

# Sociodemographic determinants in the outcome of pregnancy and need for emergency obstetric care in a rural hospital

Sunanda T. Wagh<sup>1\*</sup>, Naser Ahmed Razvi<sup>2</sup>

<sup>1</sup>Vice Principal and HOD, Department of Statistics, Arts, Science & Commerce College, Ozar (Mig), Nashik, Maharashtra, INDIA.

<sup>2</sup>Associate Professor in Statistics, Department of Community Medicine, Government Medical College, Aurangabad, Maharashtra, INDIA.

Email: [sunanda\\_wagh@hotmail.com](mailto:sunanda_wagh@hotmail.com)

## Abstract

In the present study the cross sectional analysis is carried out in the rural and tribal area of Nasik District of Maharashtra to study the relationship between socio demographic character of mother that is maternal caste and mode of delivery either normal or LSCS. To measure the risk of emergency LSCS with respect to demographic character of mother, 1230 women delivering infants in the study setting during one year i.e. from January 2009 to December 2009 was selected. The study assesses the mode of delivery, caste of mother and the occurrence of low birth weight babies in the study setting. Thus this study explores the impact of maternal social factor that is caste on outcome of pregnancy in terms of utilization of emergency obstetric services and proportion of low birth weight babies in a rural hospital in tribal area. Further the findings suggest that the socioeconomic factor that is maternal caste can be an important determinant in the case of decision making regarding the mode of delivery & occurrence of LBW as an outcome of the pregnancy.

**Key words:** LSCS, low birth weight, chi square test.

## \*Address for Correspondence:

Dr. Sunanda T. Wagh, Vice Principal and HOD, Department of Statistics, Arts, Science & Commerce College, Ozar (Mig), Nashik, Maharashtra, INDIA.

Email: [sunanda\\_wagh@hotmail.com](mailto:sunanda_wagh@hotmail.com)

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## INTRODUCTION

Pregnancy & delivery are considered as normal physiological states in women. In today's situation when the access to obstetric care is growing day by day there has been a concern over the rising caesarean rates over the world. Caesarean Section (CS) is the surgical intervention in case of serious delivery complications. The proportion of births conducted by caesarean section in India is on the rise. (I. Kambo et al, 2002). According to WHO Standards approximately 8 % of the deliveries are considered as high risk of which may lead to CS. In last few decades the rate of caesarean section delivery is steadily increasing in developing country like India [6]. In India data collected from 30 medical colleges & teaching hospitals revealed that caesarean section rate increased from 21.8 % in 1988-89 to 25.4% in 1993-94 (I Kambo et al, 2002). There are several reasons which indicate C S such as birth weight of baby, position of baby, socioeconomic status of mother [5].

Low birth weight (LBW) is one of the important indicators of prosperity of nation which in turn indicate obstetric care and health status. In the developing country like India this problem remains major because of existent socioeconomic disparity, lack of access to healthcare facilities, poor literacy and nutritional deficiencies in reproductive women. LBW is an important determinant of child-hood morbidity, associated with infant mortality rate <sup>[2]</sup>. Low birth weight (LBW) has been defined by the World Health Organization (WHO) as weight at birth of less than 2500 gm. LBW at birth may be the outcome of either preterm birth (before 37 weeks of gestation) or retarded fetal (intrauterine) growth <sup>[3]</sup>. In 1976, the 29th World Health Assembly agreed on the following definition; Low birth weight (LBW) is a weight at birth of <2,500 gm (upto and including 2,499 g) irrespective of gestational age <sup>[2]</sup>. Birth weight is a major determinant of child's health and nutrition. In India, birth weight has remained low; with the NFHS reported proportion of low birth weight (LBW) babies about 23% for rural and 19% for urban population. The NFHS 3 reports association of low birth weight to place of residence (urban or rural), age of mother, religion and caste, birth order of the baby, education, wealth Compromised growth and cognitive development, with increased risk of cardiovascular and metabolic disorders in adult life, has also been reported <sup>[3]</sup>.

## MATERIALS AND METHODS

This study was undertaken to explore the prevalence of CS delivery with respect to maternal demographic character caste in the study area. To assess the impact of maternal social factor in terms of caste on utilization of emergency obstetrics care in tribal areas, this study was conducted in a tertiary care Kalwan Cottage Hospital in tribal area of Nasik District hence is a Hospital based Cross sectional study. 1230 women who delivered in the study setting within one year from 1<sup>st</sup> January 2009 to 31<sup>st</sup> December 2009 in a tertiary care Kalwan Cottage Hospital in tribal area of Nasik District constituted the study sample. These mothers were interviewed. Data was collected on a structured, pre-designed and pre-tested questionnaire. With the help of questionnaire, data such as mode of delivery, sex of a baby, birth weight, maternal caste, education of mother, complications at the time of delivery were collected. Main outcome measures the mode of delivery either normal vaginal delivery or CS & caste of mother. Data on birth weight is taken from hospital registers. Cases brought to the institution after home deliveries & twin deliveries were excluded. The data is presented in tabular form in two tables. In the hospital 12 breech deliveries were recorded. Total twins deliveries were 10 & 155 deliveries were assisted by Episiotomy. Total PIH cases were 28.

