

**A STUDY OF SOCIO-DEMOGRAPHIC PROFILE OF WOMEN UNDERGOING  
CESAREAN SECTION IN A TERTIARY CARE CENTRE**Poonam Chouhan<sup>1</sup>, Ankaj Sharma<sup>2\*</sup>, Rama Thakur<sup>3</sup>, Suman Thakur<sup>4</sup> and B. R. Thakur<sup>5</sup><sup>1</sup>Junior Resident, Deptt. of Obstetrics & Gynecology, Kamla Nehru State Hospital for Mother & Child.<sup>2</sup>Junior Resident, Deptt. of Paediatrics, Dr. RPGMC, Tanda.<sup>3</sup>Professor, Deptt. of Obstetrics & Gynecology, Kamla Nehru State Hospital for Mother & Child.<sup>4</sup>Assistant Professor, Deptt. of Obstetrics & Gynecology, Kamla Nehru State Hospital for Mother & Child.<sup>5</sup>Assistant Professor, Deptt. of Paediatrics, IGMC Shimla.**\*Corresponding Author: Dr. Ankaj Sharma**

Junior Resident, Deptt. of Obstetrics &amp; Gynecology, Kamla Nehru State Hospital for Mother &amp; Child.

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**ABSTRACT**

**Background:** Caesarean section is one of the most commonly performed surgical procedure in today's obstetric practice and it improves the parturition outcome. We conducted a study to compare the socio-demographic profile of women undergoing cesarean section in a tertiary care centre. **Material & Methods:** This was a Cross sectional comparative hospital-based study conducted at Kamla Nehru State Hospital for the Mother and Child, Department of Obstetrics and Gynecology, Indira Gandhi Medical College, Shimla from June 1, 2020 to May 31<sup>st</sup>, 2021). A total of 200 consenting participants (100 participants undergoing elective cesarean section & 100 participants undergoing emergency cesarean section) were enrolled. The analysis was performed using statistical package for social sciences (SPSS) version 21. **Results:** Majority i.e. 68.5% (137/200) of women belonged to age group 26-35years, most of them i.e. 56.2% (77/137) underwent elective cesarean section and 43.7% (60/137) underwent emergency cesarean section which was significantly less (P value 0.03). 51% (102/200) were nulliparous and the rest 49% (98/200) were multiparous. The difference in elective and emergency cesarean sections in relation to parity was significant (P value 0.004). Most of the cesarean deliveries were done in women from urban background & the difference was statistically significant (P value 0.04). Majority of women who belonged to lower (73.9%) & upper lowerclass (59.6%) had emergency cesarean delivery whereas majority (85.1%) of women who belonged to upper middle class (85.1%) had elective cesarean delivery and the difference was statistically significant (P value < 0.05). Most of the women belonging to lower socioeconomic status were delivered by emergency cesarean section (overall P value 0.0003). **Conclusion:** Majority of women in the age group of 26-35years, multiparous, urban area, upper class & upper middle class had elective cesarean section while majority of women in the age group 19-25 years & >35years, nulliparous, rural, lower class & upper lower class had emergency cesarean section.

**KEYWORDS:** Elective versus emergency, Cesarean section, Tertiary care centre, Socio-demographic profile.**INTRODUCTION**

Caesarean section is one of the most commonly performed surgical procedure in today's obstetric practice and it improves the parturition outcome. Caesarean section has been shown to be a safe operation, and in many countries around the world, there has been dramatic increase in its frequency.<sup>[1-3]</sup>

Disadvantages of caesarean section are much more as compared to normal vaginal delivery. This is not only in terms of pain and trauma associated with an abdominal operation, but also because of the complications that may be associated with it. It is also expensive in terms of cost of the procedure and duration of postpartum stay in the hospital that is required. In recent years, however, use of caesarean section has become increasingly controversial,

uncertainty exists about relative risk and benefit of the patient. The increased rate of caesarean section in present scenario is due to increasing maternal age, reduced parity, breech presentation, extensive use of electronic fetal monitoring.<sup>[4-8]</sup>

The incidence of Caesarean section varies between 10% and 25% in most developed countries. Rising rates of Caesarean sections may increase adverse outcomes and place a considerable burden on health services. Caesarean sections are associated with short- and long-term risks and affect the health of the woman, her child, and future pregnancies.<sup>[9-11]</sup>

We conducted this study to compare the socio-demographic profile of elective and emergency caesarean sections in a tertiary care centre.

