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A Descriptive Exploratory Study to Assess the Prevalence and Indications of Lower Segment Caesarean Section (LSCS)

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ABSTRACT

LSCS is the most common surgical procedure conducted in the obstetric department. The caesarean section rate is increasing steadily, and many research scientists are finding the reasons for it. From the review, it was noticed that based on the setting of the study prevalence of LSCS and its indications get changed. This situation developed curiosity among investigators about what could be the prevalence and the reasons of LSCS in the clinical area where we practice. This curiosity made them to take the topic for investigation. **Aim**: The main purpose of this study is to identify the prevalence and indications of Lower Segment Caesarean Section (LSCS) in maternity hospitals in Pune, Maharashtra. **Objectives:** to assess the number of vaginal and LSC deliveries; to find out the indication for LSCS; to assess the selected maternal obstetric characteristics; to find out the association between the indications with the frequency of LSCS; to find out the association between the maternal obstetric characteristics with the frequency of LSCS. **Methodology:** Descriptive exploratory survey was performed at the local government maternity hospital. **Analysis:** Data entered in MS- Excel sheets and analysed for frequency and percentage. SPSS software was used for inferential statistics. **Results:** The total numbers of women delivered 194, out of vaginal deliveries were 53.60% and Lower Segment Caesareans Section (LSCS) deliveries 45.87%. Among these emergency caesareans were 62.22% and 37.7% planned caesareans. The study findings revealed, the most common indicator for LSCS were previous LSCS 28 (82%), Indications of LSCS and frequency of LSCS have significant association .000 < p. **Conclusion:** Prevalence of LSCS is higher than that of the WHO recommendation. The study findings revealed some of the indicators for LSCS are preventable such as previous LSCS, Anxiety (Maternal request for LSCS). Preventive strategies such as antenatal counselling individualised (respectful) maternity care by nurses, and motivation to obstetricians to follow VBAC practice, may help to reduce the prevalence of LSCS.

KEYWORDS

Prevalence, Lower Segment Caesarean section (LSCS), Indications. Maternal obstetric characteristics.

INTRODUCTION

LSCS is the most common surgical procedure conducted in the obstetric department. The caesarean section rate is increasing steadily, and many research scientists are finding the reasons for it.
Researchers Taye M G et al. studied the prevalence and factors associated with caesarean section. The study was a cross-sectional institution based, in Ethiopia. The Data were collected using a structured checklist. Researchers noted that the prevalence of cesarean section was 39.1%, and mothers aged 35–39 years, educational level college and above, employed, mothers with a monthly income of >6000, and mothers with a previous history of cesarean section were significantly associated with an increased risk of cesarean section.[1]

Betran AP, Ye J, Moller AB, Souza JP, Zhang J. used routine health information systems reports and population-based household surveys. They calculated current regional and subregional weighted averages and estimated trends by a piecewise analysis of Cesarean Section (CS) rates at the national, regional and global levels from 1990 to 2018. The authors revealed that CS has risen in all regions since 1990. Subregions with the most significant increases were Eastern Asia, Western Asia and Northern Africa (44.9, 34.7 and 31.5 percentage point increase, respectively) while sub-Saharan Africa and Northern America (3.6 and 9.5 percentage point increase, respectively). Researchers also projected the CS rate and the number of CS expected in 2030 using autoregressive integrated moving-average models. They found that by 2030, 28.5% of women worldwide will give birth by CS (38 million caesareans of which 33.5 million are in LMIC annually) ranging from 7.1% in sub-Saharan Africa to 63.4% in Eastern Asia.[2]

Since 1985, the international healthcare community has considered the ideal rate for caesarean sections to be between 10% and 15%. Since then, caesarean sections have become increasingly common in both developed and developing countries.[3]
The increase in the caesarean section rate in the last decades has many causes, including maternal causes and those related to professional practice, as well as economic, cultural, and organizational causes.[4]

Bade P, Kendre V, Jadhav Y, Wadagale A. cited WHO, that the optimal caesarean delivery rate is 10-15%. However, the caesarean rate is higher in India. In their study, they found caesarean section rate is higher than the WHO standard and previous LSCS was the most common indication.[5]

From the review, it was noticed that based on the setting of the study prevalence of LSCS and its indications get changed. This situation developed curiosity among investigators about what could be the prevalence and the reasons of LSCS in the clinical area where they practice. This curiosity made them to take the topic for investigation.

