

Rate and Indication of Elective Caesarean Section: A Retrospective Study

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DOI: <https://doi.org/10.17511/joog.2021.i05.02>

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Background: The elective caesarean rate also contributes to increased total caesarean section rates in recent times. This study was undertaken to know the elective caesarean section rate in a district hospital and the indications contributing to it. **Method:** Sociodemographic data for the elective caesarean section deliveries and indications of elective caesarean sections performed during one year from January 2020 to December 2020 at The Apollo Medical College and Government district hospital, Chittoor were collected in a retrospective manner. **Results:** Elective caesarean section rate was 43.85%. Booked multigravida women, 20 to 30 years old, studied up to metric, residing in a rural area, belong to middle socioeconomic status were the majority to undergo elective C.S. Repeat C.S. made the most significant contribution to the elective C.S. rate followed by Cephalo-pelvic Disproportion. **Conclusions:** Repeat C.S. and Cephalopelvic disproportion (CPD) are the most common indications of elective caesarean section.

Keywords: Elective caesarean section, Repeat caesarean section, Cephalopelvic disproportion (CPD)

Corresponding Author	How to Cite this Article	To Browse
KM Harish, Associate Professor, Dept of OBG, Apollo Institute of Medical Sciences and Research, Chittoor, Andhra Pradesh, India. Email: kmharish07@gmail.com	N Shwetha, KM Harish, T Sai Chandhan, C Sreenivasa Reddy, GM Satish Reddy, G Pujith Kumar, Rate and Indication of Elective Caesarean Section: A Retrospective Study. Obs Gyne Review J Obstet Gynecol. 2021;7(5):50-56. Available From https://obstetrics.medresearch.in/index.php/joog/article/view/146	

Manuscript Received
2021-10-02

Review Round 1
2021-10-04

Review Round 2
2021-10-11

Review Round 3
2021-10-18

Accepted
2021-10-25

Conflict of Interest
Nil

Funding
Nil

Ethical Approval
Yes

Plagiarism X-checker
17%

Note



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Introduction

A Caesarean section (C-section) is a surgery performed to deliver a baby via an incision made in the abdomen. This mode of delivery may be performed as an emergency procedure when normal delivery is not possible or maybe planned in cases where a natural delivery is not recommended. In the case of a planned C-section, when the procedure is scheduled for a particular date, the term Elective Caesarean Section is used. [1].

Recommendation for a planned, or elective, a caesarean is when a significant risk of adverse outcome for mother or baby is present if the operation is not performed at a given time. Hence performing a caesarean section at a time when there is reduced risk to the mother due to improved anaesthetic procedures and surgical techniques has resulted in an increased rate of elective caesarean section.

Elective caesarean section may have contributed to changes in obstetric practice and patient choice. The use of caesarean section for more vague medical indications and nonmedical reasons in many resource-rich health services has been reported to contribute to an increasing rate of elective caesarean sections. [2,3].

Caesarean section can have serious complications, including the risk of blood loss, infection, blood clots, and adverse reactions to anaesthesia. It's important to remember that caesarean delivery is major abdominal surgery and typically has a longer recovery than a vaginal delivery. It can also affect future pregnancies. [4].

As every pregnant woman have the right to be involved in making decisions about the type of birth they wish to have, the rates of elective caesarean deliveries with no clear medical or obstetrical indication are rising dramatically. [5]

Elective caesarean section rate and its indication vary from one hospital setting to another, depending upon case load, number and skill of workforce available, adequate infrastructure, and equipment availability to monitor. Hence there may be variation in rate and indication for elective C.S. in the present study area compared to national and state statistics. There is, therefore, a pressing need to assess the rate and indications of elective caesarean delivery.

Material and Methods

Duration and type of study: Present study is a retrospective study for a period of one year from 1st January 2020 to 31st December 2020.

Setting: hospital setting in the Department of Obstetrics and Gynecology, Apollo Institute of Medical Sciences & Research and Government District Hospital, Chittoor, a large tertiary care hospital in southern Andhra Pradesh of India.

Sampling methods: women who underwent elective caesarean section and their details documented in the caesarean section register kept in the operation theatre. Caesarean section delivery was classified as elective when the decision to operate was made before the onset of labour and after preoperative preparation at a prearranged time during office hours to ensure the best quality of obstetrics, anaesthetic, neonatal, and nursing services.

