
Caesarean Section Rate as a Surgical Peril: A Case Study at a Secondary Health Facility in North-Western Nigeria

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ABSTRACT

Caesarean section was introduced into clinical practice as a lifesaving procedure for both the mother and the child but the rate at which the procedure is been carried out is becoming a concern globally. As other procedures of some complexity, its use follows the health care inequity pattern the world: underuse in low income settings, and adequate or even unnecessary use in middle and high income settings. Using a descriptive cross sectional study that involved all subjects who attended maternity unit for delivery; a purposive sampling technique was employed to recruit the sample size of one hundred. After obtaining an informed written consent for the study, all subjects who met the inclusion criteria were successfully enrolled in to the study. Pre-operative, intra-operative and postoperative data were collected using standardized data collection form based on CDC/WHO criteria. The data was analyzed using SPSS Version 16 software. The results showed that the predominant ages of the subjects were between 11 years to 50 years with the mean age of 25 years. Most of the subjects had no formal education and were not engaged in any occupation. The major findings showed an incidence rate of forty seven (47%) and obstructed labour was the leading cause of cesarean section. It is therefore recommended that. a multidisciplinary approach of the skilled health professionals is needed to curtail the incidence.

Keywords: cesarean section, labour, incidence, patient, health

INTRODUCTION

Rate of caesarean section is of concern globally. As other procedures of some complexity, its use follows the health care inequity pattern of the world: underuse in low income settings, and adequate or even unnecessary use in middle and high income settings.^(1, 2) Several studies

have shown an inverse association between CS rates and maternal and infant mortality at population level in low income countries where large sectors of the population lack access to basic obstetric care.⁽³⁾

On the other hand, CS rate above a certain limit have not shown additional benefit to the mother or the child as shown in some studies where high CS rates could be linked to negative consequences in maternal and child health.^(2,4) as it was also documented in 1985 by the World Health Organization (WHO) statement: "There is no justification for any region to have CS rates higher than 10-15%."^(5,6) Two decades later, however, the optimal rate of births by CS remains controversial in both developing and developed countries.⁽⁶⁾ In many developed countries, CS rates have increased, and attention being focused on strategies to reduce its use due to the concern that higher CS rates do not confer additional health gain but may increase maternal risks, have implications for future pregnancies and have resource implications for health services.⁽⁷⁾

Several studies have shown an inverse association between CS rates and maternal and infant mortality at population level in low income countries where large sectors of the population lack access to basic obstetric care.⁽⁸⁾ It is generally agreed that the prevalence of C-section is higher than needed in many countries and physicians are encouraged to actively lower the rate. Some of these efforts include: emphasizing that a long latent phase of labor is not abnormal and thus not a justification for C-section; changing the start of active labor from a cervical dilation of 4 cm to a dilation of 6 cm; and allowing at least 2 hours of pushing for women who have previously given birth and 3 hours of pushing for women who have not previously given birth before labor arrest is considered.⁽⁹⁾

As with all types of abdominal surgeries, a Caesarean section is associated with risks of postoperative adhesions, incisional hernias

(which may require surgical correction) and wound infections.⁽¹⁰⁾ If a Caesarean is performed under emergency situations, the risk of the surgery may be increased due anesthesia risk among other several factors⁽¹¹⁾. Women who had Caesarean sections were more likely to have problems with later pregnancies, and it is recommended that women who want larger families should not seek an elective CS. The risk of placenta accreta, a potentially life-threatening condition, is 0.13% after two Caesarean sections, but increases to 2.13% after four and then to 6.74% after six or more. Along with this is a similar rise in the risk of emergency hysterectomies at delivery.⁽¹²⁾

Mothers can experience increased incidence of postnatal depression and other associated psychological problems after obstetric intervention during the birth process.⁽¹³⁾ Since the incidence level and associated risk of cesarean deliveries is on the increase, it has become necessary to establish the rates of cesarean section at General Hospital, North-Western Nigeria.

METHODOLOGY

Research Design

A cross-sectional study was used involving subjects who attended maternity unit within the period of study at Funtua General Hospital, North-Western Nigeria.

Study Setting

General Hospital Funtua, Katsina state is in the North-Western part of Nigeria. It is a secondary healthcare delivery center with 187 bed capacity. The hospital has eight (8) wards each of which has a surgical unit. The hospital has eighty four nurses (84) with an average of about four hundred and twenty obstetric surgical patients outflow annually.

Sampling Techniques and Sample Size

A non-probability purposive sampling method was used to select subjects that have attended maternity unit during the study period. A total of one hundred respondents were used for the study.

Ethical Consideration

Ethical consent was obtained from the ethical review board of the hospital and informed consent was obtained from each subject or subject's care giver before being enrolled in to the study.

