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**RESEARCH ARTICLE**

# The relation between types of Cesarean birth and indications in Maternity Teaching Hospital at Sulaimani City/ Iraq

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**ABSTRACT**
**Background:** The rate of caesarean section in both rich and developing nations has increased dramatically in recent decades because there is no standard categorization technique for cesarean section kinds and reasons for doing CS, and they might be multiple or connected. Despite these obstacles, identifying the most prevalent indicators for the CS method of administration is critical for targeting preventative measures rates. **Aim of the study**: To find out the Relation between types of cesarean section and indications in Sulaimani maternity teaching hospital from 1 October - December 31 July 2020. **Study Design:** A descriptive-analytic, cross-sectional study. **Material and Methods:** Direct interviews with study participants were used to obtain data. After gaining agreement, the researcher administered questionnaires to 790 women who delivered elective and emergency C.S during the study period using convenience sampling. A questionnaire format was created for this purpose following a thorough examination of the literature and in accordance with the study's goals. SPSS version 22 was used to analyze the data. The P-value and Chi-Square test are used to determine whether there is a significant relationship between variables. P-values less than 0.05 are considered significant. **Results:** Among 790 mothers, the majority of cesarean sections (63.8%) were emergency types, while more than one-third of participants (36.2 %) had elective C.S, and the most common indications of cesarean section were having a previous cesarean section (22.1%), failure of progress (11.9%), and fetal distress (10%). There was a significant association between the CS type and most CS indications. There was no significant association between CS type and CS indications for other items such as poor presentation, pre-eclampsia, APH, Antipartum Hemmorrhage, fresh scars, and old primiparas. **Conclusion:** The study concluded that the majority of C.S. were emergency kinds, and the most prevalent indications of cesarean surgery were having a prior cesarean section, lack of progress, and fetal distress. There was a strong link between most types of cesarean sections and indications.

**Keywords:** Indication, Cesarean birth, Maternity Teaching Hospital, Sulaimani/ Iraq.



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## INTRODUCTION

Caesarean section (C-section) is a significant obstetric operation that was first used in the late 1800s to save the lives of mothers and their babies from potentially fatal pregnancy and delivery difficulties. (Begum T, Rahman A, Nababan H, Hoque DM.E, Khan AF, Ali T, 2017). Caesarean section, often known as C-section or caesarean birth, is a surgical technique in which one or more infants are born through an incision in the mother's belly, which is frequently used because vaginal delivery might endanger the baby or mother (Edson Luciano Rudey et al., 2020).

Caesarean section delivery has increased internationally, rising from 7% to 19% of all births between 1990 and 2014. Although caesarean section is a necessary intervention in some obstetric situations, its utilization presently much exceeds the suggested population threshold of 15%. Surprisingly, in several countries (for example, Brazil and Egypt), caesarean sections currently outnumber vaginal births. Comparable research in Iran revealed ranges ranging from 26 to 66.5 percent, with some private institutions reporting ranges as high as 87 percent. (Betrán AP, Ye J, Moller A-B, 2016).

According to the surveys, the rate of CS increased significantly between 2011 and 2018. The relative change for Iraq was 49.5 percent, with the Kurdistan Region at 58.5 percent and the rest of Iraq at 45.1 percent. The most recent study, which was done at the Sulaimani maternity teaching hospital from 2008 to 2018, compared the rate of CS to the rate of vaginal birth. According to the research, the rate of CS was 31.4 percent, while the rate of vaginal delivery was 68.6 percent (A. Al-Barzanji et al., 2020).

There are two types of indications for caesarean section: (1) absolute, in which there is no issue of choice, and (2) relative, in which there is a choice of methods of delivery, but caesarean section appears to provide the highest likelihood of safety for both mother and child (Temmerman, M., & Mohiddin, 2021).

