



Research Paper

Prevalence and Outcome of Caesarian Delivery in a State Tertiary Health Facility, Southwest, Nigeria.

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ABSTRACT: Caesarian Delivery (CD) is an active part of comprehensive obstetric care that aims at improving clinical performance and perinatal outcomes. This is a 5 years retrospective descriptive review of booked and unbooked pregnant women that underwent both emergency and elective CD in UNIOSUN Teaching Hospital, a tertiary health facility in Osun state Nigeria, between January 2015 and December 2019. Data that were extracted from labour ward register include age, gravidity, parity, gestational age, booking status, type of CD, weight of the baby, apgar scores and outcome of the procedure. Data were analyzed using descriptive and inferential statistics. The results revealed 36.4% prevalent rate of CD, emergency CD accounts for 70.6% while 29.4% were elective CD. The commonest indication for CD were previous multiple CD, hypertensive crisis in pregnancy and Cephalopelvic disproportion which account for 30.1%, 13.6% and 10.0% respectively. Almost all the babies delivered were alive with better Apgar scores both at 1 minutes and 5 minutes. Due to high rate of CD observed which was attributed to previous multiple CD, it is therefore recommended that effort should be made to reduce the incidence of primary CD by encouraging early antenatal booking and prompt referral from primary and secondary health facilities.

KEY WORDS: Caesarian Delivery, Cephalopelvic Disproportion, Apgar Score, Prevalence, Tertiary Health Institution

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I. INTRODUCTION

Cesarean Delivery (CD) is one of the most commonly performed obstetrical surgical operations globally occurring in approximately 15% of all deliveries, but ranges from approximately 3.5% across the African continent to 29.2% in Latin America [1]. Caesarean section is considered a relatively preferable and safe method of delivery as compared to vaginal delivery by some individual. Since the last decade, its prevalence has increased in both developed and developing countries [2]. The incidence of cesarean deliveries, both repeat and primary deliveries, has risen dramatically over the last few decades, with an estimated global occurrence of 22.9 million cesarean deliveries in 2012 [3]. The World Health Organization (WHO) stated in 1985 that the prevalence rate should always remain between 10 to 15 percent [4]. Betran et al AP [5] posited that caesarean delivery is over-utilized in many middle-income to high-income countries, considering the high rate observed in China (25.9%), Australia/New Zealand (32.3%) and Brazil (45.9%).

However, in several low-income countries, where over 60% of the world's births occur, the population-based prevalence of CD is low with prevalence rate of 3.0% in West Africa which may be attributed to poor availability of or accessibility to comprehensive essential obstetric care services in those countries [5]. CD rate across Nigeria ranges 20.8% - 34.5% while that of United States is 25% and England, Wales and Northern Ireland is 20% accordingly [6]. According to [7] the average caesarian delivery rate of 35.9% was reported in

South West, Nigeria. Another study conducted in North West Nigeria also revealed 15.6% prevalence rate of CD [8]. Therefore, there are certain obstetric risk factors associated with high prevalence rate of CD such as labour dystocia, previous caesarean section, fetal distress, breach presentation, postdatism, multiple pregnancy and hypertensive disorder [9]. Moreso, socio-demographic characteristics, cultural and psychological factors can also contribute to increase in CD [10]. Ghosh et al. stated that maternal socio-demographic such as age, social class, education, occupation and type of residence has been found to be strongly related to the method of delivery including CD [11] .

Furthermore, increasing rate and number of cesarean deliveries are known to be associated with maternal risks such as peripheral organ damage, bleeding, need for intensive care, prolong surgery time, hysterectomy and maternal death; fetal risks such as prematurity, low APGAR (appearance, pulse, grimace, activity, respiration score, stillbirth and early neonatal death [12]. Therefore, the aim of this study is to identify the prevalence and outcome of caesarian delivery among booked and unbooked pregnant women in UNIOSUN Teaching Hospital, Osogbo.

