MR, Adams A, Anwar I. Monitoring caesarean births using the Robson ten group classification system: A cross-sectional survey of private for-profit facilities in urban Bangladesh. PLoS ONE. 2019;14:e0220693. <https://doi.org/10.1371/journal.pone.0220693>.
50. Begum T, Rahman A, Nababan H, Hoque DME, Khan AF, Ali T, et al. Indications and determinants of caesarean section delivery: Evidence from a population-based study in Matlab. Bangladesh PLoS ONE. 2017;12:e0188074. <https://doi.org/10.1371/journal.pone.0188074>.
51. Verma V, Vishwakarma RK, Nath DC, Khan HTA, Prakash R, Abid O. Prevalence and determinants of caesarean section in South and South-East Asian women. PLoS ONE. 2020;15:e0229906.
<https://doi.org/10.1371/journal.pone.0229906>.
52. Ahinkorah BO, Aboagye RG, Seidu A-A, Okyere J, Mohammed A, Chattu VK, et al. Rural–urban disparities in caesarean deliveries in sub-Saharan Africa: a multivariate non-linear decomposition modelling of Demographic and Health Survey data. BMC Pregnancy Childbirth. 2022;22:709.
<https://doi.org/10.1186/s12884-022-04992-6>.
53. de Loenzien M, Schantz C, Luu BN, Dumont A. Magnitude and correlates of caesarean section in urban and rural areas: A multivariate study in Vietnam. PLoS ONE. 2019;14:e0213129.
<https://doi.org/10.1371/journal.pone.0213129>.
54. Ahamed F, Rehman T, Kaur A. Why do Mothers from Remote Rural Areas opt for Cesarean Delivery: An Observational Analytical Study from West Bengal, India. Indian J Community Med. 2023;48:573–8. https://doi.org/10.4103/ijcm.ijcm_911_22.
55. Begum T, Ellis C, Sarker M, Rostoker J-F, Rahman A, Anwar I, et al. A qualitative study to explore the attitudes of women and obstetricians towards caesarean delivery in rural Bangladesh. BMC Pregnancy Childbirth. 2018;18:368. <https://doi.org/10.1186/s12884-018-1993-9>.
56. Rony AR, Hossen A, Asha AS, Nahin KSA. From medical necessity to private-sector dominance: a two-decade evolution of caesarean section determinants in Bangladesh (2004–2022). Sci Rep. 2026;16:21320. <https://doi.org/10.1038/s41598-026-52229-9>.
57. Bhowmik KR, Das S, Saha UR, Amin R, Islam MA. Correlations among the maternal healthcare services in Bangladesh: An application of joint modelling technique. Heliyon 2023;9.
<https://doi.org/10.1016/j.heliyon.2023.e22453>
58. Rana MS, Mazumder S, Khan MTF, Khan MMH, Rahman MM. Trends and determinants of caesarean section in South Asian countries: Bangladesh, Nepal, and Pakistan. PLoS ONE. 2024;19:e0311082.
<https://doi.org/10.1371/journal.pone.0311082>.

