

## Research Article

DOI: <http://dx.doi.org/10.18203/2394-6040.ijcmph20162545>

# Prevalence and factors associated with caesarean section: a community based cross sectional study in rural parts of Rangareddy district, Telangana, India

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Received: 02 June 2016

Accepted: 01 July 2016

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## ABSTRACT

**Background:** During the last few decades there has been an alarming rise in the incidence of caesarean section (CS). CS is one of the most common major surgical procedures in private health sector. This rise is of immediate concern and a major public health issue to address.

**Methods:** A community based cross sectional study was done wherein 100 women were selected from Yenkapally and Peddamangalam villages by household survey by convenient sampling technique. A pre designed, pre tested questionnaire was used to get the relevant information by adopting interview technique.

**Results:** Present study found that the total caesarean section rate was found to be 62% of which primary caesarean section rate was 23%. Thirty seven (59.6%) had emergency caesarean section and twenty five (40.4%) had elective caesarean section. The most common indication for emergency section was failed induction (29.7%) and for elective section it was previous caesarean section (84%). Higher socio economic status, higher birth order and associated health problems during delivery were significantly associated with caesarean section ( $p<0.05$ ).

**Conclusions:** Present study found a high caesarean section rate with majority sections occurred in private sector hospitals.

**Keywords:** Caesarean section, Factors, Community based, Indication, Private sector

## INTRODUCTION

Pregnancy and delivery are generally considered as normal physiological process in women. The type of delivery can be normal, assisted or caesarean section. Caesarean section (CS) is an operative procedure whereby the fetuses after the end of 28<sup>th</sup> weeks are delivered through an incision on the abdominal and uterine walls. Rise in incidence of caesarean sections could be due to increased safety of the operation due to improved anesthesia, availability of blood transfusion and antibiotics, other responsible factors such as rising incidence of primary caesarean section, decline in operative vaginal delivery and identification of high risk pregnancy.<sup>1</sup> Some of the absolute indications for

caesarean section are central placenta previa, contracted pelvis or cephalo pelvic disproportion, pelvic mass obstruction, advanced carcinoma cervix and vaginal obstruction.

There are two types of caesarean sections based on time of operation. They are elective and emergency. Elective is when the operation is done at a pre-arranged time during pregnancy to ensure the best quality of obstetric care, anesthesia, neonatal resuscitation and nursing services. Emergency is when the operation is to be done due to an acute obstetric emergency resulting in endangering to lives of mother and child.<sup>2</sup>

The incidence of caesarean section is steadily rising. During the last few decades there has been an alarming rise in the incidence from the initial rate of about 10%.<sup>3</sup>

According to the National Family Health Survey 4 (2015-16) reports from Telangana state and Rangareddy district, the percentage of births delivered by caesarean section were 58% and 58.7% respectively, of which majority occurred in private health facility.<sup>4,5</sup> CS is one of the most common major surgical procedures in private health sector. This rise is of immediate concern and poses a major public health issue.

Hence the present study has been designed to determine the prevalence and associated factors of caesarean section in a rural area of Rangareddy District, Telangana.

## METHODS

**Study design:** Community based cross sectional study

**Study period:** 3 months (March 2016-May 2016)

**Study area:** Rural Health and Training Centre (RHTC), Peddamangalam, Department of Community Medicine, Bhaskar Medical College, Rangareddy District, Telangana.

**Study population:** Women of reproductive age group (15-49 years) who delivered in the past 2 years.

**Sample size and sampling technique:** 100 women were selected from Yenkapally and Peddamangalam villages by household survey for the study by convenient sampling technique.

**Data collection:** Informed verbal consent was taken from the study participants prior to the start of the study. A pre designed, pre tested questionnaire was used to get the relevant information by adopting interview technique. Questionnaire had questions pertaining to socio demographic information, pregnancy details, type and reasons for caesarean section.

## Definitions<sup>7</sup>

Total caesarean section rate is total number of deliveries by caesarean section divided by total number of births multiplied by 100.