RESEARCH METHODOLOGY

A descriptive exploratory survey was performed at a maternity hospital that is run by the local government.

The aim of the study was to identify the prevalence and indication of LSC.
Specific objectives of the study were, 1) to assess the number of vaginal and LSC deliveries, 2) to find out the indication for LSCS 3) to assess the selected maternal obstetric characteristics and, 4) to find out the association between the frequency of LSCS and indications, 5) to find out the association between frequency of LSCS and selected maternal characteristics.

Approval from the Institutional Research and Ethical Committee **(BTINE/ 2022)** was obtained before starting the survey. Investigators have obtained permission from the higher authority of the hospital. The study was conducted by the department of obstetrics and gynaecology nursing of M.K.SS.S.B.T.INE. The data was collected in the month of October 2022. Non-probability sampling method was used. All women who were admitted to the postnatal ward after delivery and were willing to take part in the study have been considered study subjects. Thus, a total of 194 study subjects were included in the study. After getting informed consent from study subjects, subjective and objective data were collected. Obtained data was validated and confirmed by cross-checking it with the case sheets of individual study subjects. For data collection validated structured information data sheets were used. The main aim of the study was to identify the prevalence and indications of Lower Segment Caesarean Section (LSCS) in maternity hospitals.

RESULTS AND DISCUSSIONS

Data collected were entered in MS- Excel sheets and analysed using simple statistical measures like frequency and percentage. As well as all data was input into SPSS software (Version.20.0; SPSS Inc., Chicago, IL, USA) for inferential statistical analysis.

Data analysis was performed to answer the research questions, 1) what is the prevalence of LSCS in maternity hospitals run by the local government? 2) Is there any association between the frequency of LSCS and indication? 3) Is there any association between the frequency of LSCS and maternal obstetric characteristics? The Chi-square test / Fisher's Exact test was performed to find out the answers to the question of association. The outcomes were considered statistically significant if the *P* value is equal to or less than 0.05. Two hypotheses were formulated to test the statistical significance of associations. H_1 - There is a significant association between LSCS and indications for the LSCS, H_2: There is a significant association between the mother's obstetrical variables with the frequency of LSCS.

N=194

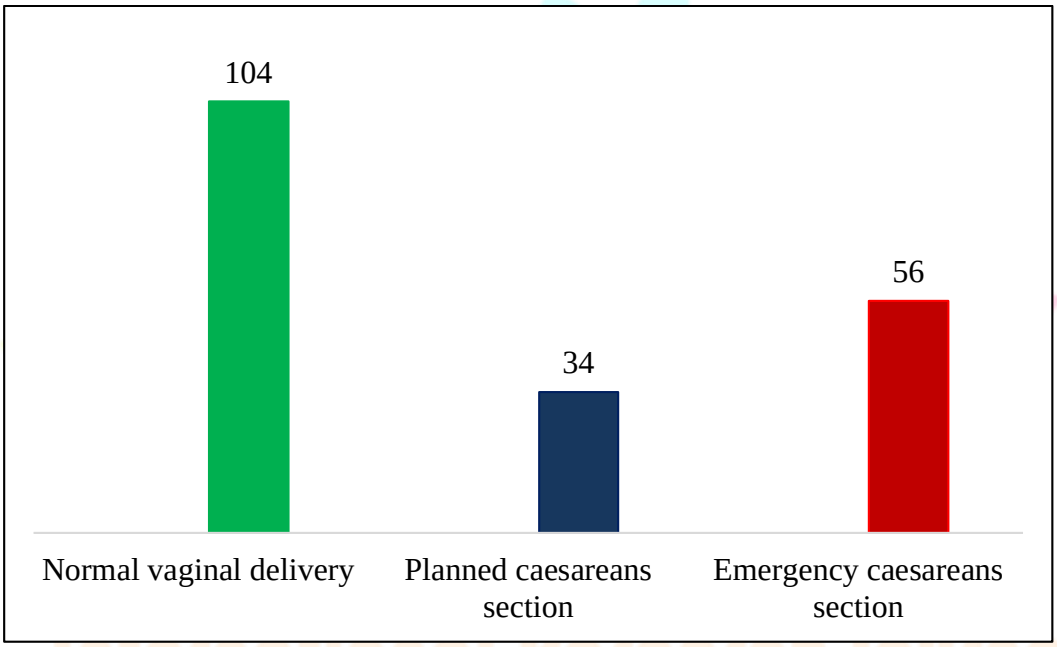

Figure1: Frequency distribution according to the adopted approach for baby birthing.