**Table 1:** Frequency distribution of caste & mode of delivery, outcome of delivery

Caste	Normal del	LSCS	Total	Forcep	S B
SC	67	16	83	2	2
ST	424	100	524	11	25
NT	57	16	73	1	2
Other	220	84	304	11	1
<b>Total deliveries</b>	768	216	984	25	30

**Table 2:** Data regarding sex of new born baby and birth weight is displayed in the next table

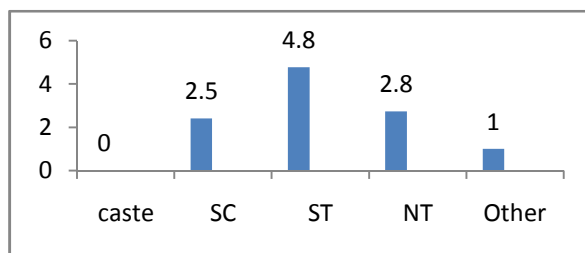
Caste	Male	Female	Total	Weight	
				Above 2.5	Below 2.5
SC	61	54	115	75	41
ST	376	287	663	413	260
NT	40	36	76	64	23
Other	203	173	376	279	70
<b>Total deliveries</b>	680	550	1230	831	394

For analysis statistical methods such as simple bar diagram, line charts are used for comparison of various proportions. In order to analyze association between proportion of LSCS & caste of mother, proportion of LBW babies & caste of mother chi square test is applied.

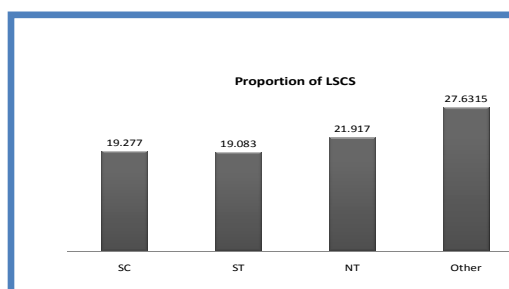
## RESULTS AND DISCUSSION

The results of this study indicate that the average CS rate in the region is 22 % of the deliveries being conducted at the institutions in the year 2009. This is very high rate considering percentage documented in Maharashtra through the NFHS (15.6 %).

Further the outcome of pregnancies which resulted in still births in the study population is expressed in form of proportions based on the caste of the mothers. Graph no 1 shows the proportion of still births on the basis of caste of the mother.



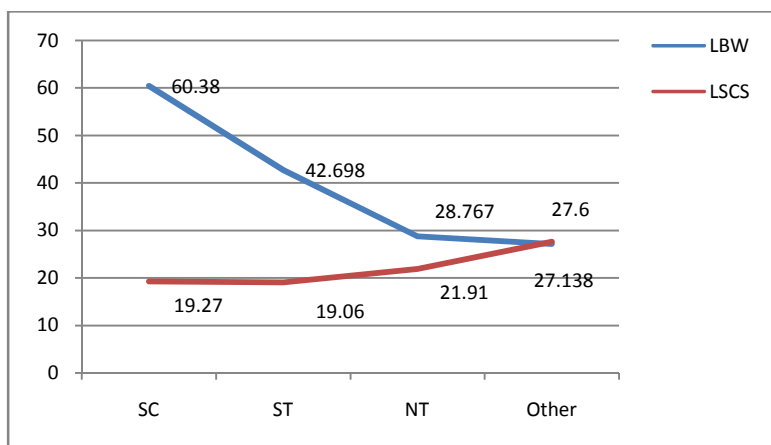
**Graph 1:** Caste wise Proportion of Still births



**Graph 2:** Caste wise Proportion of mothers whose pregnancy resulted in LSCS

Chi-square test is carried out to analyze the association between the caste of mother & pregnancy outcome either normal delivery or LSCS. The analysis reveals that mother’s caste & mode of delivery are highly associated & the mothers belonging to other caste (other than SC, ST, NT) are more likely to undergo a caesarean section in the study hospital settings.

The Chi square calculated=8.59\* is compared with table Chi square (0.05,3)=7.81 This in turn implies that the caste & mode of delivery are dependent.



**Graph 3:** Caste wise proportion of low birth weight babies & proportion of LSCS

In the present study it has been observed that caste of mother is consistently related with birth weight of infant. The proportion of low birth weight babies is very high (60.38%) in mothers of caste SC. The proportion of LSCS delivery is least (19.27) for mothers belonging to the SC group in the hospital. Further Chi square test is carried out to analyse the association between LBW babies & caste of mother. The caste of mother & prop of LBW are significantly associated.

The graph-3 shows the proportion of LSCS & LBW babies with respect to caste of mother. In this diagram it is revealed that mode of delivery LSCS & outcome of delivery LBW are inversely related.

## CONCLUSION

The relationship between maternal caste and chances of emergency caesarean section delivery was analysed using chi-square test. Mode of delivery either normal or CS are positively associated. The maternal caste & proportion of low birth babies are also positively associated, this is tested using chi square test of independence. Further, risk of emergency CS is high for pregnant women belonging to caste other than SC, ST or NT. With the help of simple graphs it can be shown that the incidence of having a Low Birth Weight Baby as the outcome of pregnancy is higher in SC caste among the study population. The occurrence of still births is higher in ST population among the study population. The chi square test shows association between mode of delivery & maternal caste. Data on low birth weight was analyzed using Chi square test, which concluded that the average proportion of LBW 39.72. But it is comparatively very high in SC i.e 60.39. The above findings suggest that the sociodemographic factor that is maternal caste can be an important determinant in the case of decision making regarding the mode of delivery & occurrence of LBW as an outcome of the pregnancy.

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