Primary caesarean section is a caesarean section to a woman who has had no previous caesarean section.

## Statistical analysis

Data entry was done using Microsoft Excel 2010 and analysis using EPI INFO version 7. Data was summarized in percentages and proportions. Statistical associations was done using Chi square test wherever

necessary with  $p<0.05$  considered as statistically significant.

## RESULTS

The mean age of the women in the present study was  $27.93\pm4.908$  years with majority (46%) belonged to 26-30 years age group. Majority (86%) were Hindus by religion and belonged to nuclear family (71%). One fourth of the respondents were illiterates and 69% were homemakers by occupation.

**Table 1: Association of various factors with type of delivery (n=100).**

Factor	Type of delivery		p value*
	Caesarean section (62)	Normal and assisted (38)	
<b>Mother's age (years)</b>			
<20	01	01	
20-30	43	30	
>30	18	07	0.4
<b>Type of family</b>			
Nuclear	43	23	
Joint & 3 generation	19	15	0.2
<b>Education of mother</b>			
mother	11	12	
Illiterates	51	26	
Literates			0.06
<b>Occupation of mother</b>			
mother	49	25	
Home makers	13	13	
Working			0.07
<b>Socioeconomic class</b>			
Upper	09	01	
Middle	50	21	
Lower	03	16	1*
<b>Birth order</b>			
1	34	09	
2 or more	28	29	0.001*
<b>Health problems during delivery</b>			
Yes	13	02	
No	49	36	0.01*
<b>Place of delivery</b>			
Govt. Hospital	14	09	
Private hospital	48	29	

\* $p<0.05$  considered statistically significant.

According to modified B.G.Prasad socio economic classification, 39% belonged to class II (upper middle) followed by class III (upper lower) 34%.

**Table 2: Indications for elective caesarean section.**

Indication for elective caesarean section	Frequency	Percentage*
Previous caesarean section	21	84%
Cephalo pelvic disproportion	04	16%
Section on demand	03	12%
Others	06	24%

\*Percentage exceeds 100% due to multiple responses.

Among the 100 women, 22 were primipara and 78 were multipara. In multipara, majority had a gap of 2 years between first and second baby. Mean number of antenatal visits were 11.

**Table 3: Indications for emergency caesarean section.**

Indication for emergency caesarean section	Frequency	Percentage
Failed Induction	11	29.7%
Multiple Gestation	04	10.8%
Ante Partum Hemorrhage (APH)	04	10.8%
Pre eclampsia	04	10.8%
Fetal distress	03	8.1%
Oligohydramnios	03	8.1%
Bad obstetric history	02	5.4%
Cord around neck	02	5.4%
Non progress of labour	02	5.4%
Others	02	5.4%

Health problems associated during pregnancy: About 15% of women had an associated health problem during pregnancy. Common health problems noticed were anaemia, eclampsia, diabetes, hypertension, thyroid disorders.

#### ***Caesarean section and its associated factors***

Majority (71%) of deliveries occurred in private hospital, only one fourth of deliveries occurred in Government hospital and 5 had home deliveries.

Out of the 100 women, 32% had normal vaginal delivery, 6% had assisted delivery and 62% had caesarean section. Total caesarean section rate was found to be 62% and primary caesarean section rate was 23%. Among the caesarean sections, 37 (59.6%) had emergency caesarean section and 25 (40.4%) had elective caesarean section.

Among emergency caesarean section (n=37), indications for caesarean were failed induction (11), multiple gestation (4), Ante partum Hemorrhage (APH) (4), pre eclampsia (4), Fetal distress (3), oligohydramnios (3), bad obstetric history (2), cord around neck (2), eclampsia (2), non-progress of labour (2), meconium aspiration (1), postdated (1).

Among elective caesarean section (n=25), most common indication was previous caesarean section (21), followed by cephalopelvic disproportion (4), caesarean section on demand (3), postdated (1), elderly primi (1), weakness of baby (1), transverse lie (1).

