



## Original Article

# Prevalence and Outcome of Caesarean Section in Eastern Medical College and Hospital, Cumilla

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### Abstract:

**Background:** Caesarean Section (CS) delivery has played a major role in lowering both maternal and prenatal morbidity and mortality rate. CS rate have been increase dramatically in the past decades around the world. This increase has been attributed to multiple factors. The global CS rate is vary uneventful. **Objective:** The study attempts to determine common indications, outcomes and complications also the rate of (CS) in Eastern Medical College and Hospital (EMCH), Cumilla, Bangladesh. We also discuss about several way to reduce the alarming rate of CS. **Methodology:** This is a cross sectional retrospective study was conducted in EMCH from June 2017–May 2018 (1 year). Data were collected using structured questionnaire. **Result:** The prevalence of CS was 60%. The age of patients ranged between 16 to 45 years with a mean age of 28.12±5.14 years. The leading indication of CS birth were previous CS (23.03%), fetal distress (14.70%), post-dated pregnancy (11.27%), PROM (9.80%), CPD (8.82%), severe oligohydramnios (7.35%), prolonged & obstructed labour (5.88%), bad obstetric history (4.90%), failed induction (3.92%), preeclampsia and eclampsia (3.92%), APH (2.94%), twin pregnancy (1.96%), malpresentation (1.47%). Maternal indications constituted main cause, among fetal cause fetal distress recognized as important cause. **Conclusion:** CS is life saving for mother and fetus when done for appropriate medical and obstetric indication. If we want to reduce the prevalence of CS, each case should be thoroughly evaluated to determine the possibility of vaginal delivery.

**Key words:** Prevalence, Caesarean Section

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### Introduction:

Caesarean Section (CS) refers to delivery of fetus, placenta and membrane through the abdomen and uterine incision after 28 weeks of gestation<sup>1</sup>. The World Health Organization recommends that they should be done based on medical need and in many cases they are lifesaving for the mother and baby<sup>2</sup>. The initial purpose of the surgery was to preserve the life of mother with obstructed labour, but indications have expanded over the years to include delivery for a verity of more subtle dangers to mother or fetus. Contributing to its more frequent use is increased safety, which is largely a result of better surgical technique, improved anesthesia, effective antibiotics and availability of blood transfusion<sup>3</sup>.

The international healthcare community has previously considered the rate of 10% and 15% to be ideal for caesarean sections<sup>4</sup>. Some evidence finds a higher rate of 19% may result in better outcomes<sup>5</sup>. Rate of CS are of concern both in developed and developing countries. Optimal range of CS is debatable. This was based on the following

statement by a panel of reproductive health experts at a meeting organized by the World Health Organization (WHO) in 1985 in Fortaleza, Brazil: “There is no justification for any region to have a rate higher than 10-15%”<sup>6</sup>.

There is growing concern about unnecessary caesarean sections<sup>7</sup>. Unnecessary caesarean sections can increase the risk of maternal morbidity, neonatal death and neonatal admission to an intensive care unit<sup>8</sup>. More than 45 countries globally have C-section rates less than 7.5% while more than 50 have rates greater than 27%. There are efforts to both improve access to and reduce the use of C-section<sup>9</sup>. Traditionally, at facility level, we have monitored CS rates using the overall percentage of deliveries by CS. Variations in this “over all CS rate” between different settings or over time are difficult to interpret and compare because of intrinsic differences in hospital factors and infrastructure, differences in the characteristics of obstetric population served and differences in clinical management protocols.

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Ideally, there should be a classification system to monitor and compare CS rates at “The 10-Groups classification” (also known as the “TGCS-Ten Groups Classification System” or the “Robson Classification”). It was created to prospectively identify well-defined, clinically relevant groups of women admitted for delivery and to investigate differences in CS rates within these relatively homogeneous groups of women<sup>10</sup>. Unlike classifications based on indications for CS, the Robson Classification is for “all women” who deliver at a specific setting (e.g. a maternity or a region) and not only for the women who deliver by CS. It is a complete perinatal classification. The classification is simple, robust, reproducible, clinically relevant, and prospective.

WHO statement on Robson Classification “WHO proposes the Robson Classification system as a global standard for assessing, monitoring and comparing caesarean section rates within healthcare facilities over time and between facilities”. The determinants of rising caesarean section trends worldwide are controversial. Some authors have argued that the increase is driven largely by the rising use of non-medically indicated caesarean section, which can pose unnecessary risks to mothers and neonates<sup>11</sup>. The ten-group classification system proposed by Robson in 2001 as the most appropriate to compare surgery rates.

