



Original Research Article

Frequency of Caesarean Section and its Indications in A Tertiary Care Teaching Hospital

Article History:

Name of Author:

Asifa Alia¹, Tabassum Firdous², Faiza Saeed³, Nadia Zulfiqar⁴, Maria Anwar⁵ and Sadaf Saher⁶

Affiliation: ¹Professor Obstetrics and Gynaecology Rai Medical College Teaching Hospital Sargodha

²Assistant Professor Obstetrics and Gynaecology Rai Foundation Teaching Hospital Sargodha

³Consultant gynaecologist Obstetrics and gynecology department Tehsil head quarter hospital kamoke

⁴Assistant Professor Sahara Medical College Narowal

⁵Assistant Professor Obstetrics and Gynaecology Rai Foundation Teaching Hospital Sargodha

⁶Assistant Professor Obstetrics and Gynaecology Rai Medical College Teaching Hospital Sargodha

Corresponding Author:

Tabassum Firdous

Received: 01-01-2026

Revised: 05-01-2026

Accepted: 12-01-2026

Published: 28-01-2026

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Noncommercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Abstract: **Objective:** To determine the frequency of Caesarean Sections and its indications in a tertiary care teaching hospital.

Methods: It was descriptive cross sectional study. Sample was taken with convenience sampling technique. Total patients came in OPD or Emergency department of Rai Foundation Teaching Hospital Sargodha for delivery during the period of January to December 2025 were included in this study. Total of 913 patients were included in this study after fulfilling inclusion and exclusion criteria. A set questionnaire filled in which the demographic information and indication of Caesarean section noted. **Results:** Total 913 patients were delivered during the period of one year. Among these 720 were through normal vaginal deliveries and 193 were caesarean cases. The frequency of caesarean section was 21.1%. Elective caesarean section were performed in 140 (72. 5%) patients and emergency caesarean section in 53 (27.5%). Among 193 patients 163 (84.5%) were booked while 30 (15.5%) were unbooked. Previous caesarean section was the commonest indication seen in 115 (59.6%) patients (p value is 0.043).

Conclusion: The frequency of Caesarean section as 21.1% contributed largely by the woman with previous Caesarean section followed by Intrauterine fetal Growth Restriction (IUGR) and Oligohydramnios.

Keywords. Caesarean section, Previous Caesarean section, Elective and Emergency Caesarean section.

INTRODUCTION

Day by day increasing Cesarean section rate is the major concern in obstetricians' community There is need to establish local guidelines and Cesarean section should be performed according to specific indications mentioned in guidelines.¹ WHO recommended Cesarean Section rate 10 – 15%.² This is far away from actual rate in current practice. In Pakistan actual rate of Cesarean section is difficult to calculate as most

of the low risk deliveries take place at home while only complicated cases reach hospital.³ The high rate of caesarean sections in developed countries is because of fetal distress and in developing countries the most common cause is not yet clear.⁴ Non availability of one to one care and resources like continuous CTG monitoring, availability of whole obstetrical emergency team including anaesthetist and neonatologist to carry operative procedure within 15

min, lack of policies for giving trial to previous scared uterus and cesarean section on maternal wish are other causes of increasing rate.³ This increase in rate of Caesarean Section is also increasing the maternal morbidity in terms of repeated Caesarean section, adhesions, increase blood loss and morbidly adherent placenta.¹ High rate of caesarean section is an alarming concern for public health globally both for government and family as it causes high financial burden. In order to decrease all the above mentioned concerns only absolute indications of cesarean sections should be considered like Cephalopelvic disproportion (CPD), placenta previa, and malpresentation.³

Aim of this study is to find out caesarean section indications their demographic and obstetrical determinant in order to find out strategies for reduction of causative factors of maternal and neonatal morbidity and mortality like prolonged stay

at health care facility, blood transfusion, anemia, morbidly adherent placenta and caesarean hysterectomies due to morbidly adherent placenta.

MATERIALS AND METHODS:

Design of this study was descriptive cross sectional study. It was conducted at Rai Foundation Teaching Hospital Sargodha in the department of obstetrics and gynaecology from 01-01-2025 to 31-12-2025. Sample was taken with convenience sampling technique. All Pregnant ladies coming in the study period in antenatal clinic or admitted from emergency for delivery were incorporated in the study. The patients with ruptured uterus were omitted. The questionnaire was filled regarding age, parity, gestational age, type of Cesarean Section, its indication, previous scar condition, blood loss and fetal outcome. Data was analyzed on SPSS 25 for frequency and percentages. P-value ≤ 0.05 was considered statistically significant.