Instrument for Data Collection

The instrument was developed by the researcher (questionnaire) based on the Center for Disease Control and Prevention (CDC/WHO) and a research assistant was trained on the use of the instrument. The questionnaire was used to get variables such as demographic characteristics, pre-operative and postoperative data such as type of surgery, preoperative hospital stay, indication for surgery, parity, type of surgical incision and average cost of hospital stay until time of discharge. The instrument was tested for validity and reliability through pilot study. Also two full-time nurses' assistants were trained on the use of the instrument.

Data analysis

The data was analyzed using SPSS software version 16 according to the objective of the study. In addition descriptive and inferential statistics was used.

RESULTS

Table 1: Socio demographic data

Frequency distribution of subjects by demographic characteristics

Variable: N=100	Frequency	Percent
Age (grouped) in yrs.		
11-20	30	30
21-30	43	43

31-40	24	24
> 40	03	03
Total	100	100.0
Marital Status:		
Single	00	00
Married	100	100
Total	100	100.0
Highest Education Level:		
No formal Education	41	41
Primary Education	28	28
Post primary education	31	31
Total	100	100.0
Patients' Occupation:		
Full time house wife	53	53
Unskilled manual	00	00
Skilled manual	47	47
Total	100	100.0

As reflected on table 1, the age of the subjects ranged from 11years to 65years with median age of 25 years and $SD \pm 0.07$. 43% of the respondents were in the age group (21-30 yrs). All the respondents were married females while 41% had no formal education and 28% had basic primary education. Among the respondents, 53% were full time house wives and 47% were engaged in skilled occupational services.

Table 2: Anthropometric Measures

Frequency distribution of subjects by anthropometric measures

Variables: N=100	Frequency	Percent
Height(in metres):		
≤1.40	04	04
1.41-1.51	48	48
1.52-1.63	32	32
1.64-1.74	16	16
Mean: 1.57m		
SD ± 0.083m		
Total	100	100.0

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Weight(in Kg):		
≤45	06	06
46-53	25	25
54-61	30	30
62-69	36	36
>69	03	03
Mean: 55.35kg SD ± 8.94kg		
Total	100	100.0
BMI (kg/m²):		
≤20	07	07
20-24	41	41
25-29	45	45
30-34	04	04
>35	03	03
Mean: 22.42kg/m ² SD ± 2.81kg/m ²		
Total	100	100.0

The anthropometric measures as revealed by table 2 shows that the height of the subjects ranged from 1.4m to 1.74m with the mean height of 1.57m and sd. of ±0.08m. The weight of the subjects ranged from 38kg to 80kg with the mean of 55.3kg and SD of ±8.94. With regard to Body Mass Index, the minimum BMI recorded was 19.25kg/m² and the maximum was 36.25kg/(m)². Majority of the subjects ranged from 25 to 29 with the mean of 22.42 and SD±2.81 respectively. It is also clear from the table that the frequency of cesarean section increases with increasing weight and BMI.

Table 3: Pre-operative history of the respondents

Variables=100	Frequency	Percent	SSI Rate (%)
Indication for surgery			
Prolong labour	19	19	
Eclamsia	32	32	
Obstructed labour	35	35	
A.P.H	14	14	
Total	100	100	

History of transfusion			
Yes	34	34	78
No	36	36	22
Total	100	100	100
Type of surgery			
Elective	53	53	29
Emergency	47	47	71
Total	100	100	100
Parity			
Primigravida	38	38	22
Multiparous	35	35	55
Elderly primi	27	27	23
Total	100	100	100

Majority of the subjects (35%) were diagnosed of obstructed labour, while 14% were diagnosed of Ante partum bleeding, other indications of cesarean section were reflected on the table. Most of the subjects (64%) had transfusion and fewer subjects (34%) had co-existing illness. More subjects (53%) had elective caesarean section while 47% had emergency cesarean section. With regards to parity 38% were primigravida and only 27% of the subjects were elderly primi.

Table 4: Post-operative history of the respondents

Variables= N=100	Frequency	Percent	SSI Rate %
Period of hospitalization			
≤7 days	32	32	
7-14 days	46	46	
>14 days	22	22	
Total	100	100	
Mean=12days			
Daily money spent(in Naira)			
≤200NGN (US\$1.25)	48	48	
≥250NGN(US\$1.125)	52	52	
Total	100	100	
Mean spent=NGN225(US\$1.5)			

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Presence of SSI			
Yes	47	47	47
No	53	53	53
Total	100	100	100
Type of surgical incision			
Pfannenstiel	50	50	
Classical midline	50	50	
Total	100	100	

Most subjects (46%) spent two weeks or less before discharge while fewer subjects (22%) spent more than two weeks of hospitalization with the average of twelve (12) days. Many subjects spent more than two hundred and fifty naira per day NGN250 (US\$1.25) with average daily spent of two hundred and twenty five naira NGN225(US\$1.125). With regard to the presence of post-operative wound infection, 47% of subjects developed infection with equal chance of occurrences between the incision type .Others were reflected on the table above.