Figure 1 depicts the total number of women delivered for the period of 1 month was 194, out of which vaginal deliveries were 53.60% and Lower Segment Caesarean Section (LSCS) deliveries were 46.39%. Among these total 90 LSCS deliveries, 62.22% were emergency LSCS and 37.77 % were planned LSCS.

Figure 2 below depicts the indications to perform LSCS. Among all noted indications of LSCS, the previous LSCS was the leading indication with a frequency of 28(31.1%) cases, the second most common indication was non-progress of labour 18(20.20%), followed by fetal distress14(15.6%) cases, mal-presentation 8(8.9%), Anxiety (Maternal request for LSCS) 8 (8.9%), Obstructed labour 6 (6.7%), Post-dated labour 3 (3.3%), Premature rupture of membrane 3 (3.3%), and 2 (2.2%) underwent LSCS with the indication of hydramnios.

n=90

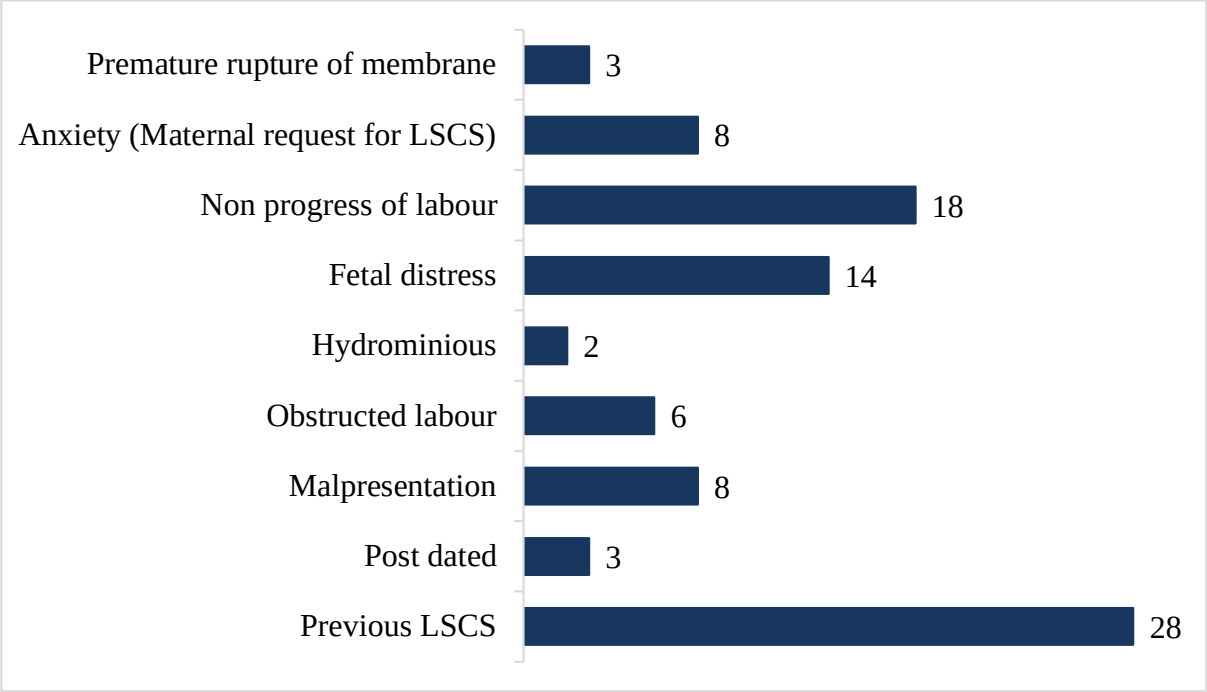

Figure2: Frequency distribution of indications for a Lower Segment Caesarean Section in study population

Table 1 below shows the indications for planned LSCS and emergency LSCS. Among 34 mothers who underwent planned LSCS most common indications history of previous LSCS 28 (82%), followed by post-dated pregnancy 3 (9%), Hydramnios 1(3%), Anxiety (Maternal request for LSCS), 1(3%) and Premature Rupture of Membrane (PROM) 1(3%).

