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# The Prevalence of Cesarean Section in Misan Province and Its Indicating Factors

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## ABSTRACT

**Background:** Cesarean sections increases the health risks for mother and infant as well as the costs of health care when they are compared with vaginal birth.

**Objectives:** Determine the prevalence of cesarean section (CS) in Misan province and its main indicating factors.

**Method:** Clinical records of all patients who underwent cesarean section were analyzed. Indications and the type of cesarean section (elective, emergency) were recorded.

**Results:** There were 5,109 deliveries during the study period, 1169 delivery was by cesarean section. The rate of CS was 22.88% (95%CI: 22.77 – 23.0%), 52% had elective CS, and 49% had emergency CS. Women with age between (19-45) years, and multigravida (2 – 4 children) carried the highest rate of CS. The main indications for CS were a failure to progress in labor (29%), recurrent CS (24%), fetal distress (16%), malpresentation (14%). No maternal mortality recorded, but there was (5%) maternal morbidity in the form of postpartum hemorrhage.

**Conclusion:** The rate of CS in Misan province was higher than required by the WHO recommendation guidelines, but it is lower than that reported in the latest survey in Iraq (MICS6). The most common indications for cesarean section were a failure to progress in labor and previous cesarean section. The most common age for CS was between (19-45). Also, the history of multigravida represents half of the cases performing CS. A similar rate of elective and emergency CS. Low complication rate and low neonatal death.

**Keywords:** cesarean section, multigravida, postpartum hemorrhage, recurrent cesarean, low neonatal death

## INTRODUCTION

Cesarean section (CS) defined as the birth of a fetus through incisions in the abdominal wall (laparotomy) and uterine wall (hysterectomy) <sup>1</sup>. CS increase the health risks for mothers and infants as well as the costs of health care when they are compared with vaginal birth <sup>2</sup>.

CS performed for a vast array of indications including, labor dystocia, malpresentation such as breech or brow, cephalo-pelvic disproportion, fetal distress, or previous cesareans <sup>3</sup>. CS is a relatively common procedure in modern obstetric practice <sup>4</sup>, CS rates have increased over the past 40 years from approximately 5% to more than 30% in many industrialized countries <sup>5</sup>. CS rate is approximately 21.1% for the most developed regions of the globe, 14.3% for the less developed regions, and 2% for the least developed regions <sup>6</sup>. Recommendations of the world health organization (WHO) about optimal CS rates, addressing that the best outcomes of mothers and babies appear to occur with CS rates of 5% to 10%,

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while rates above 15% seem to do more harm than good<sup>7</sup>. However, CS rates vary worldwide, ranging from approximately 10% in Sweden to about 80% in private-sector hospitals in Brazil<sup>8</sup>. This epidemic is a reason for immediate concern and deserves serious international attention, the procedure is not benign and needs to be performed only when circumstances distinctly require it<sup>9</sup>. In Iraq, the overall rate of cesarean section increased remarkably from 18.0% in 2008 to 24.4% in 2012; the rate increased in all of the governorates during this period except Maysan. The increase was highest for Erbil, Basrah, Al-Sulaimaniya and Kirkuk with a relative change of 116.6, 90.8, 58.0 and 52.0%, respectively<sup>10</sup>. CS is associated with immediate and delay morbidity and mortality risk compared with vaginal deliveries. The complications divided into short-term which includes infection, hemorrhage, urinary tract or bowel problems, venous thrombosis and embolism<sup>11, 12</sup>, and long-term risks, which includes abnormal placentation, scar complications, uterine rupture, and adhesions<sup>13-16</sup>.

The study aims to determine the prevalence of cesarean section in Misan province and its indications, to establish a database of CS, and improves the quality of hospital care and ensures good health of mother and child to improve quality of life.

## PATIENTS AND METHOD

A descriptive study conducted in the two main hospitals in Misan province (Al-Sader teaching hospital, maternity and child hospital), during the period from 1<sup>st</sup> Aug 2017 to 30<sup>th</sup> Feb 2018. During the study period, 1,169 CS was done, of those 200 patients were selected.

The patients admitted as an emergency to the labor room or from the out-patient department as the elective case. The special questioner was prepared to collect the study information. This questioner consisted of demographic characteristics of women which includes (maternal age and gravidity), and questions regarding the CS which includes (time, the main indication, any intra-operative and postoperative complication, and perinatal outcome). According to their age, women were grouped into three categories: below 19 years, between 19-45 years, above 45 years. According to the gravidity, they were grouped into three categories: primigravida, multigravida (2-4), grand- multigravida (more than 5). According to the time of CS, they were grouped into two categories: emergency CS and elective CS. While the CS indications grouped into five main indications: failure

to progress, fetal distress, malpresentation, recurrent CS, and others, patients with any medical disease were excluded from the study.

