

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20211895>

Original Research Article

Pattern of primary caesarean deliveries in a Nigerian tertiary hospital

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Received: 21 March 2021

Accepted: 29 April 2021

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ABSTRACT

Background: Primary caesarean section (CS) has become a major driver of the steadily rising total caesarean rate. This study determined the primary CS rate, pattern and associated factors.

Methods: It was a retrospective, hospital-based cross-sectional study of 645 pregnant women who had primary caesarean section over a 3-year period in Lagos state university teaching hospital, Lagos, Nigeria. Data obtained were expressed in frequency and percentages.

Results: Primary CS accounted for more than 50% of all the CS done during the study period with a primary CS rate of 16.7% and total CS rate was 30.6%. Primary CS was commonest among women of age group 30-39years (50.1%) and women with no prior parous experience (58.6%). The commonest indication for primary CS was poor progress in labour due to cephalopelvic disproportion, which occurred in 170 women (26.4%), followed by suspected foetal distress in 94 women (14.6%) and hypertensive disease in pregnancy in 91 women (14.1%). Post-operative wound infection and/or dehiscence was the most prevalent post-operative complication occurring in 12.1% of women who had primary CS.

Conclusions: Primary CS rate is increasing and relatively more common among primiparous women. Cephalopelvic disproportion, suspected foetal distress and hypertensive disorders of pregnancy are the leading indications for primary CS.

Keywords: Primary caesarean section, Caesarean section, Caesarean delivery

INTRODUCTION

Caesarean section (CS) is a life-saving obstetric surgery, which may be necessitated in high-risk pregnancies.¹ It is recommended in situations in which vaginal birth presents a greater likelihood of adverse maternal or perinatal outcomes than normal.² However, caesarean section is associated with a higher risk of complications, especially when performed without a clear medical indication.² One of the most dramatic features of modern obstetrics is the relentless increase in caesarean section rate which is a major public health concern globally.³ The

global rate of CS delivery is rising steadily and has reached a rate of 21.1% of all births in 2015 with an average annual increasing rate of 3.7% during 2000-2015.⁴

The world health organization (WHO) recommends an upper limit CS rate of 15% of all deliveries.⁵ The rising rate of CS indicates that this life saving intervention is being practiced higher than the expected level on the basis of obstetric indications in many countries.⁴ CS can also be costly and places poor families under extreme financial pressure in low- and middle-income countries

(LMIC) and thus bring negative, economic and health related repercussion.^{3,5}

Primary CS is CS done for the first time in a pregnant woman and it has become a major driver of the total caesarean rate.^{7,8} Understanding the population trends in primary caesarean section rates and potential drivers of these trends will provide important insights to target areas for reducing overall caesarean section rate.^{8,9} This study aimed to determine the primary CS rate, pattern and associated factors in Lagos State University Teaching Hospital, Lagos, Nigeria.

METHODS

This was a retrospective, cross-sectional study in which data from medical records of 645 women who had primary CS between 1st of January 2015 and 31st of December 2017 were retrieved. Records of pregnant women who had abdominal surgical delivery of their babies at gestational age of less than 28 weeks were not included.

Data were obtained by the researchers from the antenatal, labour ward and theatre registers of the Lagos State University teaching hospital using a structured proforma designed for the study. The proforma included information on socio-demography, booking status, past obstetric history, antenatal history, record of events of labour, type of caesarean delivery (emergency or elective), gestational age at delivery and post-delivery foeto-maternal outcomes.

Data analysis was done using SPSS version 23 (IBM). Categorical variables were presented in frequency and percentages. Confidentiality of retrieved data was ensured and ethical approval was not deemed mandatory

by the institutional ethical review board because the study was essentially a retrospective review of existing medical records.

RESULTS

Six hundred and forty-five (80%) of women with complete data who had primary CS during the study period had their data analysed (Figure 1). Primary CS accounted for more than 50% of all the CS done per year during the study period and a primary CS rate of 16.7% over the study period (Table 1). Total CS rate was 30.6% (Table 1).

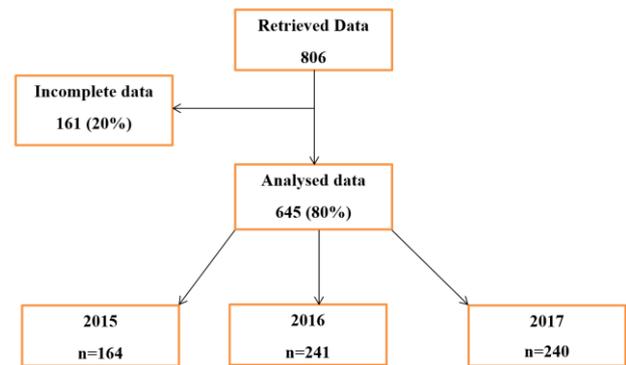


Figure 1: Flow chart of study data.