RESULTS:

Factors	Categories	Frequency of C-Section (%)	Type C-Sections				P- Value
			Elective (140)		Emergency (53)		
			<i>f</i>	%age	<i>f</i>	%age	
Age	<20	18 (9.3%)	11	8	7	13	0.374
	21-30	137 (70.9%)	99	71	38	72	
	31-40	38 (19.6%)	30	21	8	15	
	>40	0 (0%)	0	0	0	0	
Mode of Admission (MOA)	Outpatient department (OPD)	163 (84.4%)	138	99	25	47	0
	Emergency	30 (15.5%)	2	1	28	53	
Residence	Rural	167 (86.5%)	121	86	46	87	0.947
	Urban	26 (13.4%)	19	14	7	13	
Previous caesarean Scar condition	Nil	75 (38.8%)	49	35	26	49	0
	Intact	100 (51.8%)	90	64	10	19	
	Thin	18 (9.3%)	1	1	17	32	
Post Op Complication	Nil	191 (98.9%)	139	99	52	98	0.473
	PPH	2 (1%)	1	1	1	2	
Baby Gender	Male	103 (53.4%)	74	53	29	55	0.817
	Female	90 (46.6%)	66	47	24	45	
NICU Admission	Yes	34 (17.6%)	20	14	14	26	0.048
	No	159 (82.4%)	120	86	39	74	

Table 1: Distribution of Socio-demographic factors

During one year study period, total 913 patients were delivered. Among them 193 patients were delivered through caesarean sections and 720 were delivered vaginally. The percentage of caesarean section was 21.1%. Sociodemographic details are given in Table I.

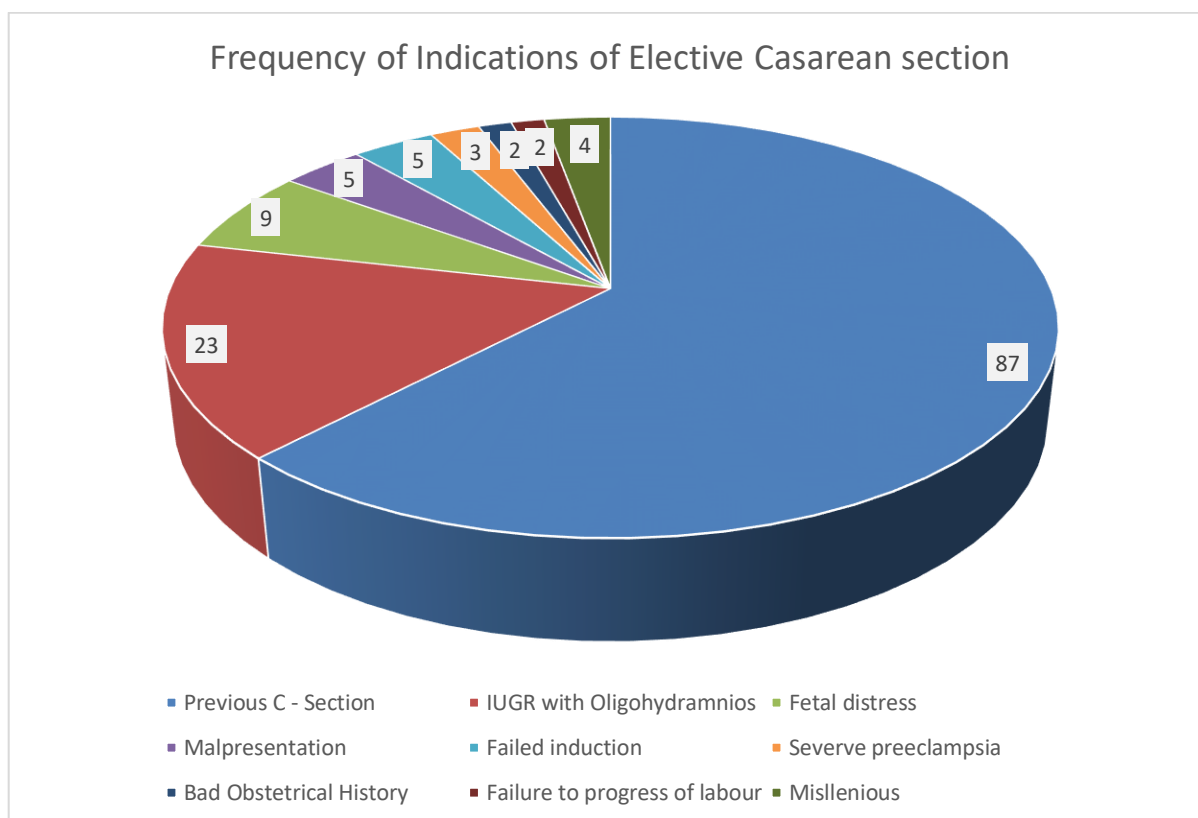
Among 193 patients 137 (70.9%) were between 21 to 30 years of age, 38(19.6%) were between 31 to 40 years of age and 18(9.3%) were < 20 years of age. Most of the patients whose Caesarean section were performed belongs to rural area 167(86.5%). Elective caesarean section was performed in 140 (72. 5%) patients and emergency caesarean section in 53 (27.5%).

