

## A Cross Sectional Study of Rate, Trends and Determinants of Caesarean Section among Mothers Attending a Rural Medical College Hospital in Karnataka

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### Abstract

**Introduction:** The incidence of caesarean section is increasing with each passing decade without remarkable decrease in maternal and perinatal mortality. This study is an attempt to reduce the rates of caesarean sections by adopting various measures and also to know the prevalence and incidence of caesarean section in SAH&RC.

**Materials and methods:** This is a Descriptive study conducted in Sri Adichunchanagiri Hospital & Research Centre, BG Nagara, A Rural Medical College in Mandya District, Karnataka. The study was done for a period of 18 months including all cases admitted in Labour Room in the hospital.

**Results:** Total 2000 cases of deliveries were included out of which 939 cases underwent caesarean section for various indications. Prevalence rate of caesarean section was 46.95%. Previous caesarean was the most common indication for caesarean delivery.

**Keywords:** Caesarean section, Robson's Classification

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### Introduction

Caesarean delivery is defined as birth of a fetus through incision in abdominal wall and uterine wall. This definition does not include removal of fetus from abdominal cavity in case of rupture of uterus or in case of an abdominal pregnancy. The history of Caesarean Section continues to challenge historians and fascinate obstetricians. The term caesarean is most likely to be derived from the Latin verb Caedere, meaning to cut or to kill. The term caesones was applied to infants born by postmortem operations. The term section has its origin from Latin verb secare, which means "To Cut".<sup>[1]</sup>

In 508 BC Geogias of Ieortine Sicily delivered the first living child by postmortem casearean delivery. The Roman Lex Regia (royal law) required the child of a mother dead in childbirth to be cut from her womb.<sup>[2]</sup> this seems to have begun as a religious requirement that mothers not be buried pregnant, and to have evolved into a way of saving the fetus.

Fosiander of Goettingen, Munro Kerr and J Boliver Delec advocated the low transverse operation which replaced classical CS and reduced risk of serious infection and uterine rupture in subseuent labour. In late 19th century maternal survival rates for CS increased to

50% due to combined aseptic technique, uterine suture and timely surgery.<sup>[1]</sup> The first modern Caesarean section was performed by German gynaecologist Ferdinand Adolf Kehrler in 1881. Now Caesarean section is one of the most common major surgical procedures performed worldwide with reduced mortality and morbidity owing to broad spectrum antibiotics, blood transfusion facilities and good anaesthetic techniques. The incidence of lower segment caesarean section is increasing with each passing decade. Worldwide rise in caesarean section rate over the last three decades, has been a cause of alarm and needs in depth studies. Though public perception of caesarean section has seen a swing from a "failure of obstetric care" to being "safe for mother and child" though the media has been playing a role in glorifying the ill concieved facts of caesarean section, it should be every obstetricians mission to perform caesarean only when circumstances require it.

Our study is an effort to find out the prevalence of caesarean section, identify its determinants in order to bring in a modus operandi for reduction in the rates.

### Methodology

This is a descriptive study conducted in Sri Adichunchanagiri Hospital and Research Centre, B.G.Nagara, Mandya over a period of 18 months taking into consideration about 2000 cases admitted to labour room of Department Of OBG including booked, unbooked and referred cases. Data was collected by direct interviews using structured questionnaire, and from medical records.

**Results**

**Table 1: Prevalence of Caesarean Section in SAH&RC (n=2000)**

Type of Delivery	Number of Cases	Percentage
Vaginal	1061	53.05%
Caesarean	939	46.95%

Caesarean rate of Mandya district during the time of study was 32.7%. Caesarean rate of Karnataka state was 21.34%. Hence Caesarean rate at SAH&RC was more when compared to state statistics.

**Table 2: Primary Caesarean section rate(n=939)**

Type of Caesarean Section	Number of Cases	Percentage
Primary caesarean section	619	65.92%
Repeat caesarean section	320	34.07%

**Table 3: Percentage of CS according to age**

Age in years	Vaginal delivery	Percentage	Caesarean delivery	Percentage	Total
<20	89	63%	52	37%	141
20-24	691	57%	507	42.3%	1198
25-29	242	44.4%	303	55.6%	545
30-34	32	36%	57	64%	89
35-39	7	27%	19	73%	26
40-44	0	0%	1	100%	1
Total	1061		939		2000

It shows increasing trend for Caesarean section as maternal age increases.

**Table 4: Type of delivery and significance with age**

Age in years	Vaginal delivery	Percentage	Caesarean delivery	Percentage	total
<25	892	56.77%	679	43.22%	1571
26-35	165	39.4%	253	60.5%	418
36-45	4	36.3%	7	63.6%	11
	1061		939		2000

Chi square=40.8 P value<0.05, thus association between age and type of delivery found to be significant

**Table 5: Percentage of CS according to educational status**

Education	Vaginal delivery	Percentage	Caesarean delivery	Percentage	Total
Illiterate	3	43%	4	57%	7
Primary school	98	54%	83	46%	181
High school	877	54%	755	46%	1632
Pre degree	78	47%	88	53%	166
postgraduate	0	0%	0	0%	0

Chi square=3.06, P>0.05, No relation between caesarean and educational status

**Table 6: Percentage of caesarean section according to socio economic status**

Socioeconomic status	Vaginal deliveries	Percentage	Cesarean deliveries	Percentage	Total
Lower strata	958	53%	837	47%	1795
Middle strata	99	49.25%	102	50.74%	201
Upper strata	4	100%	0	0%	4
Total	1061		939		2000