II. MATERIALS AND METHODS

Design and Setting: This study was a 5years retrospective, descriptive study of consecutive CD cases in labour wards of UNIOSUN Teaching Hospital, a tertiary health facility in Osun state Nigeria, between January 2015 and December 2019.

Data collection: Data that were extracted from delivery register using pro forma include; age, parity, gravidity, number of children alive, clinic status , gestational age, fetal weight, APGAR score, indication for CD, and outcome of care.

Data analysis: Data collected was analysed using statistical package for social sciences (IBM SPSS) version 21.0. Variables were analyzed using descriptive statistics of table and percentages while hypothesis were tested using chi-square.

III. RESULTS

Table 1: Relationship between age and prevalence of caesarian delivery

Variable	Types of caesarian delivery			X ²	df	P-value
	Emergency	Elective	Total			
Age (Year)	F (%)	F (%)	F (%)			
18-25	251(37.4)	0(0.0)	251(26.4)			
26-30	141(21.0)	0(0.0)	141(14.8%)			
31-35	268(39.9)	46(16.4)	314(33.0)			
36-40	10(1.5)	169(60.4)	179(18.8)			
41-45	1(0.1)	64(22.9)	65(6.8)			
46-50	0(0)	1(0.3)	1(0.1)			
Total	671(100)	280(100)	951(100)	711.820	5	0.000

Field work, 2020

A total of 2613 deliveries were taken between January 2015 and December 2019 out of which 951 (36.4%) were delivered by caesarian delivery, there were 671 (70.6%) emergency caesarian delivery and 280 (29.4%) elective caesarian delivery. The age range between 18 and 50 years with mean age of 30.86 ± 6.77years. Thirty-three percent and 251(26.4%) of the patients were between age 31 and 35 years and 18 to 25 years respectively. 268 (39.9%) of the patients aged 31 to 35 years had emergency caesarian delivery while 251 (37.4%) aged 18 to 25 also had emergency caesarian delivery. However, 169 (60.4%) of the patients who had elective caesarian delivery were of age 36-40 years. The result further shows a significant relationship between age and prevalence of caesarian delivery at p-value less than 0.05 level of significance (x²=711.820; df-5, p-value 0.000). Caesarian delivery were significantly common among patient aged 31-35 years, 314(33.0%) with higher prevalence of emergency caesarian delivery among this age group.

Table 2: Relationship between obstetric history and prevalence of caesarian delivery

Variable	Types of caesarian delivery			X ²	df	P-value
	Emergency	Elective	Total			
Gravidity						
1-2	287(42.8)	0(0.0)	287(30.2)			
3-4	349(52.0)	20(7.1)	369(38.8)			
5-6	34(5.1)	57(27.4)	91(9.6)			
7-8	0(0.0)	43(15.3)	43(4.5)			
Primp	1(0.1)	160(57.1)	161(16.9)			
Total	671(100)	280(100)	951(100)	752.644	4	0.000
Parity						
1-2	535(79.7)	0(0.0)	535(56.3)			
3-4	126(18.8)	10(3.6)	136(14.3)			
5-6	5(0.7)	18(6.4)	23(2.4)			
7-8	0(0.0)	110(39.3)	110(11.6)			
Nulliparous	5(0.7)	142(50.7)	147(15.5)			
Total	671(100)	280(100)	951(100)	864.316	4	0.000
Number of Abortion						
1-2	262(39.0)	0(0.0)	262(27.5)			
3-4	48(7.2)	0(0.0)	48(5.0)			
5-6	3(0.4)	0(0.0)	3(0.3)			
None	358(53.4)	280(100)	638(67.1)			
Total	671(100)	280(100)	951(100)	194.688	3	0.000
Clinic status						
Booked	391(58.3)	280(100)	671(70.6)			
Unbooked	280(41.7)	0(0.0)	280(29.4)			
Total	671(100)	280(100)	971(100)	165.597	1	0.000
Gestational age						
Less than 30 weeks	49(7.3)	0(0.0)	49(5.1)			
30-35 weeks	190(28.3)	14(5.0)	204(21.5)			
36-40 weeks	315(47.0)	62(22.1)	377(39.6)			
More than 40 weeks	117(17.4)	204(72.4)	321(33.8)			
Total	671(100)	280(100)	951(100)	280.940	3	0.000

Field work, 2020.