In 56 subjects with emergency LSCS most common indications were 18 (32%) Non-progress of labour, 14(25%) Fetal distress, followed by 8 (14%) Mal-presentation, 7(13%) Anxiety (Maternal request for LSCS), 6 (11%) Obstructed labour, 2 (4%) Premature Rupture of Membrane (PROM) and 1(2%) Hydramnios.

A significant association was found between the frequency of LSCS and the indication of LSCS (p-*value* .000 is < 0.05). Hence the investigators have accepted H_1 - There is a significant association between LSCS and indications for the LSCS and rejected $H_0$1

Table 1 Distribution of indications for a Lower Segment Caesarean Section among planned and emergency caesarean section

n=90

Indications	Planned caesareans section		Emergency caesareans section		Chi-Square/ Fisher's Exact Test
	n=34		n=56		*P* value
	f	*%*	*f*	*%*	
Previous LSCS	28	82%	0	0%	
Post dated	3	9%	0	0%	
Mal-presentation	0	0%	8	14%	
Obstructed labour	0	0%	6	11%	
Hydramnios	1	3%	1	2%	.000**
Foetal distress	0	0%	14	25%	
Non progress of labour	0	0%	18	32%	
Anxiety (Maternal request for LSCS)	1	3%	7	13%	
Premature Rupture of Membrane (PROM)	1	3%	2	4%	

**** Significant at 0.001**

Table 2 below depicts the maximum (47.7%) participants out of 90 falls into the age group of 22 years to 25 years, this age is considered reproductive age. Among 34 mothers, who had planned LSCS, (3%) were in the aged of 18-21 years, (53%) with 22-25 years of age, (21%) in the age group 26 to 29 years, (21%) with the age 30 to 33 years, and (3%) found above 34 years. Followed by 56 mothers with emergency LSCS, (38%) in the age group 18-21 years, (74%) in the age group 22-25 years, (26%) in age 26-29 years, (21%) in age 30 to 33 years and (6%) were above the age 34 years. The frequency of LSCS is found to be significantly associated with the age of the mother, (Fisher's Exact test significant *p-value* 0.05 = *p* 0.05).

Table 2 Association of obstetric variables with Lower segment caesareans section n=90

Mother's obstetrical variables	Planned caesareans section (n= 34)		Emergency caesareans section (n=56)		Chi-Square / Fisher's Exact Test
	f	%	*f*	%	*P*-value
Age					
18-21	1	3	13	38	
22-25	18	53	25	74	
26-29	7	21	9	26	0.05*
30-33	7	21	7	21	
Above 34	1	3	2	6	
BMI					
Below 18.5	2	6	1	2	
18.5 to 24.9	29	85	42	75	0.12 NS
25 to 29.9	2	6	12	21	
30 and above	1	3	1	2	
Weeks of gestation					
35 to 37	20	59	42	75	
38 to 39	14	41	14	25	0.86 NS
40 and above	0	0	0	0	
Gravida					
1	2	6	31	55	
2	19	50	14	25	.001*
3	10	26	10	18	
4	3	8	1	2	
Para					
Nulli para	2	6	31	55	
1	4	12	8	14	
2	20	59	14	25	.000**
3	6	18	2	4	
4	2	6	1	2	
Pregnancy complications					
PIH	4	12	4	7	
GDM	0	0	10	18	
Anaemia	8	24	7	13	0.03*
Rh incompatibility	0	0	1	2	
Other	0	0	0	0	

**** Significant at 0.001, * Significant at 0.05, NS= Non-Significant**

Most 71(78.8%) of the study participants from planned caesarean and emergency caesarean section had BMI in the range of 18.5 to 24.9, that is considered as normal BMI. Among the 34 mothers who underwent planned LSCS (6%) had BMI 18.5 and below, (85%) reported BMI 18.5-24.9, (6%) BMI 25-29.9, (3%) have BMI 30 and above. Among 56 mothers who underwent emergency LSCS (2%) have BMI below 18.5, 75% had BMI in the range 18.5-24.9, (21%) had BMI between 25-29.9 and (2%) BMI 30 and above. Study findings revealed no significant association between frequency of LSCS and BMI, (Fisher's Exact test significant *p* value 0.12 > *p* 0.05).