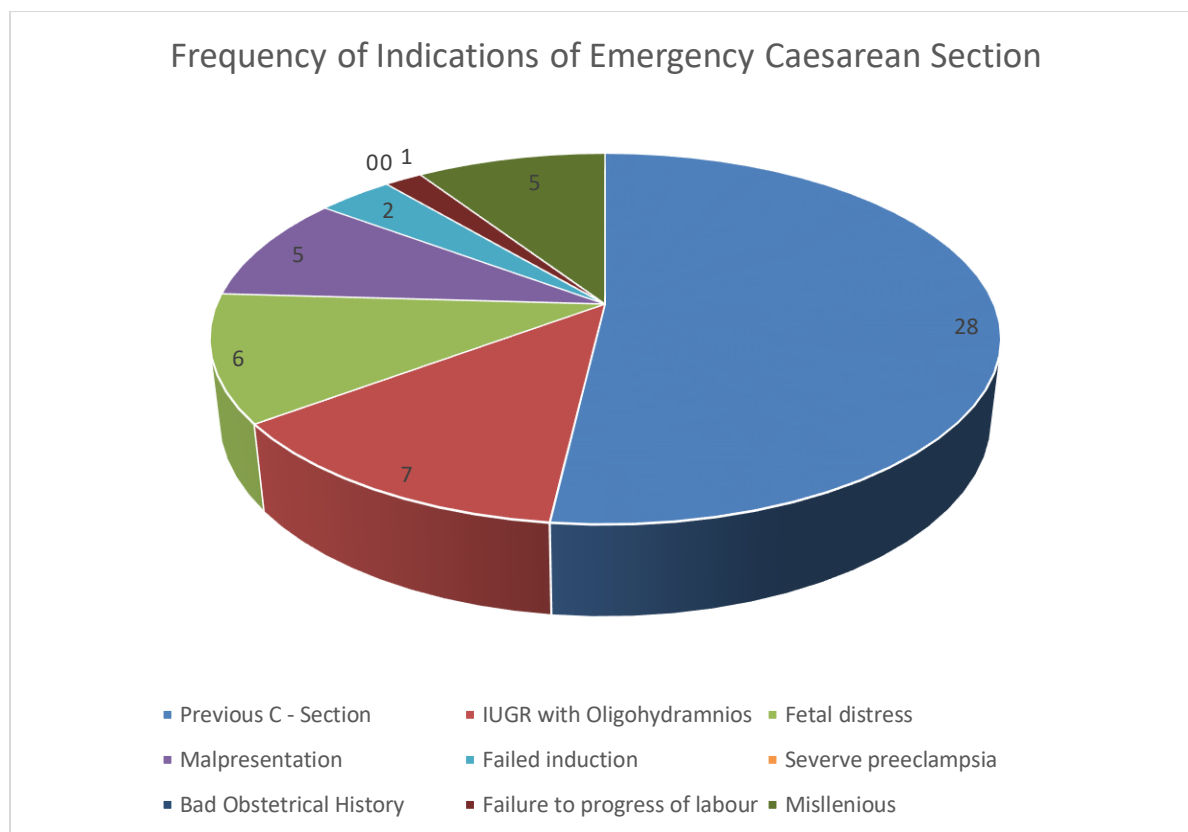
A statistically significant difference was found in the distribution of C-section types between rural and urban residents ($p < 0.05$). This indicates that the residential status plays a role in determining the likelihood of undergoing elective or emergency C-sections. Further exploration into the underlying socio-demographic and healthcare access disparities between rural and urban areas is warranted to elucidate this association.

It was observed that intraoperatively condition of previous caesarean section scar was better in elective caesarean section as compared to emergency caesarean section (p value < 0.01). This showed the importance of considering the history of cesarean scar in the decision-making process for subsequent pregnancies. It was also noted that NICU admissions were more common in emergency caesarean section than elective. ($p < 0.01$). This was reflecting the urgency and complexity associated with neonatal care in these cases.