### AIMS AND OBJECTIVES

To compare the socio-demographic profile of elective and emergency caesarean sections in a tertiary care centre

### MATERIAL AND METHODS

**Study design** – Cross sectional comparative hospital-based study

**Study area**- Kamla Nehru State Hospital for the Mother and Child, Department of Obstetrics and Gynecology, Indira Gandhi medical college, Shimla.

**Study duration:** 12 months (June 1, 2020 to May 31<sup>st</sup>, 2021)

**Sample size:** Based on average (urban and rural) CS rate of 26% in Himachal Pradesh state in last five years, we estimated the minimum sample size of 100 subjects in each study arm.

**Sampling:** 100 consenting consecutive participants undergoing elective cesarean section and 100 consenting consecutive participants undergoing emergency cesarean section were enrolled for the study till the completion of sample size during the study period.

### Inclusion criteria

200 participants with singleton pregnancy (Irrespective of booking status & parity) at period of gestation 30-40 weeks undergoing caesarean section at our tertiary care centre were enrolled for the study after ruling out the following exclusion criteria.

### Exclusion criteria

Gestation <30weeks and >40weeks, Multiple pregnancies, Pregnancy with congenital malformations in the fetus, Pregnancy with uterine malformations, Pregnancy with uterine fibroid, Pregnancy with

coagulopathy, Pregnancy with jaundice, Pregnancy with ICP, Immunocompromised patients, Past history of scar dehiscence, Past history of abdominal surgeries except previous LSCS and Severe anemia complicating the pregnancy.

### Data collection

A total of 200 consenting participants (100 participants undergoing elective cesarean section & 100 participants undergoing emergency cesarean section) were enrolled for the study after fulfilling the inclusion criteria and excluding the exclusion criteria. An informed written consent was taken from all the participants. The research procedure was in accordance with the approved ethical standards of Indira Gandhi Medical College, Shimla.

### Study tool

Data was collected using a pre tested semi structured questionnaire having socio-demographic variables like Information regarding socio demographic variables such as age, parity, socio-economic status and literacy etc.

### Statistical analysis

Both inferential and descriptive statistics have been used. Proportions have been presented as percentages and continuous variables have been described using mean (standard deviation). Proportions were compared using the Chi-square test, while continuous variables were compared using the Mann–Whitney U test or students T-test depending upon normality of distribution. The analysis was performed using statistical package for social sciences (SPSS) version 21. For all tests, a two-sided p value of less than 0.05 was considered significant.

### RESULTS AND OBSERVATIONS

Total of 7544 deliveries took place during the study period. Of these 2255 deliveries were by cesarean section therefore, the cesarean rate in our study was 29.9%.

**Table 1: Maternal age.**

Age	(n=200)	
	No. of women	Percentage
19-25	42	21%
26-35	137	68.5%
>35	21	10.5%
P value	0.0345587	
Chi- square statistics	6.7285	

The above table (1) depicts that out of 200 women undergoing cesarean delivery, 21% (42/200) were 19-25 years old, majority i.e. 68.5% (137/200) were in the age

group of 26-35 years and only 10.5% (21/200) were > 35 years old.

**Table 2: Maternal Age in relation to Elective and Emergency cesarean section.**

Age	Elective C-section (n=100)		Emergency C-section(n=100)		Total 'n'
	No. of women	Percentage	No. of women	Percentage	
19-25	15	35.7%	27	64.8%	42
26-35	77	56.2%	60	43.7%	137
>35	8	38%	13	61.9%	21
Chi- square statistics	6.7285		P value	0.0345587	

The above table (2) depicts the maternal age in women undergoing elective and emergency cesarean section. Of the 42 women in the age group of 19-25 years, majority 64.8% (27/42) underwent emergency cesarean section and 35.7% (15/42) underwent elective cesarean section. Therefore, most of the younger women had emergency cesarean section. Majority i.e. 68.5% (137/200) of women belonged to age group 26- 35years, most of them i.e. 56.2% (77/137) underwent elective cesarean section and 43.7% (60/137) underwent emergency cesarean section which was significantly less when compared to

the percentage of emergency cesarean section i.e. 64.8% in the agegroup of 19-25years (P value 0.03). Most of the young women undergoing cesarean section had obstetric complications such as hypertensive disease of pregnancy, intrauterine fetal growth restriction and poor Bishop score with failure of induction of labor. The emergency cesarean section were significantly more as compared to elective cesarean section in women in the age group 19-25 years and >35 years (P value 0.03 - significant).