Association between various demographic factors and type of delivery revealed that higher socio economic status, higher birth order and associated health problems during delivery were significantly associated with caesarean section ( $p<0.05$ ). Age, type of family, education, occupation and place of delivery had no significant association ( $p>0.05$ ) (Table 1).

#### ***Post caesarean family planning methods***

Only about one fourth (25%) opted for family planning methods following caesarean section. Out of which, majority underwent tubectomy (85.2%) as a permanent method of family planning and only few opted for temporary spacing method out of which Intra Uterine Copper Device (IUCD) was commonly used.

## **DISCUSSION**

The present community based cross sectional study in the study area found an alarming rise in the prevalence of caesarean section and associated collaborative factors.

#### ***Caesarean section rate***

Present study found that the total caesarean section rate was found to be 62% and primary caesarean section rate was 23%. These findings are in concordance with report by NFHS 4 in Rangareddy District where percentage of births delivered by caesarean section was 58.7%. Similar findings were also observed in Jaspinder Kaur et al (2013) where 65% of women were delivered by caesarean section.<sup>5,6</sup>

In contrast to the study findings, a population based cross sectional study by S. Sreevidya, B.W.C. Sathiyasekaran found the total population caesarean section rate was 32.6% and primary caesarean section rate was 25%. Another study by Padmaleela K et al observed that nearly 63% of the deliveries conducted were normal deliveries and the remaining were either assisted (5.9%) or Caesarean Sections (31.15%).<sup>7,8</sup>

#### ***Type of caesarean section and reasons***

In the present study, 37 (59.6%) had emergency caesarean section and 25 (40.4%) had elective caesarean section. The most common indication for emergency section was failed induction (29.7%) and for elective section was previous caesarean section (84%).

In a study by SK Bhasin et al found that 54.9% were emergency caesarean and 45.1% were elective caesarean deliveries.<sup>9</sup> The main indications for elective caesarean

section were post caesarean pregnancy and cephalo-pelvic disproportion while fetal distress and failure of progression of labour were the chief indications for emergency caesareans.

A retrospective study by G Singh and E D Gupta revealed that the common indications for CS were Post CS pregnancy, non-progress of labor, fetal distress, breech presentation, ante partum hemorrhage, cephalo pelvic disproportion and severe PIH.<sup>10</sup>

#### **Associated factors with caesarean section**

Present study revealed that higher socio economic status, higher birth order and associated health problems during delivery were significantly associated with caesarean section ( $p<0.05$ ). Though place of delivery had no significant association, but majority (77.4%) of sections were in private hospitals. Mean number of antenatal visits were 11 suggesting a better screening of high risk cases and prompt management of cases.

In study by SK Bhasin et al found that caesarean section were significantly higher in those deliveries which were either pre-term/ post-term or amongst mothers who had some health problems during pregnancy. Mother's age, literacy, occupation, birth order and place of delivery had no significant association.<sup>9</sup>

In contrast, Neuman M et al observed that higher maternal age associated with increased odds of caesarean section in urban India.<sup>11</sup> Significant association between maternal education and caesarean delivery was found and the odds of caesarean section were greater in private and charitable health facilities than in public facilities. Limitations of the study small sample size and convenient sampling limits the generalis ability of the findings. Large scale population based studies will be needed to estimate the true picture of the situation.

#### **CONCLUSION**

Present study found a high caesarean section rate with majority caesareans occurred in private sector hospitals. The role of private health care providers in maternal care is vital and with better public private partnership between Government sector and private sector will probably help in addressing the issue of safe motherhood and child survival.

**Funding:** No funding sources

**Conflict of interest:** None declared

**Ethical approval:** Not required

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**Cite this article as:** Maktha VK, Ghatam A, Padamata H, Ravulakol A. Prevalence and factors associated with caesarean section: a community based cross sectional study in rural parts of Rangareddy district, Telangana, India. *Int J Community Med Public Health* 2016;3:2054-7.