Indication	Type C-Sections			
	Elective		Emergency	
	<i>f</i>	%age	<i>f</i>	%age
IUGR with Oligohydramnios	23	16	7	13
Fetal distress	9	6	6	11
Malpresentation	5	4	5	9
Previous C - Section	87	62	28	53
Bad Obstetrical History	2	1	0	0
Failed induction	5	4	2	4
APH	1	1	1	2
Cephalopelvic disproportion	1	1	3	6
Anomalous baby	1	1	0	0
Severe preeclampsia	3	2	0	0
Failure to progress of labour	2	1	1	2
Fibroid uterus	1	1	0	0
Total	140	100	53	100

Table II shows the indications of Caesarean section.





Previous caesarean section was the commonest indication seen in 115 (59.6%) patients (p value 0.043). Second common indication was IUGR with Oligohydramnios 30(15.5%) with p value 0.046. Followed by fetal distress 15(17.8%). Malpresentation was the cause of Caesarean section in 10(5.2%)

DISCUSSION:

During one year of study period caesarean section frequency of was 21.14%, higher in contrast to WHO recommended rates (10-15%)⁵, which is consistent with the study conducted in lady reading Hospital Peshawar in 2015¹. In contrast the rate of Caesarean section in the maternity teaching hospital in Erbil city Kurdistan Iraq is 35.77%. Which is much higher because it is the main maternity hospital in Erbil and most of the deliveries (NVD and CS) are referred to that hospital⁶.

According to the systemic reviews and meta-analysis of caesarean section rates and indications in Turkey, the total caesarean section rate is 43% and primary caesarean section rate is 26%. The rate was 21% in 2002 and in 2018 it increased to 54.9% pushing turkey up to the highest position in this class among the countries of OECD (Organization for economic cooperative & development)⁷

Again some studies have reported caesarean rates of 31% in Thailand, 41% in Ecuador, 31% in the US and 36% in china.^{8, 9, 10, 11}

The rising trend in Turkey due to the increase in malpractice suits the convenience offered to mothers and obstetrician at private hospitals the pressure

placed on the doctors by the performance system that has been adopted resulting in the reduction in midwife led births the medicalization of childbirth. Changes in women perception and fears of normal childbirth and the misconception that caesarean birth is safe for the baby. ^{12, 13}

Systemic reviews have showed that the increase in caesarean section rates beyond 10-15 % at the population level are no longer associated with reduced maternal or neonatal mortality rates as surgical risks outweigh benefits. ^{14, 15}

In our study the commonest indication is previous caesarean section that is 59.6% which is supported by another study the national review conducted between 2015 -2019 in Bhutan showed commonest indication for caesarean section is previous caesarean section (27.5%)¹⁶

203 studies were meta analyzed the results showed that planned repeat caesarean section had much increased maternal mortality compared with planned vaginal birth after caesarean section (VBAC) (1.34 versus 0.38/10,000) while VBAC was associated with significantly increased perinatal mortality compared with planned or emergency repeat caesarean section (1.3 versus 5/10,000)¹⁷

In order to decrease the repeat caesarean section rate in justifiable cases such as those with previous one caesarean section, need to encourage VBAC and the couple must have complete discussion on VBAC during their Antenatal visits before final decision of mode of delivery. Infrastructure and human resources and training for VBAC needs to be improved in order to achieve successful VBAC. In addition primigravidas should be the real focus of interest for spontaneous vaginal delivery as it will reduce caesarean section rate due to repeat caesarean sections. In order to achieve the target proper antenatal checkups, thorough counselling, antenatal exercise classes and constant support by the companion during labour are necessary.¹⁸

The second commonest indication for caesarean section is IUGR and oligohydramnios (15.5%) followed by fetal distress (7.8%). Poor Antenatal attendance and malnourishment especially iron deficiency anemia are the main reasons for IUGR. In addition multiple other factors like young age, primigravida status, low gestational weight gain, previous history of abortion, pregnancy induced hypertension (PIH) and gestational diabetes mellitus (GDM) have also been associated with IUGR.¹⁹

Awareness and importance for Antenatal visits should be ensured which would eventually help in succeeding the goal of reduced maternal morbidity and mortality.²⁰

CONCLUSION:

The conclusion of this study is that the frequency of Caesarean section is 21.1% which is contributed largely by the woman with previous Caesarean section followed by Intrauterine fetal Growth Restriction (IUGR) and Oligohydramnios.

