

Rising Trend Of Caesarean Section: Review On The Determinants Of Cesarean Section Deliveries

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Abstract: *Ensuring safe pregnancy and child birth is an important component of Reproductive and Child Health initiatives, in this scenario, there has been a concern over the rising cesarean rates over the world. Cesarean section is the surgical intervention in child birth in case of serious delivery complications for saving the life of mother and child. Over the last decades, consistent increase is observed in the rate of cesarean section deliveries in most of the developed countries and in many developing countries including India. The determinants contributing high CS rates are multifactorial and not well understood.*

Keywords: *Caesarean, CS Rate, CS trend, determinants.*

1. INTRODUCTION

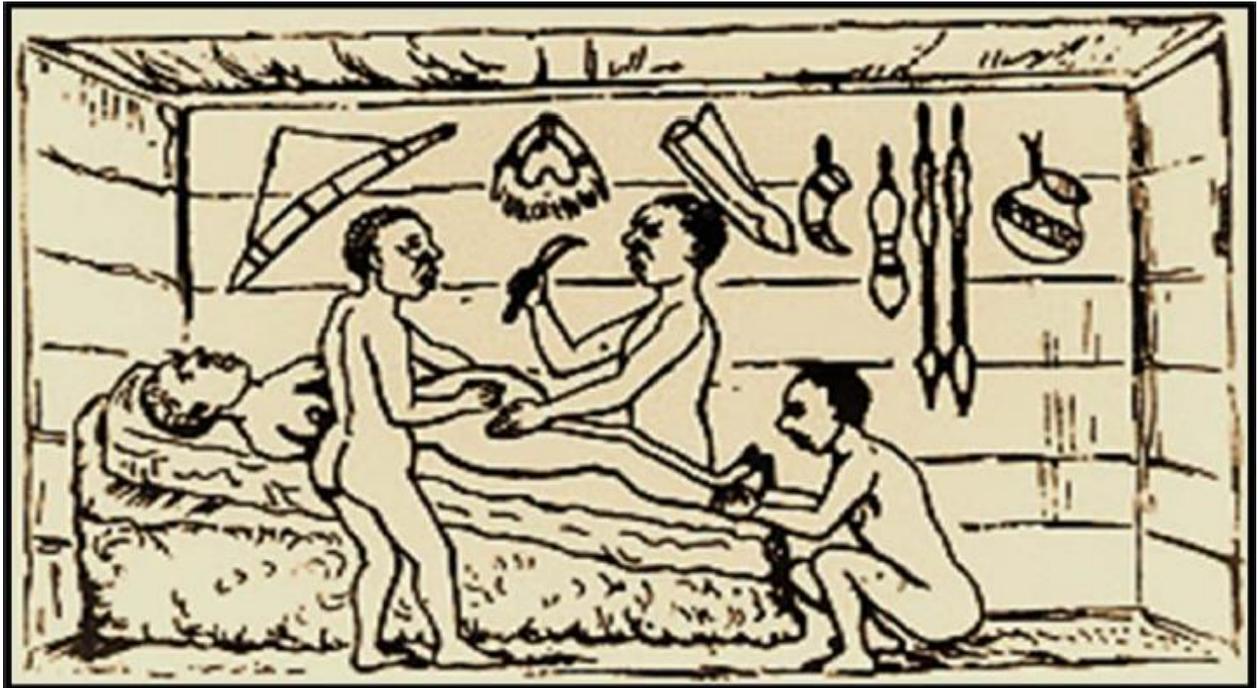
‘Caesarean’ the lifesaving surgery in complicated deliveries is now turned to be a very common surgery. Literatures dealt with Caesarean pointed out that, over the years so many developments and technological advancements happened in the field of Obstetrics and Gynecology, it led to the involvement of technology into the normal physiological and natural body process and started medicalizing the human body. Caesarean section is recommended when the vaginal delivery creates a risk to either mother or the baby. The obstetric risks are justified under certain circumstances such as cephalo-pelvic dis proportion, contracted pelvis, dystocia due to soft parts, inadequate uterine forces, antepartum haemorrhage, pre-eclampsictoxaemia, eclampsia, foetal distress and prolapse of the cord, maternal diseases such as heart problems, bad obstetric history, habitual intra-uterine death of the fetus and elderly primigravida (Mishra&Ramanathan, 2002). And also C-section deliveries are recommended for HIV or Sexually Transmitted Disease infected mothers, multiple births, hypertension those who have obstetric problems with previous delivery etc. As the rate increases, it doesn’t consider as an indicator for a good Maternal and Child health outcome or it will not reflect that it is a fairly safe surgical procedure; rather it is associated with higher risk of morbidity and other health consequences like complications due to anesthesia, hemorrhages, hysterectomy, bladder and bowel injury etc.