Obstructed labour, twin pregnancy, high blood pressure in the mother, breech birth, and issues with the placenta or umbilical cord are all reasons for the procedure. The curvature of the mother's pelvis or the history of a previous C-section may necessitate a caesarean birth. It is feasible to try vaginal delivery after a C-section. (Asgarian et al., 2020). The World Health Organization advises against performing caesarean sections unless required. Some C-sections are performed without a medical cause, generally at the desire of the mother (Deng et al., 2021) (Elnakib et al., 2019).

The current study focuses on the caesarean section types and indications for performing CS, because there is no standard categorization technique for caesarean section kinds and reasons for doing CS, and they might be multiple or connected. Despite these obstacles, identifying the most prevalent indicators for the CS method of administration is critical for targeting preventative measures. Recognizing indications related to maternal or fetal fatalities, in particular, could assist reduce mortality via access to clinical indications data in both rural and urban areas.

## METHOD

**Design:** A descriptive-analytic study was done to determine the relationship between Caesarean section kinds and performance indicators at Sulaimani maternity teaching hospital from 1 October –to December 31 July 2020.

**Study sample:** Non-probability 790 women who gave birth by elective or emergency C.S throughout the research period were chosen using convenient sampling.

**Data collection:** Direct interviews with study participants were used to obtain data. The study's goal was explained to each woman who participated. After gaining agreement, the researcher distributed questionnaires to individuals using convenience sampling. A questionnaire format was created for this purpose following a thorough examination of the literature and the study's goals. The researcher conducted a direct interview with all cases; the questionnaire was completed the same day or the day following surgery and reviewed the case sheet for indications and types of C.S. and forms of C.S. (elective or emergency). Furthermore, the questionnaire includes the following:

1. Demographic data: age, residence, education, and occupation.

2. Types (elective or emergency) and indications of C.S.

A panel of experts assessed the content validity, and the reliability was measured using the correlation coefficient, which was r 88.4. (Statistically Adequate). **Data analysis:** SPSS version 22 was used to analyze the data. The P-value and Chi-Square test are used to determine whether there is a significant relationship

between variables. P-values less than 0.05 are considered significant.

## RESULTS

This study is being conducted on 790 women who had elective and emergency C.S throughout the study period. More than half of the cases in this research (58.7 percent) were from the city center, while 41.3 percent were from the suburbs and rural regions (i.e. referred from the outside Sulaimani city). The majority of C.S patients were between the ages of 25 and 34, which is the optimal age range, with a mean age (standard deviation) of 28.7 6.09. In terms of the wife's job status, the majority of women (78.5 percent) in C.S instances were housekeepers. The number of employed women and students was about (21.5 percent). According to the educational level of the participants, the study shows that the majority of the C.S ladies (40.5 percent) were elementary school graduates, followed by secondary school, and illiterate as presented in table(1).

According to a table (2), the highest proportion of C.S was emergency kinds, which totaled 63.8 percent of C.S types, while a quarter of participants (36.2 percent) did elective C.S.

This table depicts the distribution of C.S cases based on the indication of C.S. This table demonstrates that the most common indication of C.S was prior C.S (58.7 percent) and the least common indicator was the Old prime (1.3 percent), with the remaining parts of indication falling somewhere in the middle, as shown in the table(3).

The link between C.S. kinds and indicators is illustrated in this table. It demonstrates that the most common indication of C.S in the elective C.S group was prior C.S (72.7percent), whereas the most common indication in the emergency C.S group was a failure of progress (35.7%). There was a significant association between types of C.S and most of the indications of C.S such as Previous C.S (p = 0.001), Failure of progress (p = 0.001), High presenting part (p = 0.004), Fetal distress (p = 0.001), Postdate (p = 0.001), PROM (p = 0.001), Unfavorable cervix (p = 0.001) and others (p = 0.001). While there was no significant association between types of C.S and indications of C.S in other following elements such as: Malpresentation (p= 0.256), Preeclampsia (p= 0.553), APH (p=0.232), Failure of induction (p= 0.377), Fresh scar (p= 0.583) and Old primi (p= 0.679) as presented in table (4).