**Table 3: Parity.**

	(n=200)	
Parity	No. of women	Percentage
Nulliparous	102	51%
Multiparous	98	49%

The above table (3) depicts that out of 200 women who underwent cesarean section, 51% (102/200) were

nulliparous and 49% (98/200) were multiparous.

**Table 4: Parity in relation to Emergency and Elective cesarean section.**

Parity	Elective C-section(n=100)		Emergency C-section(n=100)		Total 'n'
	No. of women	Percentage	No. of women	Percentage	
Nulliparous	41	40.1%	61	59.8%	102
Multiparous	59	60.2%	39	39.7%	98
Chi-square statistics	8.0032		P value	0.004669	

The above table (4) depicts that out of 200 women undergoing cesarean section, 51% (102/200) were nulliparous and the rest 49% (98/200) were multiparous. 40.1% (41/102) nulliparous women underwent elective cesarean section and the rest 59.8% (61/102) underwent emergency cesarean section.

was prior cesarean section with refusal for TOLAC or prior two cesarean section. Therefore, most of cesarean sections in multipara were elective as compared to the relatively more emergency cesarean sections in nullipara. The commonest indication for emergency cesarean section in nullipara was pre eclampsia with failed induction. The difference in elective and emergency cesarean sections in relation to parity was significant (P value 0.004).

Out of 98 multiparous women, majority 60.2% (59/98) underwent elective cesarean section and the indication

**Table 5: Place of residence.**

	C-section (n=200)	
Place of Residence	No. of women	Percentage
Rural	59	28.5%
Urban	141	70.5%
Chi-square statistics	4.063	
P value	0.043833	

The above table (5) depicts that out of 200 women who underwent cesarean section, 70.5% (141/200) women were from urban background and only 28.5% (59/200) women belonged to rural area. Most of the cesarean

deliveries were done in women from urban background & the difference was statistically significant (P value 0.04).

**Table 6: Place of residence in relation to elective and emergency cesarean section.**

Place of Residence	Elective C-section (n=100)		Emergency C-section(n=100)		Total 'n'
	No. of women	Percentage	No. of women	Percentage	
Rural	23	38.9%	36	61%	59
Urban	77	54.6%	64	45.3%	141
Chi-square statistics	4.063		P value	0.043833	

The above table (6) depicts that majority 61% (36/59) of women belonging to rural area had emergency cesarean section and 54.6% (77/141) women with an urban background had elective cesarean section. Majority of women belonging to urban area underwent elective cesarean section as compared to rural population and the

difference was statistically significant (P value 0.0438). Lack of healthcare facilities and unbooked status of women from the rural background could be the reason for majority (61%) of them landing up in emergency cesarean section.

**Table 7: Socioeconomic status.**

Socio-Economic Status	Elective C-section(n=100)		Emergency C-section(n=100)		Total 'n'	P value
	No. of women	Percentage	No. of women	Percentage		
Lower	6	26%	17	73.9%	23	0.003
UpperLower	21	40.3%	31	59.6%	52	0.04
Lower Middle	44	50%	44	50%	88	0.76
Upper Middle	23	85.1%	4	14.8%	27	0.004
Upper	6	60%	4	40%	10	0.045
Chi- square statistics	20.9543		Overall Pvalue		0.000323	

The above table (7) depicts the socioeconomic status according to modified Kuppuswamy scale. Majority of women who belonged to lower (73.9%) & upper lower class (59.6%) had emergency cesarean delivery whereas majority (85.1%) of women who belonged to upper middle class (85.1%) had elective cesarean delivery and the difference was statistically significant (P value <

0.05). Most of the women belonging to lower socioeconomic status were delivered by emergency cesarean section (overall P value 0.0003). Lack of health awareness, lack of accessibility to healthcare facility, unbooked status and lack of resources may be the cause for this observation in women with lower socioeconomic status.