Figures

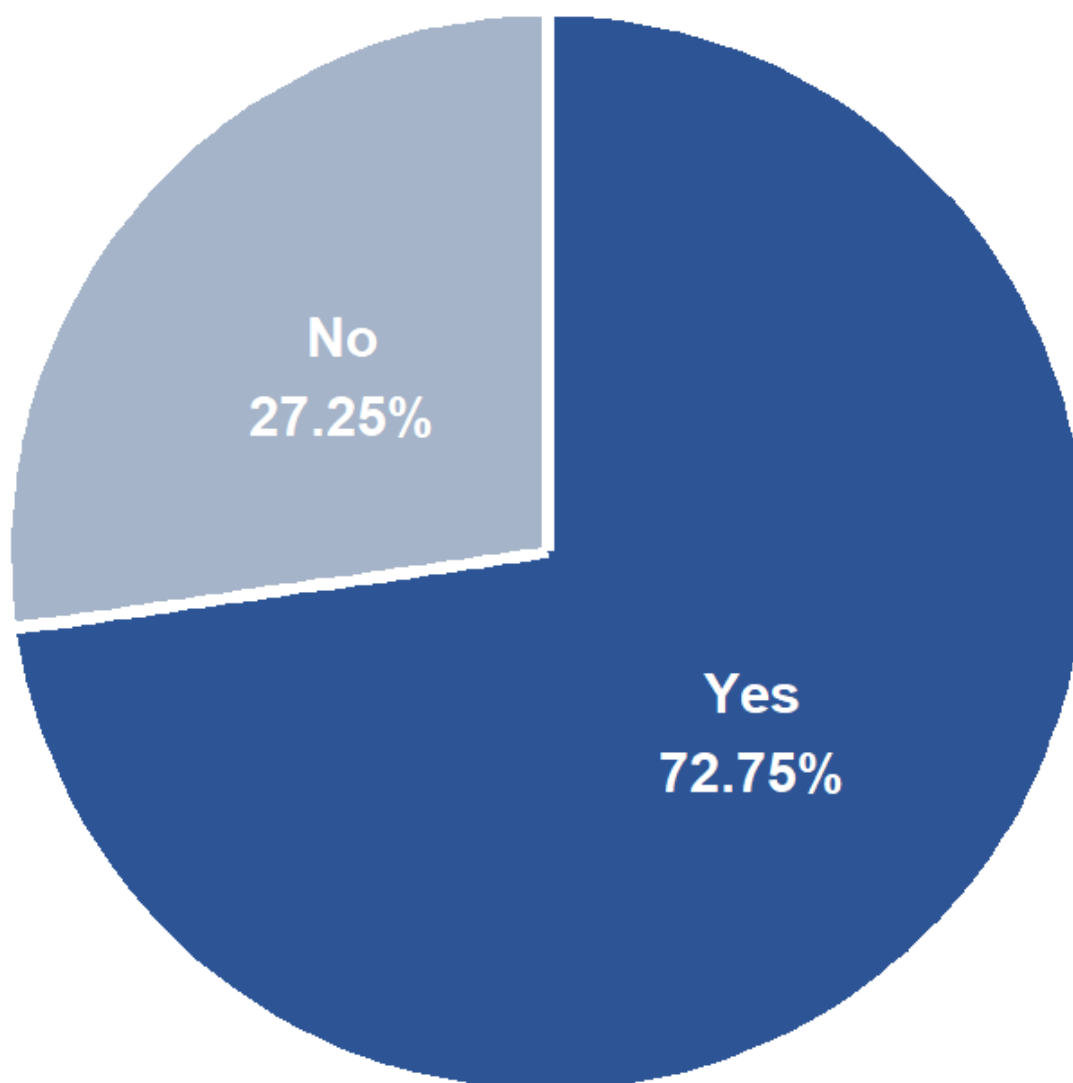


Figure 1

Prevalence of Caesarean Section Delivery among Women in Bangladesh

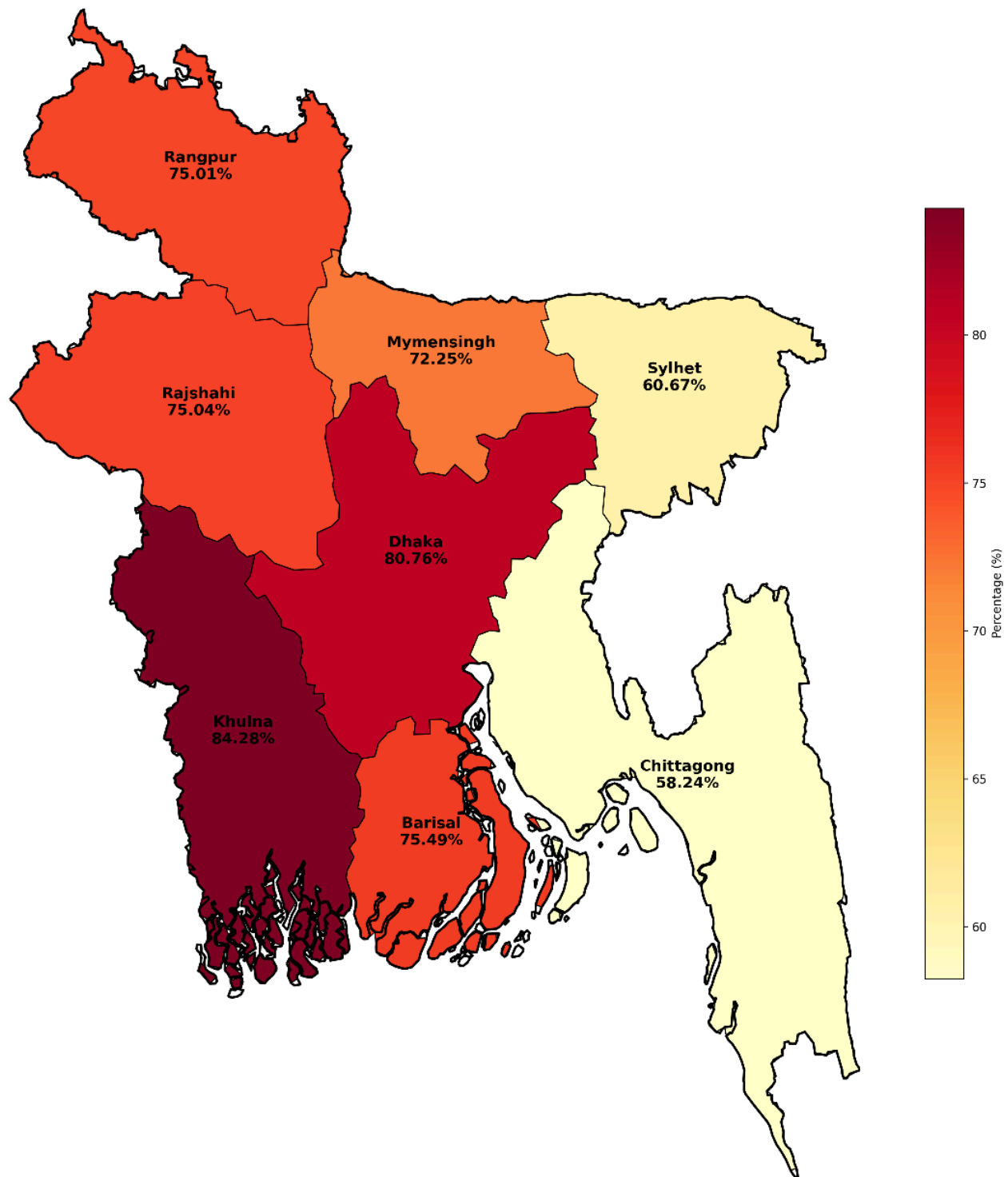


Figure 2

Prevalence of Caesarean Section Delivery across Divisions in Bangladesh