Thirty-eight point eight percent of the patients were gravida 3-4 and 287(30.2%) were gravida 1-2. Fifty-two percent of the patients with 3rd or 4th pregnancy had emergency CD. Elective CD was observed to be common among primigravida as 160(57.1%) of elective cases were primigravida. However, the rate of emergency CD was observe to be more among gravida 3-4 women in the study . There is statistical significant relationship between gravidity and rate of caesarian delivery among pregnant women in the study. Fifty-six point three of patients that underwent CD were Para 1 or 2 and 535(79.7%) of emergency cases constituted Para 1 or 2 patients, however, 142(50.7%) of elective CD were nulliparous women. Rate of emergency CD is higher among Para 3-4 women while the rate of elective CD is more among nulliparous women (142(50.7%). 638 (67.1%) had previous history of abortion , out of which 358 (53.4%) had emergency CD and 280 (100%) had elective CD. The rate of elective CD among patients with no history of abortion was observed to be high as all the patients with elective CD 280(100%) had no history of abortion. There is significant relationship between number and rate of abortion and rate of CD as majority of patient with no history of abortion had caesarian deliveries ($\chi^2 = 194,688$; $df = 3$; $p\text{-value} = 0.000$).

Table 3: Relationship between reproductive history and prevalence of caesarian delivery

Variable	Types of caesarian delivery			X ²	df	P-value
	Emergency F(%)	Elective F(%)	Total F(%)			
Number of children alive						
1-2	263(39.2)	5(1.7)	268(28.2)			
3-4	3(0.4)	150(53.6)	153(16.0)			
5-6	3(0.4)	114(40.7)	117(12.3)			
None	402(60.0)	11(4.0)	413(43.4)			
Total	671(100)	280(100)	951(100)	477.387	3	0.000
Weight of the baby						
Less than 2kg	64(9.5)	0(0.0)	64(6.7)			
2-2.5 kg	130(13.7)	0(0.0)	130(13.7)			
2.6-3 kg	174(18.3)	0(0.0)	174(18.3)			
3.1-3.5 kg	302(31.8)	131(46.8)	433(45.5)			
3.6-4 kg	0(0.0)	107(38.2)	107(11.3)			
More than 4kg	1(0.1)	42(15.0)	43(4.5)			
Total	671(100)	280(100)	951(100)	506.482	5	0.000
Apgar score (1 min)						
Less than 4	44(6.6)	0(0.0)	44(4.6)			
4-7	103(15.4)	0(0.0)	103(10.8)			
Greater than 7	524(78.1)	280(100)	804(84.5)			
Total	671(100)	280(100)	951(100)	72.557	2	0.000
Apgar score (5 mins)						
Less than 4	21(3.2)	0(0.0)	21(2.2)			
4-7	29(4.3)	0(0.0)	29(3.1)			
Greater than 7	621(92.5)	280(100)	901(94.7)			
Total	671(100)	280(100)	951(100)	22.022	2	0.000

Field work, 2020

Table 3 shows that majority 413(43.4%) of CD had no living children, out of which 402(59.9%) had emergency CD. The rate of emergency CD was more among women with no child it was 402(59.9%) and those with 1-2 children 263(39.2%), however, elective CD is high among those with 3-4 children 150(53.6%) when compared to emergency CD. The result also revealed that 433(45.5%) of babies delivered through CD weighed 3.1-3.5 kg, out of which 302(31.8%) were emergency CD. More so, 131(46.8%) of elective CD babies weighed 3.1-3.5kg. There is also a significant relationship between weight of the babies and rate of caesarian delivery in the study population ($\chi^2=506.482$; $df=5$ $p\text{-value}=0.000$). Eighty-four percent and 901 (94.7%) of babies delivered through caesarian delivery had APGAR score greater than 7 at one and five minutes respectively, out of which, 524(78.1%) and 621(92.5%) had emergency CD . More so, all babies with elective CD 280 (100%) had Apgar score greater than 7 at 1 minute and 5 minutes respectively.