Inclusion criteria: All the patients delivered by elective C.S. during the study period were included in the study.

Exclusion criteria: The patients who underwent emergency C.S. during the study period were excluded from the study.

Data collection procedure: Data of elective caesarean section were collected in a retrospective manner from the caesarean section register. Data were collected on a predesigned proforma, which included sociodemographic characters & indications for caesarean section

Ethical consideration & permission: Not required as it is a retrospective study.

Statistical Analysis: Elective caesarean section rate is calculated and is defined as the percentage of births achieved by elective caesarean section among total caesarean births in the study period. Frequencies and percentages were calculated for Age, Education, Residence, Socioeconomic status, Gravida, Booked (3 or more antenatal visits) or unbooked, and Indications of elective C.S.

Results

Table 1 shows that a total of 1432 women underwent caesarean section. Among this, 628 (43.85%) women had elective C.S.

Table 1: Elective C.S. rate

	Number	Percentage
Total CS	1432	100 %
Elective CS	628	43.85%

Table 2: Elective C.S. rate in India and other countries.

S. no	Elective CS rate	Period	Study	Country
1	21.63%	2013-2014	Thakur V et al [6]	India
2	24.15%	2014	Benzouina S et al. [7]	Morocco
3	25.6%	2018	Darna N et al [8]	Nepal
4	38.88%	2016-2017	Jain SM et al. [9]	India
5	40.32%	2017-2018	Reddy KM et al [10]	India
6	42%	2000-2015	Radha K et al [11]	India
7	42%	2018	Diema Konlan K et al [12]	Ghana
8	43.85%	2020	Present study	India
9	55.81%	2015-16	Kathuria B et al. [13]	India

Table 3 shows the sociodemographic characteristics of the study participants. Age distribution of women undergoing elective caesarean section showed that most women were in the age group of 20–30 years, i.e. 482 (76.75%). Further 126 (20.06%) women were elderly pregnant women, and the remaining 20 (3.18%) women had teenage pregnancies. The number of women studied up to metric was 480 (76.43%), the remaining 144 women (22.92%) had completed graduation, and only four women (0.63%) were illiterate. The majority of the women, i.e. 409 (65.12%), belonged to the rural area, whereas 219 (34.87%) were from urban areas. The majority of women belong to middle socioeconomic status, i.e. 580 (92.35%), whereas 32 (5.09%) women belong to lower socioeconomic status, remaining 16 (2.54%) women belong to higher socioeconomic status. The percentage of primigravida women undergoing elective C.S. was 27.22% (171 cases), whereas the percentage of multigravida women was 72.77% (457 cases). Most women undergoing elective C.S. were booked 612 (97.45%), only 16 (2.54%) were unbooked.

Table 4 shows the rates of birth by the Elective C.S. classified by its indications. Repeat C.S. (64.17%) made the most significant contribution to the Elective C.S. rate. Cephalo-pelvic disproportion (13.85%) was the second-highest contributor to the Elective C.S. rate, followed by Oligo-Hydramniotic (7.32%). Consequently, malpresentation made up 5.4% and Failed Induction made up another 4.29%, and Chronic health conditions made up 2.54% of the overall Elective C.S. A further small contribution

To overall Elective C.S. was made by Placental disorders 1.27% and Precious Pregnancy 0.79%.

Table 3: Sociodemographic Factors

S. no	Demographic character		number	percentage
1	Age	Tenage	20	3.18
		20 to 30 years	482	76.75
		Elderly(above 30yrs)	126	20.06
2	Education	No literacy	4	0.63
		Matric	480	76.43
		Graduate	144	22.92
3	Residence	Rural	409	65.12
		Urban	219	34.87
4	Socioeconomic status	Lower	32	5.09
		Middle	580	92.35
		Upper	16	2.54
5	Gravida	Primigravida	171	27.22
		Multigravida	457	72.77
6	Booking status	Unbooked	16	2.54
		Booked	612	97.45

Table 4: Indication for Elective C.S.

