Short Communication

Incidence and Epidemiological Burden of Cesarean Section in Babylon Governorate, Iraq

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Abstract

Nowadays, cesarean sections (CSs) are the most common operation performed all over the world, including Iraq. Many of these do not follow the approved indications, but maternal desire and the profit trend of private hospitals may play an important role. The objective of our study was to estimate the rate of CSs in the Babylon Governorate and to gain an understanding of the difference in the financial burden between vaginal delivery and CSs, as these two issues are very important on the road to achieving the 2030 millennium developmental goals especially the first and third goals. A cross-sectional study aims to inquire about the prevalence of CS deliveries among a sample of women consulting the primary healthcare centers after delivery for vaccination of their children. The prevalence of cesarean delivery among the study participants exceeds 50% with no significant difference among different age groups, education levels, and family income. These operations impose a significant financial and health burden in comparison with normal vaginal delivery. These operations are mostly done in private hospitals, which may reflect the profitable aspect of their indication. The incidence of CS highly exceeds the acceptable level set by the World Health Organization. Such a high rate imposes a high health and financial burden on community health, which includes maternal and neonatal lives, and health.

Keywords: Burden, cesarean section, Iraq, maternal deaths

Introduction

Nearly over half a million young women die because of complications arising from pregnancy and childbirth every year, and according to statistics, most of these deaths occur in the developing world.[1] Cesarean births are common operations but are associated with high rates of mortality and morbidity, both to mothers and neonates, especially in low-income countries.[1,2] In 1985, the World Health Organization (WHO) recommended that the optimal CS rates should not be higher than 10%–15%, and this recommendation has become a reference up to this day. However, the levels of 15% were considered high but acceptable at the time.[3]

CS should be considered only in complicated situations as prolonged or obstructed labor, fetal distress, and abnormal fetal presentations,[4] but a new concept is increasingly arising, which is cesarean delivery on maternal request (CDMR) or demand. It refers to primary cesarean birth done upon mother request in the absence of standard medical or obstetrical indications but to avoid vaginal birth and its hard experience.[5]

It is now recognized that performing a cesarean section (CS) with no medical indication offers no health advantages for the mother and infant, and has increased health risks, from both physical and emotional perspectives, compared with vaginal birth.[6]

The rate of cesarean delivery has risen recently all over the world. It is estimated to reach 32% in the United States, 40% in Latin America, and 25% in Europe, and in some regions it may reach 58%–60%[4,5]

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A recent study in Iraq, depending on annual reports from the Ministry of Health, documented the rising trend in the rate of CSs in the last decades to reach up to 35% with a percent change of about 50% between 2011 and 2018.[7] The reasons for the increasing CS rates are complicated, such as clinical indications, socioeconomic factors, previous CS, pregnant request with no medication, obstetric attitudes, and the healthcare system.[8] Irrespective of the indication of CS, such inappropriate use is not only costly in terms of health resources but may also endanger women's lives.[1]

The objective of our study was to estimate the rate of CSs in the Babylon Governorate and to gain an understanding of the difference in the financial burden between vaginal delivery and CSs, as these two issues are very important on the road to achieving the 2030 millennium developmental goals especially the first and third goals.

Materials and Methods

Design and setting

A cross-sectional study involved five primary healthcare centers, three in the Al Hilla center and two in the peripheries. The study extended from October 1, 2022, to March 30, 2023. Research subjects were women who visited the health center for the vaccination of their babies. One hundred seventy mothers had been viewed, and information gathered about the history of the last delivery. Direct interviews were conducted, and the researchers themselves documented information. Each meeting took about 20–30 min.

A preformed questionnaire had been formed by the researcher and reviewed by a number of community and gynecological experts. It includes questions about the sociodemographic characteristics of the mother, such as age, address, occupation, educational achievement, and family income. The second group of questions inspired the monetary and health burden differences between the vaginal delivery, and CS by documentation of the total cost of the delivery process, the cost of the medication and whether it was necessary to repeat the prescription. The number of days required for hospital admission and the subsequent bedridden days assessed the health burden. Lastly, the research assessed the significance of the association between some family characteristics and the decision of the type of delivery, which included the occupation and opinion of the father and the order of the newborn.