Chi square-0.501 P>0.05, No association of caesarean with socioeconomic status

**Table 7: Percentage of caesarean section according to parity**

Parity	Total	Vaginal delivery	percentage	Caesarean delivery	Percentage
Nulli para	1121	605	53.96%	516	46.03%
Multi para	879	456	51.87%	423	48.12%
		1061		939	

Chi square 1.04 P>0.05, Association between caesarean and parity not significant

**Table 8: Percentage of caesarean section according to associated medical complications**

Medical complications	Vaginal	Percentage	Cesarean section	Percentage	Total
Hypertensive disorder of pregnancy	14	19%	58	81%	72
Diabetes	1	6%	16	94%	17
Heart disease	2	25%	6	75%	8
Eclampsia	0	0%	3	100%	3
Anaemia	4	45%	5	55%	9
Thyroid disease	1	8%	11	92%	12
Seizure	2	100%	0	0%	2
Hepatitis	2	40%	3	60%	5
HIV positive	1	100%	0	0%	1
Kyphoscoliosis	0	0%	1	100%	1
Pulmonary TB	0	0%	1	100%	1
Others	2	40%	3	60%	5
Total	29		107		136

Most common associated medical complication was hypertensive disorder of pregnancy, followed by diabetes and thyroid disorders.

**Table 9: Medical complications**

Medical complication	vaginal	Percentage	caesarean	Percentage	Total
With 1 or more medical complications	25	19.84%	101	80.15%	126
No medical complications	1036	55.57%	838	44.95%	1874

Chi square 60.975 P<0.05

**Table 10: distribution of caesarean according to type of caesarean section**

Type	Cases	Percentage
Elective caesarean	21	2.2%
Emergency caesarean	918	97.8%

**Table 11: Distribution according to indication of caesarean section**

Indications	Number of cases	Percentage
Dysfunctional labour	92	9.7%
Fetal distress	215	22.89%
Previous caesarean	313	33.33%
Breech presentation	42	4.47%
Malposition	10	1.06%
Abnormal lie	1	0.1%
Placenta previa	11	1.17%
Abruption placenta	4	0.42%
Multiple pregnancy	13	1.38%
Hypertensive disorder	12	1.27%
Cephalo pelvic disproportion	145	15.44%
Failed induction	52	5.53%
Bad obstetric history/treated for infertility	22	2.34%
IUGR, oligohydramnios, abnormal doppler	51	5.43%
Contracted pelvis	3	0.31%

Most common indication is previous caesarean, followed by fetal distress, and then CPD

**Table 12: Distribution according to day of delivery**

Day	Caesarean cases	Percentage
Week days	859	91.5%
Week end	80	8.5%
Total	939	

**Table 13: Distribution by time of delivery**

Time	Caesarean cases	Percentage
Day time	600	63.9%
Night time	339	36.1%

**Table 14: Distribution according to ROBSON'S CLASSIFICATION**

ROBSON'S GROUP	Caesarean rates	Percentage
Group 1	370	39.4%
Group 2	99	10.54%
Group 3	78	8.3%
Group 4	15	1.59%
Group 5	313	33.33%
Group 6	21	2.23%
Group 7	8	0.85%
Group 8	12	1.27%
Group 9	0	0%
Group10	23	2.44%

## Discussion

In the present study, the prevalence of caesarean in SAH&RC, BG Nagara, was 46.95% which was more than that of prevalence of the state 21.34%.

As the study was conducted in rural tertiary care centre the caesarean rate was more when compared to state caesarean rate. A five year audit from a large teaching hospital in kolkata showed a caesarean section rate of 49.9%(Pahari,et.al.1997)<sup>[3]</sup> and another study in Madras showed caesarean section rate of 50% (sreevidya, 2003)<sup>[4]</sup>.

In the study, primary caesarean rate was found to be 65.92% and most of them belonged to the group 1 which included nulliparous term pregnant with spontaneous labour Study was concurrent with study of Emma.L.Barber where primary caesarean births accounted for 50% of increasing caesarean rate.<sup>[5]</sup> Among primary caesareans, more subjective indications (non reassuring fetal status and arrest of dilatation) contributed larger proportions than more objective indications (malpresentation, maternal-fetal and obstetric conditions) ACOG recommends that caesarean section rate can be reduced by reducing primary caesarean sections.

The association of maternal age and type of delivery was found to be significant with caesarean rate increasing maternal age regardless of whether labour is spontaneous or induced, which was concurrent with study of Elker JL et al.<sup>[6]</sup>

The level of education was not associated with type of delivery, rate of caesarean section. In a study conducted in China by Xing Lin Feng et al<sup>[7]</sup> there was increase in caesarean section as the level of education

and socioeconomic status increased. The same held good with socioeconomic status in our study.

In the study emergency caesarean was more than elective caesarean, with majority being nulliparous belonging to Robson's group 1 classification.

The most common associated medical complication was hypertensive disorder of pregnancy, followed by diabetes and thyroid disorders.

Caesarean section was not done at patients request. It is observed that group 1 contributes most to the caesarean rate, followed by group 5. Heather Thompson said that in 2002, 7.3% of all primary caesarean sections in UK were performed at maternal request,<sup>[8]</sup> costing NHS in excess of 10 million euros.

## Conclusion

The prevalence of caesarean rate in SAH RC during this study period was 46.95%. This was higher when compared to state(21%) and district caesarean rates(32%).

The primary caesarean section rate was found to be 65.2%. The maternal factors found significant were age and associated medical complications. Maternal factors found non significant were socioeconomic status educational status and parity. Majority of caesarean section were done on nulliparous term pregnant and majority of caesarean section were performed on weekdays and during day time. Majority of caesarean section came under group 1(which includes term nulliparous with spontaneous labour).

**Conflict of Interest: None**

**Source of Support: Nil**

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