Conflict of interest- None

Financial support: None

Potential competing interests: None

REFERENCES:

1. Naeem M, Khan MZ, Abbas SH, Khan A, Adil M, Khan MU. Rate and indications of elective and emergency caesarean section; a study in a tertiary care hospital of Peshawar. *Journal of Ayub Medical College Abbottabad*. 2015 Mar 1;27(1):151-54. 6
2. Ronsmans C, De Brouwere V, Dubourg D, Dieltiens G. Measuring the need for life-saving obstetric surgery in developing countries. *BJOG*. 2004 Oct;111(10):1027-30.
3. Maskey S, Bajracharya M, Bhandari S. Prevalence of Cesarean Section and Its Indications in A Tertiary Care Hospital. *Journal of the Nepal Medical Association*. 2019.Mar 1;57(216)
4. Chamberlain G, Turnbull SA. *Obstetrics* 1st ed. Edinburg (Scotland): Churchill Livingstone Publication; 1993. 857-65p
5. World Health organization. Appropriate technology for birth. *Lancet* 1985;2:436-7 World Health organization statement on caesarean section rates 2015 accessed 10 June 2020. Available: https://www.who.int/reproductive-health/publication/maternal_perinatal-health/CS-statement/en/
6. Ahmed HM Tawil NG, et al Rate and indications of caesarean sections in the maternity teaching hospital in Erbil city, Kurdistan region, Iraq. *zjms* 2018;22(2):148-154.
7. Turkey Ministry of Health Directorate General information systems health statistics year book :2018, Accessed 12 March .2020 Available: <https://dosasb.saglik.gov.tr/>
8. Clapp MA, Barth WH. The future of caesarean rates in the United States *clinical obstetrics and Gynecology* 2017,60(4):829-839.
9. Li HT, Luo S, Trasande L, Hellerstein S, Kand C, Li JX et al Geographic variations and trends in caesarean delivery rates in china. 2008-2014. *Jama* 2017;317(1):69-76.
10. Kankoon N, Lumbiganon P, Keitpeera Kool C, Sandkomkamhang U, et al. Caesarean rates and severe maternal and neonatal outcomes according to the Robdon 10 group classification system in Khan kean province Thailand. *Int J GynObs* 2018;140(2):191-197.
11. Jahanke JR, Houck KM, Bentley ME, Thompson AL. Rising rates of caesarean delivery in Ecuador socioeconomic and institutional determinants over two decades birth. 2019;46(2):335-343.
12. Karabel MP, Demirbas M, Irish MB. Changing rates of caesarean section in Turkey and in the world and probable causes sakamya. *Med J*. 2017;7(4):158-163.
13. Cakmark B, Arsalan S, Nacar MC. Women view on optimal caesarean section. *First medical Journal*. 204-19(3):122-125.
14. Betrain AP, Torloni MR, Zhang J, Ye J, et al. What is the optimal rate of caesarean section at population level? A systemic review of ecological studies. *Reprod Health* 2015:13-57
15. Ye J, Zhang J, Mikolajczyk R, Toronto MR, Glumezoglu AM, Betran AP, Association between rates of caesarean section and maternal mortality in the 21st century: a world wide population based ecological with longitudinal data. *BJOG* 2016;123:745-53.
16. Dorji T, Dorji P, Gyamtsho S, et al. Rates and indications of caesarean section deliveries in Bhutan 2015 -2019 a national review *BMC*

- pregnancy & childbirth 2021;21(1):21-698.
17. Taming T, Dema J, Pelden S, Chosen P. Usefulness of Robson classification system to analyze caesarean section deliveries: a hospital based study Bhutan Health J .2020;6:38-44.
 18. Haider G, Zehra N, Munir AA, Haider A. Frequency and indications of cesarean section in a tertiary care hospital. Pak J Med Sci 2009;25(5):791-796.
 19. Mohammad, N., Sohaila, A., Rabbani, U., Ahmed, S., Ahmed, S., Ali, S. R. (2018). Maternal predictors of intrauterine growth retardation. Journal of the College of Physicians and Surgeons Pakistan, 28(9), 681-685
 20. Turi E, Fekadu G, Taye B, Kejela G, Desalegn M, Mosisa G, Efta W, Tsegaye R, Simegnew D, Tilahun T. The impact of antenatal care on maternal near-miss events in Ethiopia: a systematic review and meta-analysis. International Journal of Africa Nursing Sciences. 2020 Jan 1;13:100246. <https://doi.org/10.1016/j.ijans.2020.100246>