Robson’s system classifies all deliveries into one of ten groups on the basis of five parameters- (1) obstetric history (parity and previous caesarean section), (2) onset of labour (spontaneous, induced, or caesarean section before onset of labour), (3) fetal presentation or lie (cephalic, breech, or transverse), (4) number of neonates and (5) gestational age (preterm or term).

The Robson categories are mutually exclusive, totally inclusive and can be applied prospectively, since each woman admitted for delivery can be classified immediately on the basis of a few variables that are generally routinely recorded. This system helps institution-specific monitoring and auditing and offers a standardized comparison method between institutions and country. The Robson classification has been used to analyze trends and determinants of caesarean section use in healthcare facilities in both high-income and low-income countries<sup>12,13</sup> and has also been applied to state, national and international data sets, including data from eight Latin American countries in the WHO Global Survey of Maternal and Perinatal Health<sup>14,15,16,17</sup>.

The study is aimed at providing information on the prevalence, indications and outcomes of CS in Eastern Medical College Hospital (EMCH), Cumilla

that play a vital role in reducing maternal mortality and morbidity resulting from complications related with pregnancy that needs urgent surgical interventions. The information of the study will help the hospital staff to know the trend, common indications and outcome of pregnancy after CS as well as the management. This study can help the obstetrician for proper classification of admitted patient by “Robson classification” and can easily identify the rate and cause of CS.

#### **Materials & Methods:**

**Study place:** The study was conducted at EMCH, located beside the Dhaka-Chittagong Highway at Cumilla. It is a multidisciplinary hospital. In gynecology and obstetrics department, indoor and outdoor services are given 24 hours of 7 days. Both elective and emergency Caesarean section is done here. Normal deliveries return homes within 24 hours or stay post-natal room when necessary. The post-operative case go to ward or cabin. The associated departments work with gynecology and obstetrics department are blood transfusion department, lab technicians, nurses and staff members. **Study design:** it was a hospital based cross sectional retrospective study was conducted from June 2017 to May 2018 for one year. **Inclusion criteria:** All Caesarean sections performed after period of viability (28 weeks) including elective, emergency, primary and repeat Caesarean sections were included in the study. **Exclusion criteria:** Caesarean section which lack full information. **Data collection:** The data for the study was collected using pre-tested structured questionnaire which has socio-demographic variables, obstetric history and outcome of Caesarean section. **Statistical analysis:** After data collection was completed, data was entered in to SPSS software. Graphs were used to describe some variables. **Ethical consideration:** Ethical approval was obtained from ethical review committee of EMCH, Cumilla. Confidentiality of responders was kept.

#### **Results:**

During the period of study, there were 680 deliveries at EMCH, of which 408 were by Caesarean Section, an incidence of 60%. The age of the patients ranged between 16-45 years with a mean age 28.12 years. Majority of the patients were between 20-34 years (310, 75.98%). The rest were younger than 19 years (78, 19.11%) and older than 34 years (20, 4.90%). According to parity 180 (44.11%) of the mothers were primi para, 188 (64.07%) were between Para one and Para four and 40 (9.80%) were grand multipara.

Table-I shows patients who had CS were categorized according to age, parity and residence. 64 (15.68%) of mothers with CS did not have ANC follow up in any health institution. 68 (16.66%) and

340 (83.33%) of the women were from urban and rural respectively.