Statistical analysis

Statistical Package for the Social Sciences version 17 (IBM Corp., Armonk, NY, USA) was used for data entry and analysis. Chi-square and Fisher's exact tests were used to assess the association between different factors. The level of significance was set at 0.05.

Ethical approval

Official approval was obtained from the managers of the Primary Health Care Centers before starting the study. Informed consent was obtained from the subjects after clarifying the objectives of the study. Names were kept anonymous, and interviews were conducted with full privacy.

Results

One hundred seventy mothers were surveyed, with a response rate of 92%. The prevalence of CS among the study sample is 51%. Ninety percent of the sample is within 20–40 years of age, and over 60% are highly or moderately educated, from urban areas, and most were housewives. In addition, more than 90% had an employed husband with a good family income. Other than the father's opinion, all the sociodemographic characteristics had no significant association with the decision regarding the type of delivery, as shown in Table 1.

CS frequency tends to be higher at the first few deliveries in a mother's life, as shown in Figure 1.

The study showed a significant difference in the health and financial burden between the two types of delivery. CS had a significantly higher monetary request regarding both the cost of delivery and the repetition of treatment.

In addition, it had a significantly higher healthy life ($P < 0.0001$) restriction, with more bedridden days both at the hospital and at home ($P < 0.0001$), as shown in Table 2.

The mean cost of vaginal delivery is 147,000 ID in front of 465,000 ID for CS with a ratio of 1:3 which is similar to that of treatment cost, as shown in Figure 2.

Discussion

CS seems to be the most prevalent operation in Iraq, as in many other countries.[9] The prevalence of this type of delivery in this study reaches more than 50% among the involved ladies, irrespective of their age, residence, or socioeconomic status, revealing what seems to be an accepted action in the community. Similar results were recorded in Erbil/Kurdistan, reaching 35.7%[10] and Al-Basrah,[11] reaching up to 38.9% in 2019, whereas in Baghdad it reaches about 47%.[12]

If we consider the conditions that lead to the selection of CS, the study identified that its selection tends to decline with higher parity, mostly after the third child which may be due to lower risky alarms in compared with primigravida and at the same time less fear of vaginal delivery if we consider the CDMR as an important selection factor. This finding is different from those of two Saudi studies; Alshammari[13] found no association,

Table 1: The association between mother characteristics and the choice of CS

		No. of respondents	Frequency of CS	*P* value
Type of delivery		170	87 (51.2%)	–
Age group (years)	Under 20	7	3 (42.9%)	0.797
	20–29	106	54 (50.9%)	
	30–39	47	26 (55.3%)	
	40 or more	10	4 (40%)	
Education level	Illiterate or primary education	74	32(43.2%)	0.069*
	Secondary or tertiary education	96	55(57.3%)	
Address	Rural	61	30 (49.2%)	0.57
	Urban	109	57 (52.3%)	
Family income	Not enough	30	11 (36.7%)	0.138
	Good	125	66 (52.8%)	
	Very good	15	10 (66.7%)	
Maternal employment	House wife	132	66 (50%)	0.586
	Employer	38	21(55.3%)	
Occupation of the father	Not employed	4	1 (25.0%)	0.603
	Employer	75	38 (50.7%)	
	Free worker	91	48 (52.7%)	
Opinion of the father	With	69	41(37.3%)	0.0001*
	Against	18	42 (70.0%)	

CS: cesarean section

*significant at ($P < 0.0005$)