Among 90 participants maximum (68%) participants underwent LSCS at 35-37 weeks of gestation. Mothers who had planned LSCS at 35-37 weeks were (59 %), (41%) had LSCS at 38-39 weeks. Among mothers who had emergency LSCS (75%) had LSCS at 35 to 37 weeks of gestation, (25%) had LSCS at 38 to 39 weeks of gestation, not a single woman had LSCS at 40 weeks of gestation and above. The study finding revealed no

significant association between frequency of LSCS and weeks of gestation, (Fisher's Exact test significant *p* value 0.86 > *p* 0.05).

Among 34 planned LSCS cases (6%) of mothers were gravida one, (56%) gravida two, (29%) gravida three and (9%) gravida four. Among 56 emergency LSCS cases (55%) of mothers were gravida one, (25%) of gravida two, (18%) were gravida three and (2%) were gravida four. Study found a significant association between the frequency of LSCS and status of gravida, (Fisher's Exact test significant *p-value* 0.01 < *p* 0.05).

Among 34 planned LSCS cases (6%) of mothers were nulli para, (12%) were para one, (59%) were para two, (18%) were para three and (6%) were para four. Among 56 emergency LSCS cases (55%) of mothers were nulli para, (14%) were para one, (25%) para two, (4%) were para three and (2%) were para four. The study found a statistically significant association between the frequency of LSCS and parity status, (Fisher's Exact test significant *p-value* .000 < *p* 0.05).

The current study highlighted a few common pregnancy complications, such as gestational diabetes mellitus, pre-eclampsia, anaemia, and Rh incompatibility, along with other pregnancy problems such as thyroid disorder etc. Among all 90 study participants, 34 (37%) were found having pregnancy complications. Among all pregnancy complications, anaemia counted as the most prevalent. Among 34 planned LSCS cases (12%) of mothers had PIH, (4%) had Anaemia, and not a single study participant was found to have GDM or Rh incompatibility or any other disorder. Among 56 emergency LSCS cases (7%) of mothers had PIH, (18%) had GDM, (13%) had Anaemia, (2%) had Rh Incompatibility. No, other pregnancy complications were reported.

The findings of the statistical test for the association between pregnancy complications and frequency of LSCS revealed that there is a significant association, (Fisher's Exact Test significant *p-value* 0.03 < *p* 0.05).

On the basis above statistical findings, investigators of this study accept, $H_{2:}$ There is a significant association between the mother's obstetrical variables with the frequency of LSCS, except the variables BMI and weeks of gestation.

DISCUSSION

Hospital-based exploratory descriptive survey was carried out in the month of October. The study aims to identify the prevalence and indications of LSCS. There were 194 subjects enrolled in the study. Out of which 104 (53.60%) were vaginal deliveries and 90 (46.39%) were Lower Segment Caesarean Section (LSCS) deliveries. Among 90 LSCS deliveries, 62.22% were emergency LSCS and 37.77 % were planned LSCS. The numbers are suggesting LSCS prevalence is on the higher side; the difference between frequency of vaginal deliveries and LSCS is only 14 cases. However, the prevalence found on the higher side is more than the WHO-recommended rate.[6]

There are many factors that contribute to the higher prevalence of LSCS. This study found selected maternal obstetric variables that are associated with the frequency of LSCS. With relation to maternal age, the maximum (47.7%) participants out of 90 falls into the age group of 22 years to 25 years, this age is considered reproductive age. Out of this 22-25 years of age group (53%) with planned LSCS Followed by (74%) of mothers with emergency LSCS. Frequency of LSCS associated with age significant $p =$ 0.05. Our study findings are similar to study findings noted by Singh N, Pradeep Y, and Jauhari S.[7]