WHO recommended that, an average of no more than 10-15% of births by Caesarean for optimal maternal and neo-natal outcomes, also it is suggested that no additional benefit accrues to the children or the mothers when the rates exceeds to this level. However, the rate of Caesarean Section increasing worldwide steadily beyond the optimum level as recommended by WHO. In many countries the rate of CS has reached as the epidemic

proportion and became a matter of serious concern and topic of public interest regarding the maternal health. It is very difficult to differentiate the rate of unnecessary and necessary Caesarean section from the total Caesarean rate. But studies shows that Caesarean sections conducted for non-medical reasons are an important contributor to the global rise of Caesarean rates. It is estimated that among the 18.5 million, annually performed Caesarean sections, one third of them are for non-medical indications and have been described as unnecessary Caesarean Sections (WHO, 2010).The lower level of CS rate is also considered as a serious threat because below 1% indicates that lack of access to obstetrical care and risk to maternal health (De ,Brouwere&Van, Lenberghe, 2001). Anyhow the unnecessary Caesarean Sections are not good for the humanity, when a large chunk of the population is dying due to the absence of basic medical care. It is difficult to pin point an exact cause for the rising rates on caesarean sections. From the realization of these multi-factorial causes of caesarean, this study intended to throw light on various determinants influencing the Caesarean section deliveries.

History of Caesarean delivery

The evidence of cesarean procedure in the tales of both western and non-western cultures reveals that, Caesarean has been depicted in the human culture many more years ago. There are references about Caesarean in ancient Roman, Egyptian, Grecian, Hindu and European folklore. Greek mythology referred Caesarean as Apollo removed Asclepius (God of medicine in ancient Greek religion) from his mother's abdomen. This is known to have been the first Caesarean in the human history (Mander, 2007). Earlier Caesarean section was not intended to save the mother's life rather the purpose was conducted to separate the infant from dead or dying mother. It was a religious requirement in Roman Royal Law that the women should not be buried pregnant, so the infant should be removed and buried separately from the dead mother. The first mother and child surviving Caesarean section record are from Switzerland in 1500. The woman who could not deliver the baby after seeking help from several midwives, her husband had performed the Caesarean. Thus the mother and child saved and the Caesarean baby died in the age of 77. The historians questioned its accuracy because it is recorded much later. Earlier most of the successful Caesarean conducted in the rural areas because of the lack of medical facilities, so kitchen tables, beds etc. used to perform the procedure. It is important to note that they were doing the operation without knowing anything about the human anatomy and physiology. Some publications about human anatomy in sixteenth and seventeenth centuries like *De Corporis Humani Fabrica* written by Andreas Vesalius in 1543 contain the abdominal structures of women. Medical students and anatomists could improve their skills of human dissection with greater access to surgical equipment in eighteenth and nineteenth centuries because of the developmental changes in the field of medical education. Men took the power over such developments because women were restricted in medical education at that time. However it was a woman named James Miranda Stuart Barry honored for conducting the first successful Caesarean delivery in the British Empire when she was working as a physician with British Army in South Africa. Also there are observations of Caesarean sections by the indigenous healers in Africa. Some 19th century travelers like R.W Felkin observed Ugandans doing Caesarean by using banana wine as intoxicant, botanical preparations as anesthesia and they were using iron needles to dress the wounds. (Mander, 2007, Eliot,1993).



Caesarean Section Performed by Indigenous healers in Uganda (Eliot, 1993)

The invention of Anesthesia brought out another milestone in the history of Caesarean section. It was introduced by a Dentist, William T.G.Morton, but there was a controversy, existed in the field of obstetrics related to the medical application of anesthesia i.e. the biblical conjunction that the women should suffer the pain of childbirth as a compensation for Eve’s Sin. But this argument was demolished when Queen Victoria had undergone anesthesia for her deliveries, afterwards anesthesia being used among the wealthy population.