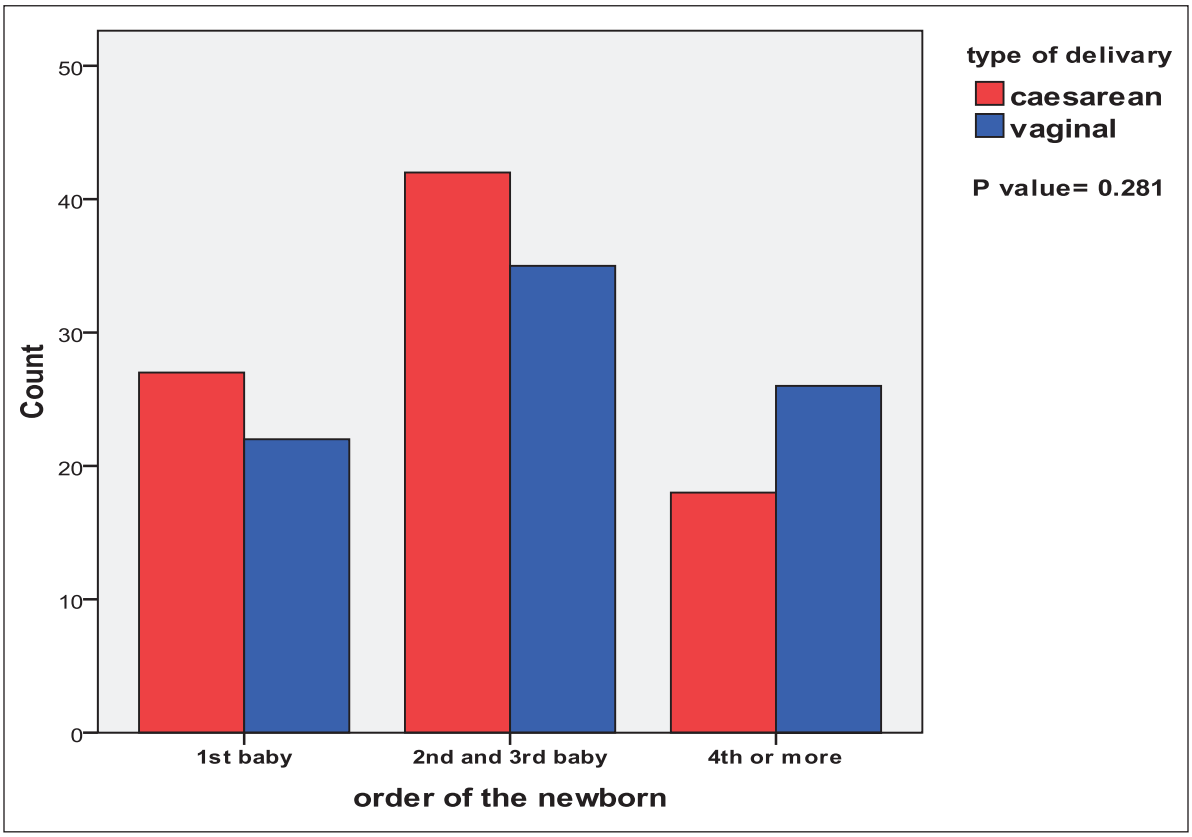

Figure 1: The choice of CS with the order of the child. CS: cesarean section

whereas Al Rowaily[14] found a significant association between elective CS and higher mean gravidity and parity.

The burden of CS is very obvious in the study, presented by higher operation and post operation financial cost and the postoperative hospital stay or bed ridden if compared

Table 2: Burden difference between vaginal delivery and cesarean section

		Vaginal delivery	Cesarean section	*P* value
Cost of delivery (×10³)	0–499	78 (94.0%)	47 (54.0%)	0.0001*
	500–1000	4 (4.8%)	31 (35.6%)	
	>1000	1 (1.2%)	9 (10.3%)	
	Total	83 (100%)	87 (100%)	
Cost after delivery (×10³)	0–49	76 (91.6%)	47 (55.2%)	0.0001*
	50–100	4 (4.8%)	22 (26.4%)	
	>100	3 (3.6%)	16 (18.4%)	
	Total	83 (100%)	87 (100%)	
Type of the hospital	General	66 (90.4%)	59 (69.4%)	0.001*
	Private	7 (9.6%)	26 (30.6%)	
	Total	83 (100%)	87 (100%)	
Length of admission	No admission	59 (93.7)	4 (5.3%)	0.0001*
	1–3 days	24 (24.5%)	74 (75.5)	
	>3 days	0	9 (100%)	
Bedridden time	0–2 days	31 (37.3%)	16 (18.4%)	0.0001*
	3–9 days	31 (37.3%)	16 (18.4%)	
	>10 days	21 (25.3%)	55 (63.2%)	
	Total	83 (100%)	87 (100%)	
Repetition of treatment	No	47 (43.4%)	34 (39.1%)	0.022*
	Yes	36 (56.6%)	53 (60.9%)	
	Total	83 (100%)	87 (100%)	

*significant at ($P < 0.0005$)