Table 4: Relationship between indications and prevalence of caesarian delivery

Variable	Types of caesarian delivery			X ²	Df	P-value
	Emergency F (%)	Elective F (%)	Total F (%)			
Previous scar	242(36.1)	44(15.7)	286(30.1)			
Maternal request	20(2.9)	25(8.9)	45(4.7)			
Pregnancy induced hypertension	100(14.9)	29(10.4)	129(13.6)			
Placenta previa	20(2.9)	8(2.9)	28(2.9)			
Oligohydraminous	28(4.2)	0(0.0)	28(2.9)			
Macrosomic baby	18(2.7)	20(7.1)	38(3.9)			
Malpresentation	15(2.2)	66(23.6)	81(8.5)			
Failed induction of labour	37(5.5)	0(0.0)	38(3.9)			
Cephalopelvic disproportion	96(14.0)	0(0.0)	96(10.0)			
Multiple gestation	14(2.1)	20(7.1)	34(3.6)			
Postdatism	0(0.0)	15(5.4)	15(1.6)			
Fetal distress	55(8.2)	10(3.6)	64(6.7)			
Poor biophysical profile	0(0.0)	17(6.1)	16(1.7)			
Antepartum heamorrhage	15(2.2)	0(0.0)	15(1.6)			
Cord prolapse	4(0.5)	0(0.0)	4(0.4)			
IUFD	2(0.3)	16(5.7)	19(1.9)			
Poor progress of labour	15(2.2)	0(0.0)	16(1.7)			
Total	671(100)	280(100)	951(100)	365.701	17	0.000

Field work, 2020

Thirty point one percent of caesarian delivery were due to previous scar followed by pregnancy induced hypertension 129(13.6), and CPD (10%). Out of which 242(36.1%), 100(14.9%) and 96(14%) were emergency CD. Elective CD is more indicated in fetal malpresentation 66(23.6%) and maternal request 29(10.4%) as compare to emergency CD. There is statistical significant relationship between indication and rate of CD ($\chi^2 = 365.701$; df -17; p-value- 0.00).

Table 5: relationship between prevalence of caesarian delivery and outcome of delivery

Variable	Types of caesarian delivery			X ²	df	P-value
	Emergency	Elective	Total			
Outcome						
Intra uterine fetal death	8(1.2)	0(0.0)	8(0.8)			
Dead baby/still birth	25(3.7)	0(0.0)	25(2.6)			
Alive baby	638(95.1)	280(100)	918(96.5)			
Total	671(100)	280(100)	951(100)	14.266	2	0.01

Field work, 2020

Ninety-six point five percent of baby delivered by CD were alive out of which 638(95.1%) were emergency CD (3.7) and 8(1.2%) deliveries by emergency CD were still birth and UIFD respectively however, all elective CD, babies were all alive. There is also a statistical significant relationship between outcome of CD and type of CD done.

IV. DISCUSSION

A total number of 2,613 deliveries were recorded between January 2015 and December 2019, out of which 951 were delivered by caesarian section giving a caesarian section rate of 36.4%. There were 671 (70.65) emergency and 280 (29.4%) elective caesarian deliveries. The rate of caesarian delivery observed in this study was outside the recommended 5-10% by WHO and also slightly more than 35.9% earlier recorded in the same institution [7] and 30.2% rate reported in Abu Dhabi by [13] but less than the rate of 43.9-45.5% reported in Mexico and 50.5% recorded in Jordan by [14]. The most prevalent type of caesarian delivery is emergency CD (70.6%) while elective CD accounted for 29.4% which was slightly lower than elective rate of 60.1% reported in the northern part of Nigeria [14].