S. no	Indications	number	%
1	Previous caesarean	403	64.17
2	Cephalo-pelvic disproportion	89	14.16
3	Oligo-Hydramniotic	46	7.32
4	Malpresentation	34	5.40
5	Failed Induction	27	4.29
6	Chronic health conditions	16	2.54
7	Placental disorders	8	1.27
8	Precious Pregnancy	5	0.79

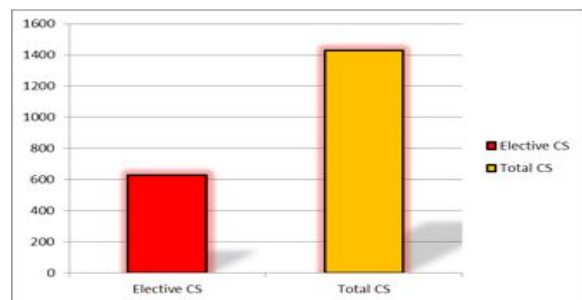


Fig 1: Elective C.S. rate

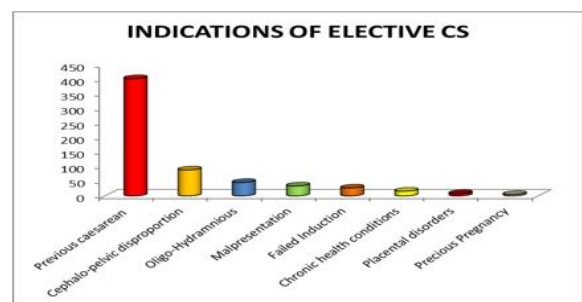


Fig 2: Indication for Elective C.S.

Discussion

Caesarean section is one of the most commonly performed significant surgeries in obstetric practice intended to save the mother and child and, in turn, reduce maternal and perinatal mortality. The steadily increasing global rate of caesarean section has become one of the most debated topics in maternity care. This study identified the most common to least common indications of elective C.S. in the Apollo institute of medical sciences, Chittoor.

The elective C.S. rate in the present study is 43.85%. The dataset of the fourth round of National Family Health Survey (NFHS-4) India, conducted in 2015-16 analysed by Kathuria B et al., stated that in India, more than half of the total C.S. birth (56%) were elective. Andhra Pradesh is the second state in southern India to have the highest C.S. birth [13]. In comparison to an analysis by Kathuria B et al. [13], the elective C.S. rate is 13% lower in the present study but slightly higher when compared to Reddy KM et al. [10], Radha K et al. [11] and Diema Konlan K et al. [12] and considerably higher when compared to Thakur V et al. [6], Benzouina S et al. [7] and Darnal N et al. [8].

The majority (76.75%) of women who underwent elective C.S. in the present study were in the age group of 20-29 years. These findings were similar to that of Singh N et al. [14] but contrary to the study of Herstad L et al. [15], in which the majority of women were between age groups 35-39 and ≥40 years. Women from rural areas were more common in the present study. This is because this hospital is the only government tertiary care centre catering to rural areas surrounding Chittoor town. The present study finding is contrary to that of Singh N et al., where the majority of the women belonged to the urban area [14]. Most women (92.35%) who underwent elective C.S. belong to middle socioeconomic status, whereas higher socioeconomic status women are less commonly seen. Contrary to the present study, Diema Konlan K et al. found that a significant moderate positive correlation exists between average monthly income and C.S. rate [12]. When income increases, the likelihood of having a C.S. also increases. But in the study of Wiklund I et al. on the Swedish population, women believed that requesting a caesarean section have a lower social class than vaginal delivery [16].

Women who had studied up to metric are the majority to undergo elective C.S. in the present study. In contrary to the present study, on one side study conducted by Nourizadeh R et al. on Iranian population states that increasing the educational level, the tendency to undergo C.S. was increased [17] and on the other side study by Diema Konlan K et al. on the population of Ghana states that higher education tends to results in lower C.S. rates [12]. Multi-gravida women (72.77%) were common to undergo elective C.S. Similar to the present study Gurunule AA et al. found in their study that the incidence of elective C.S. was more in multigravidas (77.4%) [18]. The majority of the women were booked (97.45%) in the present study. Similar findings like Booked, multigravida women belonging to middle socioeconomic status who were the majority to undergo elective C.S. in the present study were seen in Singh N et al. [14] also. The private hospital considers elective C.S. on maternal request, common among highly literate and higher socioeconomic status. The present study hospital is a public hospital where highly literate and higher socioeconomic status women are not commonly seen. Hence elective C.S. on maternal request is not seen in the present study