Most 71(78.8%) of the study participants from a planned caesarean and emergency caesarean section had BMI in the range of 18.5 to 24.9, the study could not find a significant association between frequency of LSCS and BMI p > 0.05. The finding of the present study is not comparable to the study by Saadia Z.[8]

A maximum of (68%) of participants underwent LSCS at 35 to 37 weeks of gestation, (53%) planned caesarean, and (68%) had an emergency caesarean. But could not find a significant association between the frequency of LSCS and weeks of gestation, p > 0.05. The finding of the present study is not comparable to the study noted by Singh N, Pradeep Y, and Jauhari S.[7]

Findings of the study revealed in planned LSCS most (56%) mothers were gravida two, whereas in emergency LSCS cases (55%) mothers were gravida one. The study found a significant association between the frequency of LSCS and the status of gravida and parity status, $p < 0.001$.

In planned LSCS most (59%) mothers were para two (59%), whereas in emergency LSCS cases (55%) mothers were nullipara. The study found a significant association between the frequency of LSCS and the status of gravida and parity status, $p < 0.05$.

Among all pregnancies, complication anaemia is found to be more prevalent 24% in mothers with planned LSCS followed by 12% PIH. In mothers with emergency LSCS, GDM was 18%, anaemia 13%, and PIH was 7%, Rh incompatibility 2%. A significant association between pregnancy complication and frequency of LSCS $p < 0.05$. The study findings are in line with a study by Katke RD, Zarariya AN, and Desai PV.[8]

CONCLUSION

The present study found the rate of LSCS is as equal to vaginal delivery, which indicates a high prevalence of LSC. Many indicators are significantly associated with the frequency of LSCS. Some of the indicators with high frequency such as previous LSCS, and pregnancy complications like anaemia and anxiety among mothers are preventable. These preventable indicators leading to LSCS can be managed by counselling mothers during the antenatal period about the delivery process and regarding the prevention of anaemia, which can be managed by simple measures, motivating health care workers, nurses for respectful maternity care, and Doctors for VBAC and trial labour.

REFERENCE

1.Taye MG, Nega F, Belay MH, Kibret S, Fentie Y, Addis WD, Fenta E. Prevalence and factors associated with caesarean section in a comprehensive specialized hospital of Ethiopia: a cross-sectional study; 2020. Annals of Medicine and Surgery. 2021 Jul 1; 67:102520.

2.Betran AP, Ye J, Moller AB, Souza JP, Zhang J. Trends and projections of caesarean section rates: global and regional estimates. BMJ Global Health. 2021 Jun 1;6(6): e005671.

3.World Health Organization (WHO). Human Reproduction Programme (HRP). WHO statement on caesarean section rates. Geneva: WHO; 2015 [cited 2022 May 25]. Available from: https://apps.who.int/iris/bitstream/handle/10665/161442/WHO_RHR_15.02_eng.pdf

4.Hernández-Vásquez A, Chacón-Torrico H, Bendezu-Quispe G. Differences in the prevalence of cesarean section and associated factors in private and public healthcare systems in Peru. Sexual & Reproductive Healthcare. 2020 Dec 1; 26:100570.

5.Bade P, Kendre V, Jadhav Y, Wadagale A. An analysis of indications for caesarean section at government medical college, Latur. Hindu. 2014; 270:52-73.

6.Programme WH. WHO Statement on caesarean section rates. Reproductive health matters. 2015 May; 23(45):149-50.]

7.Singh N, Pradeep Y, Jauhari S. Indications and determinants of cesarean section: A cross-sectional study. International Journal of Applied and Basic Medical Research. 2020 Oct;10(4):280.

8.Saadia Z. Association between Maternal Obesity and Cesarean Delivery Complications. Cureus. 2020 Mar 2; 12(3).

9.Katke RD, Zarariya AN, Desai PV. LSCS audit in a tertiary care center in Mumbai: to study indications and risk factors in LSCS and its effect on early perinatal morbidity and mortality rate. Int J Reprod Contracept Obstet Gynecol. 2014;3: 963-8.