Chi-square test used to perform the inference between the indications of CS and its type, the 95%CI of the prevalence was calculated using the formula:

$$95\% \text{ CI} = p \pm \frac{Z}{(\alpha/2)} \sqrt{\frac{p \cdot q}{n}}$$

In which  $p$  = prevalence of the disease,  $q = 1 - p$ ,  $z$  is normal score distribution,  $\alpha = 95\%$ ,  $n$  = total sample size. GraphPad Prism version 8.0.0 for Windows, GraphPad Software, San Diego, California USA, software package used to make the statistical analysis,  $p$ -value considered when appropriate to be significant if less than 0.05<sup>17</sup>.

## RESULTS

From all the (5,109) pregnant ladies presented to the hospitals for delivery during the period from 1<sup>st</sup> Aug 2017 to 30<sup>th</sup> Feb 2018, there were (1,169) deliveries ended by CS, representing a percent of (22.88%, 95%CI: 22.77–23.0%), with a rate of (7.8) caesarean section per day.

The most common age group was 19–45 years, half of the cases, regarding gravidity half of the cases had multigravida. Table 1 illustrate the indication (failure to progress was the most common) and type of CS (both emergency and elective show a similar ratio),

The only reported complication was Postpartum hemorrhage (PPH) with 10 cases (5%), they divided into primary (8 cases) and secondary (2 cases). Additionally, seven cases given a blood transfusion of those 2 cases used  $\geq$  four units of blood and 5 cases given  $<$ 4 units of blood.

**Table 1: Assessment of the demographic, maternal clinical characteristics and neonatal outcomes**

	Number	Percentage
<b>Age (years)</b>		
< 19	11	6%
19-45	188	94%
>45	1	0.5%
<b>Gravidity</b>		
Primigravida	35	18%
Multigravida	100	50%
Grand-multigravida	65	33%

Conted...

Indications of CS		
Failure to progress in labor	58	29%
Fetal distress	32	16%
Malpresentations	27	14%
Recurrent CS	48	24%
Others	35	18%
Type of CS		
Emergency	97	49%
Elective	103	52%
Perinatal outcome		
Preterm	1	1%
Full Term	189	95%

Conted...

Post-term	10	5%
Neonatal outcome		
Dead	2	1%
Alive	199	99%
Complications		
Postpartum hemorrhage	10	5%
Blood transfusion	7	3.5%

Figure 1 illustrates that according to the type of CS procedure the indication of CS is significantly different, in which in the emergency CS failure to progress in labor was the most common, while in the elective procedure recurrent CS was the most common.