Proportion of Incidence: 47%

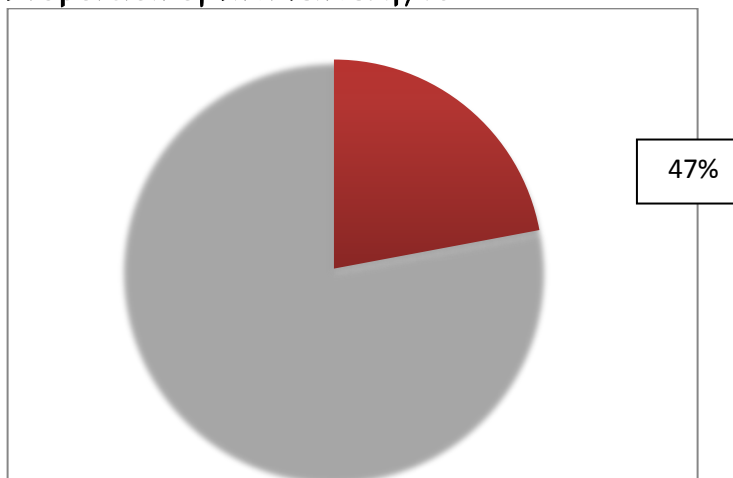


Figure 1: above shows the incidence rate of cesarean section is forty seven (47%).

DISCUSSION

In this study, most of the subjects were between the age group of 21-30 years and only very few subjects were greater than 40 years. Similar demographic observation was reported by another study conducted at Aminu Kano Teaching Hospital Kano, Nigeria⁽¹⁴⁾. The present study also recorded the highest number of CS among primigravidas which is similar to the findings of a study conducted at UDTH, Sokoto in 2016 which reported highest rate of 44.6% among primipara⁽¹⁵⁾; this finding maybe associated with cephalo-pelvic disproportion. Most subjects in this study had no formal education and were not engaged in occupational services. The relatively high number of cesarean section in this group is not counter intuitive as subjects with higher level of education are more likely to attend antenatal care where some of the indication of cesarean section would have been identified and managed appropriately.

Majority of the subjects had slight increase in Body Mass Index. This may theoretically subject the woman to contracted pelvis thereby resulting to prolonged labour leading to cesarean section. The study also showed that the incidence of cesarean section was 47%; this could be related to economic constraints in adopting a standardized protocol of focused antenatal care in low/middle income countries. Contrast to this study, a lower incidence rate of 2% was reported in developed nations^(16,17) and also previous reports by World Health Organization states that "There is no justification for any region to have Caesarean Section rates higher than 10-15%"^(2,3,4,6). Previous study revealed that every year in the world there is an additional need for 0.8 – 3.2 million CS in low income countries where 60% of the world's births occur⁽²⁾. Simultaneously, 4.0-6.2 million CS in excess are performed in middle and high income countries where 37.5% of the births occur^(4,6,14).

In this study, elective CS accounted for the majority and this finding disagrees to the findings of Nwobodo, Isah and Panti (2011) which

reported a higher rate of emergency CS, as the proportion of elective CS (20.7%) relative to its emergency counterpart was much higher than 5.8-16.4% reported in most centers in Nigeria⁽¹⁸⁾. Both pfannenstiel and classical midline incisions were used equally in this study. The findings of Ugwu et al. disclosed that pfannenstiel (75.8%) was preferred because of its good cosmetic outcome while other studies revealed that the midline incision was mainly utilized^(19, 20).

Obstructed labour constituted the major reason for CS in this study, a similar finding was obtained in a study by Daniel and Singh (2016) who discovered that obstructed labour was the major cause of CS⁽¹⁸⁾. There was no presence of surgical site infection (47%) generally in this study; however, the rate of surgical site infection was high in women who had transfusion, emergency CS and multiparous women (78%, 71% and 55% respectively). Sepsis was found to be the major complication in several studies^(21, 22, and 23).

CONCLUSION AND RECOMMENDATION

It was concluded that the rate of cesarean section was higher than WHO recommendation and also higher than those reported in some developing countries, with obstructed labour being the leading cause. Therefore, the study implies that surveillance of incidence of cesarean section with feedback to obstetrician and hospital management is very crucial in the center, necessary strategies to control the risk factors through proper antenatal monitoring is of paramount importance and educating the male co can be put in place in order to lower the rate.

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