Table 1: Distribution of primary caesarean section by year and type.

Year	Total no. of deliveries	Total CS n, (CS rate, %)	Primary CS n, (% of total CS)	Primary CS (% of primary CS)		Primary CS rate, (%)
				Elective	Emergency	
2015	1013	302 (29.8)	164 (54.3)	42 (25.6)	122 (74.4)	16.2
2016	1327	421 (31.7)	241 (57.3)	66 (27.4)	175 (72.6)	18.2
2017	1524	461 (30.2)	240 (52.1)	62 (25.8)	178 (74.2)	15.7
Total	3864	1184 (30.6)	645 (16.7)	170 (26.4)	475 (73.6)	16.7

CS-Caesarean section, Total CS=Primary CS and repeat CS.

Primary CS was commonest among women of age group 30-39years (50.1%) and women with no prior parous experience (58.6%) (Table 2). The commonest indication for primary CS was poor progress in labour, which occurred in 170 women (26.4%), followed by suspected foetal distress in 94 women (14.6%) and hypertensive disease in pregnancy in 91 women (14.1%) (Table 3).

Of the leading indications for primary CS, majority of the women (89.4%) who had poor progress of labour developed it in the first stage of labour. In women who had primary CS on account of the suspected foetal distress, intermittent auscultation of foetal heart rate (51.7%) was more commonly used than continuous

electronic foetal heart rate monitoring (48.3%) to make a diagnosis of suspected foetal distress (Table 4). Severe pre-eclampsia/eclampsia accounted for 80.2% of indications for primary CS due to hypertensive disorders of pregnancy as shown in the Table 4.

Only 2.6% of women (17) who had primary CS remained on admission till post-operative day 10, perinatal mortality was 1.9% and maternal mortality was 0.6% (Table 5). Commonest complication observed in women who had primary CS was wound infection/dehiscence which occurred in 12.1% of the study population (Table 6).

Table 2: Socio-demographic characteristics of women who had primary caesarean section (n=645).

Variables	N	%
Age group, (years)		
<20	10	1.6
20-29	267	41.3
30-39	323	50.1
≥40	45	7.0
Parity		
0	378	58.6
1	115	17.8
2-5	145	22.5
>5	7	1.1
Ethnic group		
Yoruba	292	45.3
Igbo	284	44.0
Hausa	18	2.8
Others	51	7.9
Religion		
Christianity	410	63.6
Islam	201	31.3
Traditional	34	5.3
Marital status		
Married	639	99.1
Single	6	0.9
Occupation		
Housewives	130	20.2
Civil servants	80	12.4
Professionals	116	18.0
Traders	264	41.0
Applicants	10	1.54
Students	32	5.0
Others	11	1.7
Booking status		
Booked	574	89.0
Un-booked	71	11.0

Table 3: Indications for primary caesarean section (n=645).

Indications	N	%
Poor progress in labour	170	26.4
Cephalopelvic disproportion	150	23.3
Obstructed labour	20	3.1
Failed induction	32	5.0
Foetal distress	94	14.6
Abnormal presentation	63	9.8
Hypertensive disease in pregnancy	91	14.1
Foetal anomalies	6	0.9
Multiple gestation	19	2.9
Previous uterine scar	3	0.5
PMTCT	14	2.2
Suspected foetal macrosomia	38	5.9
Obstetrics factor	57	8.8
Elective	42	6.5
Others	16	2.5

PMTCT-Prevention of mother to child transmission of HIV

Table 4: Common indications of primary CS in the study.

Variables	Frequency	%
Poor progress of labour, (n=170)		
First stage	152	89.4
Second stage	18	10.6
Suspected foetal distress by, (n=94)		
Intermittent auscultation	55	51.7
Continuous EFM	39	48.3
Hypertensive disorders, (n=91)		
Severe pre-eclampsia/eclampsia	73	80.2
Severe PIH	18	19.8

EFM- External foetal heart rate monitor, PIH-Pregnancy induced hypertension

Table 5: Maternal and foetal outcomes of women who had primary CS.

Variables	Frequency	%
Perinatal mortality		
Yes	12	1.9
No	633	98.1
Post-operative complications		
Yes	162	25.2
No	482	74.8
Maternal mortality		
Yes	4	0.6
No	641	99.4
Duration of hospital stay (days)		
≤5	291	45.1
6-10	337	52.3
>10	17	2.6

Table 6: Complications in women who had primary CS.