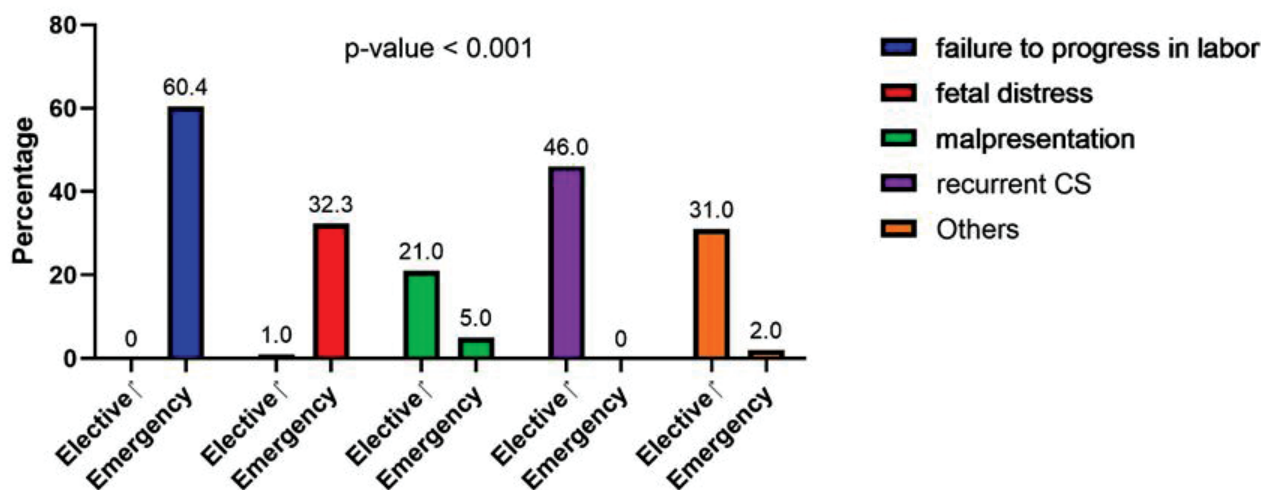


Figure 1: Indications for elective CS and emergency CS

## DISCUSSION

The problem of increasing family size still exists in many developing countries. Although CS can be a valuable intervention to mothers and infants, every effort should be made to decrease the CS rate because unnecessary CS are costly and potentially life-threatening<sup>18</sup>. The rate of CS in the current study was 23% in comparison with 17% in 2006<sup>19</sup>, 18.0% in 2008<sup>10</sup>, 24.4% in 2012<sup>10</sup>, and continue to increase to a rate of (33%) according to the Iraq Multiple Indicator Cluster Survey 2018 (Iraq MICS6)<sup>20</sup>, indicating an increase in the rate of CS.

It has been shown in a population and hospital-based studies of CS rates in 18 Arab countries, that Yemen, Mauritania, Sudan, and Algeria have CS rates

below 5%<sup>21</sup>. Almost 26% of Iraqi women giving birth at public hospitals do so via CS according to the 2010 health report for the Iraqi Health Ministry; and in 2012, the rate was further increased to 29.25%<sup>22</sup>.

In the USA and Canada, the national rates were almost 25% and 20%, respectively<sup>23, 24</sup>. In the United Kingdom, the rate reported as 13%<sup>25</sup>. WHO recommended guidelines stating that CS rates should range between 5 and 15 percent, adding that rates lower than five percent reflect women’s lack of access to life-saving care and levels more than 15 percent carry no additional benefits to mother or newborn<sup>26</sup>.

The study showed that two main indications for CS were failure to progress (29%) and recurrent CS (24%) this is similar to a study conducted in Saudi

Arabia<sup>27</sup>, and also similar to a study conducted in Iraq (2011), in which the main medical indication of CS was previous CS (25.9%)<sup>28</sup>. According to the international data, repeat cesareans and labor dystocia are the major indications for CS<sup>29</sup>. Malpresentation constituted about 14% of the causes in this study compared to 24.3% in another Iraqi study<sup>30</sup>. In the current study, 74% of the malpresentation was due to breech and 25% due to transverse lie. Successful external cephalic version during the antenatal period will prevent a lot of these operations. Fetal distress constituted about 16% of the causes in this study compared to 12.1% in another Iraqi study<sup>30</sup>.

Regarding the type of cesarean section, the current study showed similar rate between elective (52%) and emergency (48%) CS, which is a contrast to another study done in Hajjah, Yemen (2013) which revealed (79.3%) of cesarean sections were emergency<sup>31</sup>.

Regarding gravidity, multigravida women were half of the women, which is in agreement with an Indian study<sup>32</sup>. In the current study primigravida, women were (18%) in contrast to another study conducted in Egypt (2005) in which the rate was (36%)<sup>33</sup>. Grand-multiparity and pregnancy over the age of 35 years are common in the Iraqi society as shown in a study conducted at Al-Batool Maternity Teaching Hospital<sup>30</sup>.

The current study reported that 99% of babies delivered alive, which similar to another study conducted in Jordan (90.4%)<sup>34</sup>. Preterm babies were only (1%) of the total number in the current study which is different from an Indian study with 20% preterm infants<sup>32</sup>.

## CONCLUSIONS

The rate of CS in Misan province was higher than required by the WHO recommendation guidelines, but it is lower than that reported in the latest survey in Iraq (MICS6). The most common indications for cesarean section were a failure to progress in labor and previous cesarean section. The most common age for CS was between (19-45); also the history of multigravida represent half of the cases performing CS. A similar rate of elective and emergency CS. Low complication rate and low neonatal death.

**Conflict of Interest:** None

**Ethical Clearance:** Informed written consent obtained from all the participants in the study, and the study and all its procedure were done in accordance with the Helsinki Declaration of 1975, as revised in 2000. The study was approved by Gynecology & Obstetric department of Al-Sader teaching hospital, maternity and child hospital.

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