**Table-I: Distribution of Caesarean Section (CS) by Socio demographic characteristics in EMCH**

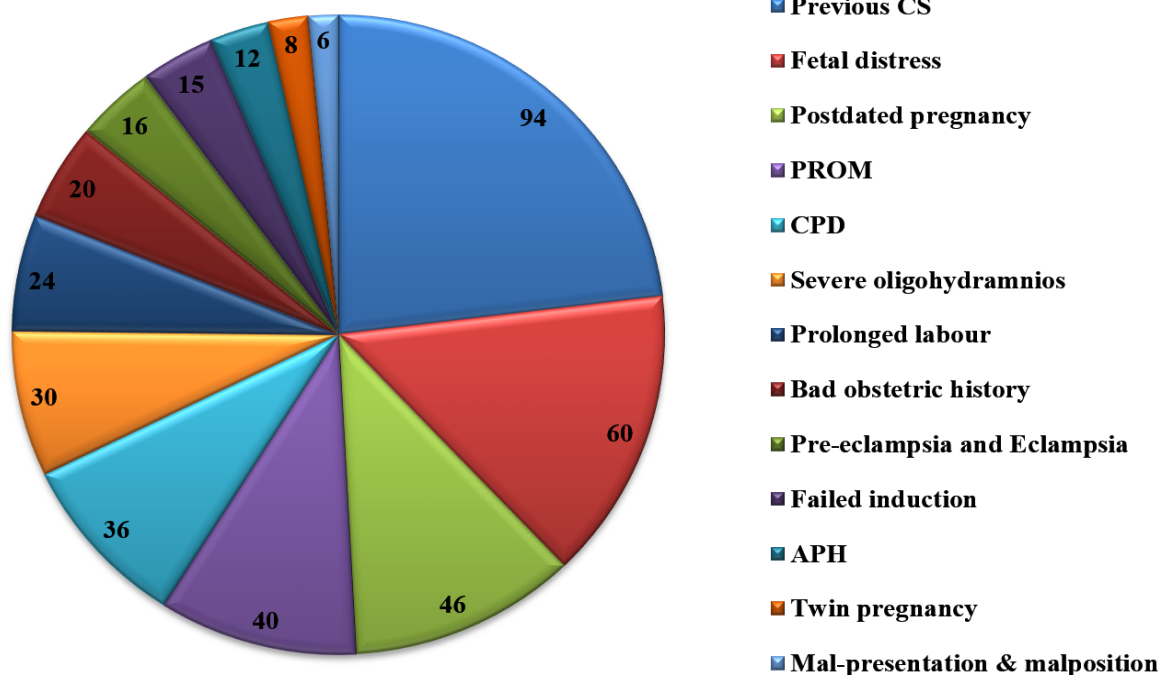
Variables	No. of CS	Percentage
<b>Age</b>		
<19	78	19.11%
20-34	310	75.98%
≥35	20	4.90%
Total	408	100%
<b>Parity</b>		
Primigravida	180	44.11%
Para(1-4)	188	46.07%
Grandmulti	40	9.80%
Total	408	100%
<b>LMP</b>		
Yes	320	78.44%
No	88	21.56%
Total	408	100%
<b>ANC Follow-up</b>		
Yes	344	84.31%
No	64	15.68%
Total	408	100%
<b>Residence</b>		
Urban	68	16.66%
Rural	340	83.33%
Total	408	100%

180 (44.11%) mothers had primary CS, while 94 (46.07%) had repeated CS. The majority of CS were

emergencies (240, 58.82%), whereas 168 (4.17%) were elective. A preoperative hemoglobin was done in all of CS cases (408, 100%). Most CS cases were done under spinal anesthesia (406, 99.50%). Out of the 408 CS cases, 344 (84.31%) were term pregnancies, 30 (7.35%) were preterm and 34 (8.33%) were post-term.

The leading indications for Caesarean birth were previous CS (94, 23.03%), fetal distress (60, 14.70%), postdated pregnancy (46, 11.27%), premature rupture of membrane [PROM] (40, 9.80%), cephalo-pelvic disproportion [CPD] (36, 8.82%), severe oligohydramnios (30, 7.35%), prolonged & obstructed labour (24, 5.88%), bad obstetric history (20, 4.90%), Pre-eclampsia and Eclampsia (16, 3.92%), failed induction (16, 3.92%), APH (12, 2.94%), twin pregnancy (8, 1.96%), mal-presentation and malposition (6, 1.75%) [Figure-1].

This Study observed the post-operative maternal complications, the most common of which was respiratory tract infection (14, 2.5%), and followed by post-operative fever (12, 2.1%) [Table-II]. Mothers with ANC follow up have good postoperative outcome than those who did not have follow up and those mothers whose pre-operation hemoglobin ≥11 have good post-operative outcome than mothers with pre-operation hemoglobin <11. Unfavourable neonatal outcome was early neonatal deaths, which was only due to preterm low birth weight baby where CS was done due to “previous two CS with labour pain with PROM”.



**Figure-1: Indications of Caesarean Section (CS) in EMCH**

**Table-II: Complications of Caesarean section**

Complications	No. of patients	Percentage
Respiratory tract infection	14	2.5%
Fever	12	2.1%
Wound infection	7	1.2%
Early neonatal death	3	0.6%

**Discussion:**

The rate of Caesarean section in Bangladesh has increased alarmingly during the last two decades. In 2000, caesarean section rate was only 3% and it increased to 24% in 2014<sup>19,20</sup>. The rate increased dramatically as 31% in 2016<sup>21</sup>. The rate of caesarean section in our study for one year (from July 2017 to July 2018) was 60%. The rate was high beyond the justifiable range of 10% to 15% according to WHO standard.