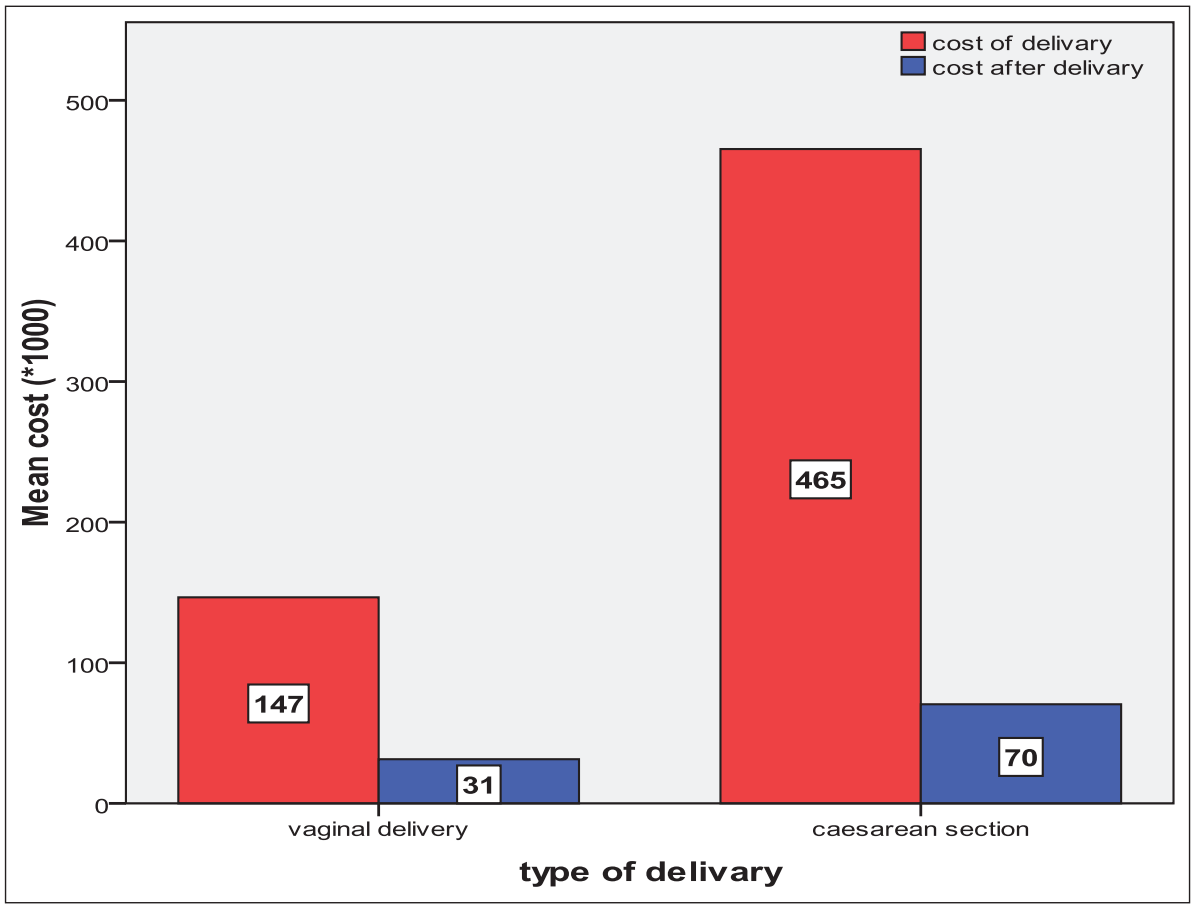

Figure 2: The financial burden of delivery according to its type

with that of National Vulnerability Database, especially if we notice that most of these operations were done in private hospitals which may reflect the profitable side of such operations[8,15] at a time when the government hospitals were suffering from operations of high burden of accident operations in this country.[16-18] If we consider the maternal and neonatal complications of CSs which rise with higher frequencies of operations so it will become a source of problem rather than its role as a solution in cases of obstetrical or medical complications in pregnancy and need a careful oversight by the government on its run to avoid misuse.

Conclusion

The incidence of CSs highly exceeds the acceptable level set by the WHO. Such a high rate imposes a high health and financial burden on community health, which includes maternal and neonatal lives and health. As a recommendation, strict supervision and review are required by the government to investigate the indications of these operations, especially those done in private hospitals.

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Conflicts of interest

There are no conflicts of interest.

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