Complications	Frequency	%
Subtotal hysterectomy	2	0.2
Postpartum hemorrhage	8	1.3
Wound sepsis/dehiscence	78	12.1
UTI	36	5.6
Cardiac arrest (resuscitated)	2	0.2
Need for blood transfusions	33	4.1
Maternal death	4	0.6
Total	163	25.3

DISCUSSION

Primary caesarean section usually determines the future obstetric course of any woman and therefore should be avoided whenever medically possible. The overall caesarean section rate in this study was 30.6% and a

primary CS rate of 16.7%. The CS rate found in this study is much higher than 15%, recommended by WHO.¹⁰ The rate found in this study compares to rates reported in some developed countries such as USA (32.8%), Rome (44%) and Australia (31%).⁸ Local studies in Nigeria have cited caesarean section rate to vary from 10.3% to 34.5%, 18% reported in Jos, Nigeria 11.8% reported in Maiduguri, Nigeria, 21% in Abuja, Nigeria and 19.8% reported in Calabar, Nigeria.^{8,9,11,12} However, most of these figures are institutional based and may not reflect the true picture in the general population because these centers are referral centers.

As regards parity, we found that 58.5% of women who had primary CS had no prior parous experience. This is in keeping with findings in other studies that noted CS to be more likely performed in primiparous.^{9,13,14} We found that poor progress in labour due to cephalopelvic disproportion was the commonest indication for primary CS followed by suspected foetal distress and hypertensive disorders of pregnancy. Daniel et al similarly noted a high rate of poor progress in labour from cephalopelvic disproportion which was particularly prevalent in primiparous women.⁹ Batiha et al in Jordan noted that foetal distress was the commonest indication for emergency CS in their study.¹³ Isah et al in Abuja also noted similar pattern of leading indications for CS, they reported that cephalopelvic disproportion was the most common indication (30.8%) followed by foetal distress (23.6%) and severe pre-eclampsia/eclampsia (10.9%).¹² Ugwu et al in Enugu reported cephalopelvic disproportion and suspected foetal distress as the 2nd and 3rd commonest indications for CS respectively in their study.¹⁵ This similar pattern of leading indications of CS in Nigeria would therefore suggest that, for significant impact, efforts at reducing caesarean section rates should seek to address the prevention and proper diagnosis and management of poor progress in labour, suspected foetal distress and hypertensive disorders in pregnancy.

We observed that the proportion of women (51.7%) who had primary CS on account of suspected foetal distress with the diagnosis made via intermittent auscultation was slightly higher than the proportion of women (48.3%) who had similar diagnosis made via continuous external foetal heart rate monitoring using the cardiotocograph machine (Table 4). It thus appears that the diagnosis of suspected foetal distress was more often made by intermittent auscultation. This may imply that, in the absence of resources to perform the definitive foetal scalp sampling for confirmation of foetal distress, prompt sequential reassessment of cases of suspected foetal distress, diagnosed by intermittent auscultation, with a continuous external foetal heart rate monitor may further clarify the diagnosis of foetal distress.

The surgical complication rate in this study was 25.2% (Table 5). We observed a perinatal loss rate of 1.9% and maternal mortality rate of 0.6%. Post-operative wound infection and/or dehiscence was the most prevalent post-

operative complication occurring in 12.1% of women who had primary CS. This may be explained by the fact that a large proportion (73.6) of the women studied had emergency CS (Table 1). Panti et al in Sokoto, Chama et al in Maiduguri and Okonta et al in benin reported post CS complication rate of 20.4%, 39.3% and 44.4% respectively with hemorrhage and sepsis being the leading complications post CS.¹⁶⁻¹⁸ Our differing post-operative complication pattern may be explained by the limitation of our study to women who had primary CS.

Limitations

This study could not determine or quantify risk factors for primary CS due to its observational, retrospective and non-comparative nature.

CONCLUSION

In conclusion, primary CS rate is relatively more common among primiparous women. Cephalopelvic disproportion, suspected foetal distress and hypertensive disorders of pregnancy are the leading indications for primary CS in Nigeria. Most hospitals in developing countries do not confirm fetal distress in labour due to lack of resources for the confirmation of fetal distress in labour and CS is a usual recourse once fetal distress is suspected. Availability of resources to confirm fetal distress may likely reduce the rate of CS from suspected fetal distress, a leading cause of primary CS identified in this study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Ottun AT, Okoye CH, Adewunmi AA, Jinadu FO, Olumodeji AM. Pattern of primary caesarean deliveries in a Nigerian tertiary hospital. *Int J Reprod Contracept Obstet Gynecol* 2021;10:2164-68.