The rate of Caesarean section in this study was 60%, which was near to percentage of caesarean section was reported among deliveries in Rwanda 64.2%, and also Namibia 60.3%<sup>22</sup>. High prevalence of caesarean section of this country is multi-factorial. Maternal factors, such as education, awareness, perception and socio-economic factors could be responsible. The significant predictors of caesarean section are age, sex, size of child at birth, socio-economic status, women decision making power, multiple births and ANC visits were significantly associated with having caesarean section.

The caesarean section rate was reported in previous two studies as 33.3% and 30.1%<sup>23</sup>. The rate was lower than our study. Prominent reason for the low coverage of caesarean section were insufficient provision of equipment and medicine in the available emergency obstetric health units, long distance and poor transportation. Another study in Brazil, women, especially those who delivered in private hospitals the CS is in the range of 80-90% due to rapid increase of private hospitals and clinics<sup>24,25</sup>. The rate was higher than our study.

In our study one of the main causes of caesarean section was due to fetal distress. So, caesarean section performed to improve neonatal outcome and reduces risk of morbidity and mortality. However evidence suggests caesarean section was associated with a greater risk of respiratory distress, asphyxia and others. Fetal distress was the leading fetal indication and it accounted for 30% of all Caesarean sections performed in this study. This was higher than reported from Jimma Hospital, Ethiopia<sup>26</sup>. This variation might be attributed to less priority given for conservative management of fetal distress in EMCH.

The most common post-operative complications were respiratory tract infection (7, 2.5%) and post-operative fever (6, 2.1%) which were also the leading complications reported from a study done in Sultan Qaboos University, Oman<sup>27</sup>. The reduction of post-operative complication might be because of routine use of prophylactic antibiotics associated with clinically important reduction in postpartum febrile morbidity, wound infection and other serious infections. The patients with postpartum hemorrhage were successfully managed with utero tonics. Low morbidity from anesthesia could be due to the use of spinal anesthesia for the majority of CS cases. As a result, this study confirms that even though the Caesarean is of the most commonly performed surgical procedures today; it is not without risks. The result of this study agrees with the other authors that the routine use of prophylactic antibiotics helps reduce the morbidity associated with Caesarean sections.

The leading indication of Caesarean section in our study was previous Caesarean section, which was 47%. The most important factor by which we can reduce the rate is "VBAC" (Vaginal Birth after Caesarean Section). We can also reduce the rate by reducing the rate of primary Caesarean section. WHO proposed the use of "Robson Classification system" as a global standard for assessing and monitoring Caesarean section rate in 2015<sup>28,29</sup>. Our Government can incorporate this system in its health care policy.

CS is an important, potentially lifesaving surgery if it is conducted for cause with clear indication of CS<sup>30,31</sup>. Reduction of unnecessary CS is not an inconsequential task and it will take significant time and efforts. To monitor the CS rate countries can adopt different policies and strategy. Appropriate training, timely and regular supervision and leadership by senior physicians all are important.

For Bangladesh as well rapidly increasing CS is not associated with declining maternal mortality ratio (MMR). Recent Bangladesh Maternal Mortality Survey (BMMS) found the MMR to be stagnant, 192 in 2010 and 194 (per 100,000 live births) in 2016<sup>32,33</sup>.

**Conclusion:**

Although the Caesarean section rate of 60% observed in this article was above the 15% recommended by World Health Organization (WHO). But the high prevalence of CS was not associated with improved perinatal outcome and it had risks for the mother and the neonate. Therefore to reduce the high prevalence of CS, each case should be thoroughly evaluated to determine the possibility for vaginal delivery. Because the previous Caesarean section was the major maternal

indication, it is recommended that trial of vaginal birth after Caesarean section should be encouraged in appropriate cases. In addition, for those cases with more than three scars, Bilateral Tubal Ligation (BTL) should be done after appropriate counselling. Use of cardio topography for continuous fetal heart rate monitoring in labor with confirmation of suspected fetal distress through fetal acid-base study is also recommended if resource is available. Furthermore, time has to be given for conservative management of fetal distress rather than rushing to operation theatre with a single episode of fetal heart rate abnormality. There is a need for a prospective study to evaluate the reasons for the increasing Caesarean section rate.

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