**Table-1: Distribution of C.S cases by certain demographic variables.**

| Place of residence | Frequency(790) | % |
|---|---|---|
| City center | 464 | 58.7 |
| Suburban and rural areas | 326 | 41.3 |
| **Age by years** | | |
| 15-24 | 200 | 25.3 |
| 25-34 | 428 | 54.2 |
| 35-44 | 162 | 20.5 |
| **Employment state** | | |
| Housewife | 634 | 78.5 |
| Employer | 156 | 21.5 |
| **Education level** | | |
| Illiterate | 156 | 19.7 |
| Primary | 320 | 40.5 |
| Secondary | 198 | 25.1 |
| Institute and University | 116 | 14.7 |

**Table-2: Distribution of C.S cases by types of C.S.**

| Types of C.S | Frequency(790 cases) | % |
|---|---|---|
| Emergency | 504 | 63.8 |
| Elective | 286 | 36.2 |

**Table-3: Distribution of C.S cases regarding indications of C.S.**

| Indications of C.S | Frequency(790) | % |
|---|---|---|
| Previous C.S ( included previous one or more previous scar ) | 175 | 22.1 |
| Failure of progress | 94 | 11.9 |
| Fetal distress (included fetal tachycardia, fetal bradycardia, and meconium-stained liquor.)¦ | 79 | 10 |
| High presenting part | 68 | 8.6 |
| Malpresentation | 61 | 7.7 |
| Post date | 55 | 7 |
| Premature rupture of membrane | 40 | 5.1 |
| Preeclampsia | 38 | 4.8 |
| Antepartum hemorrhage | 30 | 3.8 |
| Unfavorable cervix | 20 | 2.5 |
| Fresh scar | 19 | 2.4 |
| Infertility | 11 | 1.4 |
| Old prime | 10 | 1.3 |
| Others (included congenital anomaly, big baby, diabetes mellitus, oligomenorrhea, uterine fibroid, genital wart, and medical diseases like leukemia and renal problems.) | 90 | 11.4 |

| Indications of C.S | Elective C.S (286 cases) Frequency | % | Emergency C.S (504 cases) Frequency | % | P-value |
|---|---|---|---|---|---|
| Previous C.S | 208 | 72.7 | 168 | 33.4 | 0.001 |
| Failure of progress | 8 | 2.8 | 180 | 35.7 | 0.001 |
| High presenting part | 70 | 24.5 | 66 | 13.1 | 0.004 |
| Malpresentation | 52 | 18.2 | 70 | 13.9 | 0.256 |
| Fetal distress | 6 | 2.1 | 48 | 29.4 | 0.001 |
| Post date | 62 | 21.7 | 48 | 9.5 | 0.001 |
| PROM | 6 | 2.1 | 72 | 14.3 | 0.001 |
| Preeclampsia | 32 | 11.2 | 44 | 8.7 | 0.553 |
| APH | 10 | 3.5 | 32 | 6.3 | 0.232 |
| Failure of induction | 4 | 1.4 | 14 | 2.8 | 0.377 |
| Unfavorable cervix | 32 | 11.2 | 8 | 1.6 | 0.001 |
| Infertility | 14 | 4.9 | 8 | 1.6 | 0.055 |
| Fresh scar | 16 | 5.6 | 22 | 4.4 | 0.583 |
| Old primi | 6. | 2.1 | 14 | 2.8 | 0.679 |
| Others | 84 | 29.4 | 76 | 15.1 | 0.001 |

**Table-4: Relation between C.S types and indications.**

## DISCUSSION

Appropriate caesarean section rates and the methods used to determine them remain contentious. The incidence of caesarean section is growing in most nations, and is extraordinarily high in some, although in others, the surgery has remained relatively unusual, largely due to a lack of access to the process.

In our study, more than half (58.7 percent) of C.S cases came from the city center, which was most likely attributable to improved facilities and patient care provided to the urban population. While 41.3% of C.S cases were from suburban and rural regions (i.e. referred from outside Sulaimani city), this observation is consistent with the findings of research conducted by (Singh et al., 2020). In our study, the majority of the women (54.2 percent) were between the ages of 25 and 34. A similar finding was observed in Verma et al study's where the majority of the women were between the ages of 26 and 30. (51 percent). Whereas in Singh et al study's the bulk of the women were between the ages of 20–24 years (Verma, S., Saini, J., Sehra, R., & Nagaraj, 2016).