The previous caesarean section is the main reason for Elective C.S. accounting for 64.17%. The present study correlates with Thakur V et al. [6] and Daniel S et al. [19]. To reduce repeat elective C.S., the decision for primary caesarean section is crucial, and every effort should be made in primigravida for vaginal delivery by a carefully supervised monitoring of labour. A structured, mandatory second opinion for caesarean section indication in clinical settings is recommended to reduce caesarean births as per the recently released guidelines by the World Health Organisation. [20].

The majority of elective caesarean sections were done for previous caesarean section cases. As all women who undergo repeat C.S. will be multigravida, the percentage of multigravida is high in the present study. A similar finding was seen in Daniel S et al. [19]. Also, during discharge after primary C.S., these patients are given counselling regarding future pregnancy. Hence the booking status of the present study is high. Cephalo-pelvic disproportion (13.85%) was the second most common indication for elective C.S. in the present study. A similar finding was seen in Govind L et al., in which CPD was the second most common

Indication for elective C.S. [21]. The rate of elective C.S. for oligo-hydramnios (7.32%) in the present study was lower when compared to the study by Begum T et al. in which oligo-hydramnios was the indication for 14% of C-section in their study [22]. In the study of Ahmad H et al. even though the rates of elective C.S. were high in the oligohydramnios group, demonstrating the low threshold for caesarean section among the obstetricians in the oligohydramnios group, but finally concluded that elective C-section for possible perinatal morbidity due to oligohydramnios is not recommended for any instance [23].

Malpresentation (5.40%) is the fourth most common indication for elective C.S. in the present study. In the study by Quiroz LH et al., malpresentation or breech presentation was the most common indication [24]. In Pallasmaa N et al., malpresentation was among the most common indications for elective C.S. [25]. In the study conducted by Garima Nag G et al., 'previous C.S.' was the most common indication, and 'malpresentation' was the second most common indication for elective C.S. [26]. Similar findings were seen in a study by Pirjani R et al. [27]. Failed labour induction constituted 4.29% of elective C.S. in the present study. This is slightly less than the study of Sing N et al., in which failed induction indicated 7% of elective C.S. [14]. The present study showed elective C.S. for maternal indications like uncontrolled hypertension, pre-eclampsia, eclampsia, and gestational diabetes mellitus is 2.54%. In the study of Reddy KM et al., there was an increase in the caesarean section for maternal indications to 2.99% in 2012-2013 [10]. Mylonas I et al., in their study, had stated that as maternal age rises, so does the risk of hypertension or even diabetes mellitus [28]. As most women in the present study are within the 20-30years age group, medical complications are less commonly seen.

Caesarean section for precious pregnancy (0.79%) and obstetric indications (1.27%) like placenta previa, placenta accreta and abruptio placenta were the least common indication in the present study.

Conclusion

In the present study, booked women, aged between 20-30years, residing in the rural area and belonging to middle socioeconomic status were more likely to undergo elective C.S. Also, multigravida

Women were the majority to experience elective caesarean sections, and the primary indication was a previous caesarean section.

Elective caesarean operation though safer than its emergency counterpart, is not entirely free of morbidity or mortality to both the mother and the baby. The trend of elective C.S. observed in the present study underscores the need for better and improved patient selection and counselling on its benefits and risks.

What this study adds to existing knowledge:

Multigravida women belonging to middle socioeconomic status with a history of previous C.S. are most commonly undergoing elective C.S.

Abbreviations: C.S.: Caesarean sections. CPD: Cephalopelvic Disproportion

Acknowledgements: We would like to thank the Principal, Medical Superintendent, and Head of the Department of OBG, The Apollo Medical College, Chittoor, for their support in the process of preparing this article.

Availability of data and materials: The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Authors' contributions: Harish K.M. and Shwetha N designed the study, analysing data and writing the manuscript. SaiChandhan T, Sreenivasa Reddy C, Satish Reddy GM, and Pujith Kumar G contributed to data collection and revised the manuscript. All authors read and approved the final manuscript.

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