Current scenario of Caesarean Section

World Health Statistics series in World Health Organization’s health related data for its 194 member states shown the latest trends in Cesarean Section deliveries. This series is mainly focused on the progress made towards achieving the health related Millennium Development Goals and related targets. The main sources of data were household surveys like UNICEF Multiple Indicator Cluster Survey (MICS), The Demographic and Health Survey (DHS), Country Health and Economic Surveys and completed questionnaires on health service use. The denominator used in the estimation is the total number of live births in the defined population on the basis of census projections. This report estimated the range of country values of births by Caesarean Section from 2007-2014. The ranges are, minimum is below 1 per cent, median is 19 per cent and a maximum of 56 per cent Caesarean births in the 194 member states of WHO.

Table 1: Global Caesarean Rates

Ranges of Country Values	Births by Caesarean Section (%) 2007-2014
Minimum	<1
Medium	19
Maximum	56
WHO Region	
African Region (47 countries)	4
Region of Americas (35 countries)	38

South East Asia Region (11 countries)	10
European Region (53 countries)	25
Eastern Mediterranean Region (21 countries)	22
Western Pacific Region (27 countries)	25
Income Group	
Low income	6
Lower Middle Income	10
Upper Middle Income	32
High Income	28
GLOBAL	17

(Source: World Health Statistics, WHO 2015)

The WHO regional wise calculations are showing that Region of America consisting of 35 countries having highest incidence of Caesarean birth, it is 38 per cent. European regions including 53 countries as well as Western pacific region including 27 countries are having a same incidence rate of 25 per cent. Eastern Mediterranean region of 21 countries are having a 22 per cent Caesarean rate, when South East Asia region of 11 countries are showing 10 per cent incidence of caesarean birth. African region consisting of 47 countries are showing the lowest incidence rate of Caesarean births, it is 4 per cent.

Based on the income level classification Caesarean births are conducted among the upper middle income and high-income countries than the low income and lower middle-income countries. The exact incidence rates are, there are 6 per cent of CS rate in low-income countries and 10 per cent CS rate in lower middle-income countries. Upper middle income and high-income countries are having highest rates 32 per cent and 28 per cent respectively. And the Global CS rate is 17 per cent (World Health Statistics, WHO, 2015).

The estimation of Caesarean Sections in India was not available before the launching of National Family Health Survey (NFHS) in 1992. Currently the NFHS and the DLHS (District Level House Hold Survey) are the reliable source of Caesarean Section rate of the country. These series of surveys in India shows that the incidence of Caesarean is heterogeneous in nature because there is a wide difference in CS rates across the states and regions. Many studies have been done in this area and significant findings have been achieved (Limbani et al. 2020, Agrawal et al. 2018, Jena et al. 2019, Kumar et al. 2019, Shah et al. 2013, Bawari et al. 2019).

Table2. NFHS data on State wise incidence of Caesarean Section Deliveries
Percentage of women undergone Caesarean Delivery

State	NFHS 1 (1992-93)	NFHS 11 (1998-99)	NFHS 111 (2005-2006)	NFHS 1V (2015-2016)
Andhra Pradesh	4.4	14.7	27.5	40.1
Assam	2.3	5.0	6.5	13.4
Bihar	1.1	3.0	4.1	6.2
Delhi	4.6	13.4	12.0	26.7
Goa	13.7	20.0	25.5	31.4
Gujarat	2.7	8.6	8.8	18.4
Haryana	2.3	4.2	5.0	11.7
Himachal Pradesh	1.6	6.8	13.1	16.7
Jammu Kashmir	5.7	10.6	14.1	33.1
Karnataka	3.7	11.0	15.3	23.6
Kerala	13.2	29.8	30.1	35.8
Madhya Pradesh	0.7	3.0	6.8	8.6

Maharashtra	3.4	9.9	15.6	20.1
Orissa	1.5	5.2	6.1	13.8
Punjab	4.2	8.3	14.4	24.6
Rajasthan	0.7	3.0	4.2	8.6
Tamil Nadu	7.1	17.5	23.0	34.1
Uttar Pradesh	0.6	2.7	5.9	9.4
West Bengal	3.3	13.5	15.0	23.8
India	2.9	7.1	10.6	17.2

(Source: National Family Health Survey)

2. CONCLUSION

Studies reveal that there are numerous factors strongly influence the increasing rate of C section deliveries whether it is bio-medical or non-medical reasons. In any case unjustified Caesarean deliveries are an undesirable burden for our country's limited resources where most of the states are lacking the adequate emergency obstetric care. Information related to pregnancy and health related aspects needs to be monitored more accurately both public and private hospitals to understand the determinants associated with C section. Also the health authorities strict monitoring is needed to track the biomedical, demographic and social reasons behind the alarming rate of C section deliveries.

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