**Table 8: Educational status in relation to Elective and Emergency cesarean section.**

EducationalStatus	Elective C-section(n=100)		Emergency C-section(n=100)		Total 'n'
	No. of women	Percentage	No. of women	Percentage	
Illiterate	6	40%	9	60%	15
Primaryschool	6	46.1%	7	53.8%	13
Middle school	4	33.3%	8	66.6%	12
High School	10	52.6%	9	47.3%	19
Intermediate	8	53.3%	7	46.6%	15
Graduate	51	51.5%	48	48.4%	99
Professional	15	55.5%	12	44.4%	27

The above table (8) depicts the educational status of the women undergoing elective and emergency cesarean section. Out of 200 participants enrolled for the study, 49.5% (99/200) women were graduates, 13.5% (27/200) were professionals, 0.09% (19/200) were educated upto high school and 0.07% (15/200) were illiterate. Overall, the majority of women were educated upto graduation. Most of the the illiterate women (60%) had emergency cesarean section and majority (55.5%) of professionals underwent elective cesarean section. This observation may be due to lack of awareness and poor health seeking behaviour of illiterate women.

## DISCUSSION

It was a comparative cross sectional study done at Kamla Nehru State Hospital for Mother and child, to compare the socio-demographic profile of women undergoing cesarean section in a tertiary care centre. A total of 200 participants undergoing cesarean delivery were enrolled for the study which included 100 consenting consecutive elective cesareans and 100 consenting consecutive emergency cesareans.

Our study showed percentage of cesarean section in the age group of 26-35 years i.e 68.5% (137/200) as this is the peak reproductive age and similar results were observed in the study conducted by Hastard et al<sup>[12]</sup> in which maximum (65%) cesarean sections were done in the age group 26-35 years. On the contrary, a study done by Renuka et al<sup>[13]</sup> showed maximum (56%) cesarean sections in the age group of 19-25 years. The study done by Renuka et al<sup>[13]</sup> was conducted in Telangana, India and 300 women were enrolled for the study. Apart from the difference in sample size, socioeconomic status, level of literacy and age at marriage are the factors that are likely to affect the maternal age in relation to cesarean delivery.

Mean age of the 200 participants in the present study was 27.63+/- 4.3 years, with the range 19-40 years. The mean age of 100 participants in Emergency C-section was 23.5+/-3.4 years, whereas mean age of 100 participants in Elective C-section was 27.5+/-5.3 years. Maximum number of cesareans were done in women with age in the range 26-35 years. Out of these, 43.7% were emergency cesarean section whereas, 56.2% were elective cesarean

sections. But difference in number of elective and emergency cesarean section was not significant in this age group. On the contrary, in a study conducted by Hastard et al,<sup>[12]</sup> 91% cesareans done in emergency were in the age group of 26-35 years and only 9% women underwent elective cesarean section in this age group. Similar were the observations in a study conducted by Darnal et al<sup>[14]</sup> where, 64.7% cesarean section were done in emergency whereas, only 29.4% women underwent emergency cesarean section in the age group of 26-35 years.

In relatively young women i.e. women with the age in range of 19-25 years, 64.8% cesareans were done in emergency due to more number of women with severe pre-eclampsia with failed induction in the present study.

In the present study, 51% (102/200) participants were nullipara and 49% (98/200) were multipara. These findings were similar to the study conducted by Sharma A et al.<sup>[15]</sup> with 48.5% cesareans in nullipara and 51.5% cesareans done in multipara. Similarly, the percentage of nulliparous women undergoing cesarean was 56% and the percentage of multipara was 44% in a study conducted by Singh N et al.<sup>[16]</sup> On the contrary, the percentage of nulliparous and multiparous women was 38% and 62% respectively in a study conducted by Erdem S et al.<sup>[17]</sup> Although the mean age of the women enrolled for the study by Erdem S et al.<sup>[17]</sup> was 29.17±6.31 years which was comparable to 27.63 years in the present study, but majority of women enrolled were multipara with mean parity of 3.31±1.66 in the study conducted by Erdem S et al.<sup>[17]</sup>