High rate of CD was recorded among pregnant women aged 31-35 years with the mean age of 30.8 ± 6.7 . emergency CD was recorded more among women aged 18-25 and 31-35 years while elective CD was more among 36-40 years. In the study by Kim SY et al., it was reported that caesarian section was positively influenced by increasing maternal age and parity with 20.9% CS rate recorded among women aged 35 years and above [15]. Rydah et al. also reported that advanced maternal age at childbirth has been found to be related to increased pregnancy morbidity and associated risk of caesarian section. This study further showed a statistically significant relationship between age and caesarian section which is in tandem with the study conducted by [16] that revealed a positive association between advanced age and caesarian section. [16] further found out that one of the possible reasons for the increasing caesarian delivery rate is an increase in the prevalence of advanced maternal age ≥ 35 years. However, in contrast to this study, Adekanle et al reported caesarian section rate of 50.3% among age group 20-29 years [7].

Moreover, it was also discovered from the study that CD rate was high among gravida 3-4 and Para 1-2, emergency CD was more prevalent among gravida 3-4 and Para 1-2 while elective CD was recorded more among Primipara and nulliparous women. There is also a significant relationship between gravidity and types of caesarian sections. In a study conducted by Adekanle et al [7], the proportion of nulliparous women that had CS was 30% which was more than 15.5% rate from the study. Finding from the study revealed high rate of elective CD among women with gestational age of 36-40 weeks and age more than 40 weeks. Severe maternal and neonatal complications were significantly decreased when CD was performed at EGA of 38 weeks onward and elective CD of gestational age at 39 weeks [17]. Studies also suggested that elective CD should be conducted from 30 weeks onward so that fetal maturity is complete however, waiting until 39 gestational weeks to perform an elective CS is cost effective but the likelihood of emergency CS and its maternal complications should also be taken into account [18]. Moreso, the lowest complication rate was observed in 39-40 weeks in Asians [19]

The commonest indications for CD from the study are previous caesarian scar followed by hypertensive emergency in pregnancy and suspected cephalopelvic disproportion which corroborate with previous study by [7] that the commonest indication for caesarian section in their study area was previous caesarian section. Moreover, [20][21] stated that the commonest indications for caesarian section were cephalopelvic disproportion followed by previous caesarian section and fetal distress. [8] also reported that the commonest indications for emergency caesarian section were obstructed labour, cephalopelvic disproportion

and hypertensive disorder in pregnancy while elective caesarian section were due to multiple previous caesarian section.

Regarding the outcome of caesarian delivery in the study almost all the babies delivered by both emergency and elective were alive with better Apgar score at one minute and five minutes without the need for neonatal admission. This result is in tandem with the report of [22][23] who reported that newborn delivered by caesarian section usually have better outcome of apgar score at one minutes and five minutes.

V. CONCLUSION AND RECOMMENDATION

The rate of Caesarian Delivery from this study was significantly high among booked pregnant women which was attributed to previous multiple caesarian delivery, hypertensive emergency in pregnancy and cephalopelvic disproportion. The most prevalent type of caesarian delivery reported was emergency CD due to nature of the health institution as tertiary health institution where complicated cases are referred to. It is therefore recommended that effort should be made to reduce the incidence of primary caesarian delivery, encourage early antenatal registration, focused antenatal care and prompt referral from primary and secondary health institution. Effort also should be made to improve personnel skills on alternative mode of delivery such as assisted vaginal delivery and external cephalic version in breech in order to reduce the rate of primary caesarian section..

Limitation of the study: A lot of constraints were observed in the process of carrying out this study. Firstly, there were cases of incomplete data as a result of inadequate documentation. Secondly, due to industrial and strike action that led to partial of activity in the hospital and there was no patient admission for certain period included in the study.

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