In terms of the wife's job status, the majority of women (78.5 percent) in C.S cases were housewife. This conclusion is consistent with the findings of the Rasool et al study. (Rasool, M. F., Akhtar, S., Hussain, I., Majeed, A., Imran, I., Saeed, H., ... & Alqhtani, 2021) .

In our survey, the majority of the C.S females (40.5 percent) were elementary school graduates, followed by secondary school, illiterate, and institute and university graduates (25.1 percent, 19.7 percent, and 14.7 respectively). However, because this study was conducted in a governmental hospital, the degree of education may differ between public and private patients, as educated people may have a higher socioeconomic status and choose to attend private hospitals. There was a substantial correlation between C.S and the educational and occupational standing of the mother, and pregnant women and/or their families requested the great majority of C.S. in a research done in Tehran. These findings agreed with the results of the study that was done by Hamdia and Namir in 2018 stated that the majority of the women were basic school graduates (51.0%) (Ahmed & AL-Tawil, 2018).

The electives to emergency C.S ratio was 1:1.8, which differed from that obtained in another study (Rawa, 2007), and this might be attributed to the low ANC level.

In this study, the most common indications of C.S were (in order of frequency) prior to C.S, lack of progress, and fetal distress. This is similar to the findings of the Sulaimani Maternity Teaching Hospital study (A. Al-Barzanji et al., 2020), which found that the most common reason is previous C.S, which accounts for approximately 35% of the cases, the second most common reason is a failure of progress (30%), but the third most common is a breech presentation (12%), followed by fetal distress (9 percent).

Additionally, another study conducted by Mustafa & Mahmood in 2019 at Sulaimani maternity teaching hospital reported that one of the major causes of CS was having a history of previous CS for more than two times (25.7 percent), followed by a breech presentation (13.9 percent), fetal distress (12.5 percent), failure of progress during labor (11.9 percent), failure of induction of labor (11.8 percent), and antepartum hemorrhage (6.8 percent).

In terms of the relationship between CS and manner of prior births, the majority of elective cases had a history of more than one CS, whereas the emergency group primarily consisted of primipara's women who failed to advance. The reason for this is that as the number of uterine scars increases, so does the chance of uterine rupture, and women are more likely to experience difficulties during vaginal delivery than women with no history of CS.

According to Ali et al., in their study, 11.9 percent malpresentation was the indication in emergency sections (Ali T, 2017). Adnan et al.

(2018) revealed that in their study, 11.9 percent of emergency sections had malpresentation. In the elective group, failed induction was the indication in 1.4 percent of cases, whereas it was 2.8 percent in the emergency group. This was lower than what we discovered in another study conducted by (Comparetto & Borruto, 2012).

## CONCLUSIONS

Cesarean section is a key obstetric technique that is used to track a mother's health status. The study concluded that the majority of C.S. were emergency kinds, and the most prevalent indications of cesarean surgery were having a prior cesarean section, lack of progress, and fetal distress. According to the WHO, rather than aiming for a set rate, every effort should be made to give caesarean procedures to women in need.

## ETHICAL CONSIDERATIONS

The scientific and ethics committees of the nursing and health sciences colleges at the University of Sulaimani authorized the study. Before collecting data, formal authorization was obtained from health and government authorities. Before collecting data, the study sample provided informed permission. The study received ethical approval from the Institutional Ethics Committee.

## FUNDING

There are no funding sources.

## RECOMMENDATION

Globally, there is great growth in population due to all possible reasons for cesarean section rate. This places a load on the overall health system as well as family members, and it may complicate maternal and child health. As a result, while deciding whether to conduct a cesarean section, extreme caution should be used. In addition, the government should improve healthcare infrastructure and educate policy on initiatives to eliminate unnecessary maternal and newborn death..

## DISCLOSURE STATEMENT:

There are no declared.

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