In the present study, majority (60.2%) of multiparous women underwent elective cesarean section and 39% multipara had emergency cesarean section. Most of the elective cesareans done in multipara were done for the indications like refusal for TOLAC in a previous cesarean. We had 37.5% (75/200) women with prior cesarean delivery. Out of these 18.6% (14/75) had a pregnancy after prior two cesareans. Therefore, most of the elective cesareans in multipara were done electively. Similar were the findings of many studies done in the past i.e. 55.2%, 58.5%, 86.6%, 60% cesareans done electively in multiparous women in the studies conducted by Nag G et al,<sup>[18]</sup> Sharma A et al,<sup>[15]</sup> Erdem S et al<sup>[17]</sup> and Singh N et al<sup>[16]</sup> respectively. Majority of nulliparous women underwent emergency cesarean and the difference in elective and emergency sections in relation to parity was significant (P value 0.004).

In our study, 29.5% participants belonged to rural area and 70.5% were from the urban background. The difference was significant (0.0438). Similarly, the percentage of women from the urban area was more in the studies conducted by Diana V et al.<sup>[19]</sup> (64%) and Singh N et al.<sup>[16]</sup> (57.3%). Although, the chances of cesarean delivery may be more among women from rural areas because of poor antenatal supervision and lack of health

seeking behaviour but the cesarean deliveries are also on a rise in urban population due to late age at marriage and cesarean delivery on maternal request.

In the present study, 29.5% (59/200) belonged to rural area whereas 70.5% (141/200) belonged to urban area. Majority 61% (36/59) of subjects belonging to rural area had emergency cesarean section and 54.6% (77/141) women with an urban background had elective cesarean section. Majority of women belonging to urban area underwent elective cesarean section as compared to rural population and the difference was statistically significant (P value 0.0438). Lack of healthcare facilities and unbooked status of women from the rural background could be the reason for majority (61%) of them landing up in emergency cesarean section.

Similarly, Singh N et al.<sup>[16]</sup> and Diana V et al.<sup>[19]</sup> had observed that most of the elective cesarean sections were done in women from urban background. In addition, most of the women undergoing emergency cesarean section were also from the urban background in the study conducted by Diana V et al.<sup>[19]</sup> As such this study was conducted in a suburban tertiary care hospital in Puducherry.

Majority (44%) cesareans in the present study and in a study conducted by Singh N et al<sup>[16]</sup> (31.3%) was done in women belonging to lower middle class. Percentage of cesarean delivery was more in upper lower class in studies by Mundhra R et al.<sup>[20]</sup> (56.9%), Rajput N et al<sup>[21]</sup> (54.1%), Kuntal N et al<sup>[22]</sup> (38.7%). Lack of health awareness, lack of accessibility to healthcare facility may be the cause for this observation in women with lower socioeconomic status.

In present study, 49.5% women were educated upto graduation, 13.5% were professionals, 7.5% were illiterate, 6.5% had completed primary education, 6% were educated upto middle school and 9.5% upto high school. On the contrary, in studies by Rajput et al.<sup>[21]</sup> and Singh N et al.<sup>[16]</sup> 30.6% and 24.7% women were illiterate respectively. This difference could be due to the high literacy rate (82.80%) in our state as per the census details from the Himachal Pradesh Population 2011-2021 which shows that the literacy rate increased from 76.48% to 82.80% over a period of ten years. The studies by Rajput et al.<sup>[21]</sup> was done in Gwalior in Madhya Pradesh where the literacy rate is 69.32% as per the 2011 Population census. Similarly, the study by Singh N et al.<sup>[16]</sup> was conducted in Lucknow in Uttar Pradesh where the literacy rate is 73% which is less than the national average of 77.7%. Most of the illiterate women (60%) had emergency cesarean section and majority (55.5%) of professionals underwent elective cesarean section. This observation may be due to lack of awareness and poor health seeking behaviour of illiterate women and cesarean delivery on maternal request in professionals. Singh N et al.<sup>[16]</sup> and Rajput N et al.<sup>[21]</sup> did not study the educational status in relation to emergency and elective

cesarean.

## CONCLUSION

Majority of women in the age group of 26-35years, multiparous, urban area, upper class & upper middle class had elective cesarean section while majority of women in the age group 19-25 years & >35years, nulliparous, rural, lower class & upper lower class had emergency cesarean section .

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