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ORIGINAL RESEARCH

Knowledge and Perception Towards Surgical and Assisted Vaginal Deliveries Among Nigerian Women

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Abstract

Background: Surgical interventions directly correlate with maternal and newborn health outcomes when medically indicated as emergency measures during childbirth. Many women in developing countries consider unaided vaginal deliveries as the only culturally acceptable method of childbirth and any other intervention is inappropriate.

Objectives: To assess pregnant women's knowledge and perception of surgical and assisted vaginal delivery in southwest Nigeria.

Methods: This was a descriptive cross-sectional study of two hundred and twenty women who attended the antenatal and immunisation clinics of Babcock University Teaching Hospital (BUTH). Semi-structured interviewer-administered questionnaires were used to elicit data. Knowledge and perception were graded as good and poor.

Results: The mean age of the participants was 31.9±6.6 years. About three-fifths (62.7%) of the participants had good knowledge of caesarean section and assisted delivery. Another three-fifths (59.1%) of the respondents also perceived caesarean and assisted delivery well. Age and marital status were statistically significantly associated with knowledge (p = 0.006 and 0.034, respectively).

Conclusions: Most of the participants had good knowledge and a good perception of caesarean section and assisted vaginal delivery. The implications of the findings of this study will include policies and programmes that will further consolidate this propensity.

Keywords: Assisted Vaginal Delivery, Caesarean section, Intrapartum care, Maternal mortality, Surgical delivery.

Introduction

The Sustainable Development Goals (SDG) seek to reduce the maternal mortality ratio (MMR) to less than 70 maternal deaths per 100,000 live births globally, with no country expected to have an MMR of more than 140 deaths per 100,000 live births by the year 2030.

[1] With better healthcare delivery over the years, a global reduction in maternal mortality has been reported. However, developed countries are the major contributors to this gain with low and constantly decreasing maternal mortality. [2] On the other hand, many developing nations still have a large burden of maternal mortalities [2] with 99% of global maternal mortalities occurring in these countries. [3]

In Nigeria, MMR is 512 deaths per 100,000 live births. [4] In 2018, 7,000 deaths were recorded among neonates worldwide [5] who are 15 times more likely to die as compared to other children in their first year. [6] Nigeria has one of the highest neonatal mortality rates, [7] which was recorded as 39 deaths per 1000 live births according to the country's demographic health survey in 2018. [4] Caesarean section (CS) and assisted vaginal delivery (AVD) are obstetric procedures with several benefits to both the mother and neonate. [8] The quality of antenatal and intrapartum care, including surgical interventions when necessary, directly correlates with maternal and newborn health outcomes. [9] However, women's acceptance of these procedures, their safety and that of their babies have been shown to largely depend on their knowledge and perception of such procedures.

The rate of surgical deliveries is generally higher in developed countries where the knowledge of these procedures is higher than in developing countries with poorer knowledge. [10] Similarly, higher levels of knowledge and uptake of CS are reported in the southern parts of Nigeria compared to the northern parts and in tertiary health facilities compared to primary and secondary facilities. [11] Good knowledge of surgical deliveries among women in the southern parts of the country ranges from 63.2%[12] to 78.5% [13] while it is only 40.9% [14] among women in the northern part of the country. Generally, lower rates of maternal knowledge of surgical deliveries have also been proposed to be a contributory factor to adverse maternal and infant health outcomes, particularly in less developed countries. [2]

Even though women with better perceptions of surgical deliveries are more likely to accept surgical deliveries especially when they are medically indicated, women in developing climes generally have poorer perceptions of surgical deliveries. [9, 15, 16] For instance, many women in these climes consider unaided vaginal deliveries as the only culturally acceptable method of childbirth and any other intervention is undesirable, inappropriate, and at the extreme, a sign of failed womanhood. [9, 15, 16] Moreover, it is opined that women who have surgical deliveries suffer inconveniences that prevent them from performing their regular roles. [15, 16] Hence, women are reluctant to present in health facilities for emergency obstetric care when there are high possibilities of surgical interventions, [17] contributing to negative consequences for women and neonates. Several sociodemographic factors are reported to be associated with poor perception of surgical delivery among these women. [15]

This study, therefore, aimed to assess women's knowledge and perception of surgical and assisted vaginal delivery in southwest Nigeria. It is believed that findings from this study will provide evidence to inform targeted interventions that address barriers to acceptance and utilisation of these procedures when medically indicated.

Methods

Study design and study area

This descriptive, cross-sectional study was conducted at the Babcock University Teaching Hospital (BUTH), Ogun State, Southwest Nigeria. BUTH is located on the same premises as Babcock University, which is owned by the Seventh-day Adventist Church. The teaching hospital was established in 2012 and has 185 beds. It has 15 departments, including the

Department of Obstetrics and Gynaecology and Community Medicine, which run antenatal and immunisation clinics.

Study participants, sample size, and sampling

The study was conducted between July and November 2023. The study participants were selected from all consenting women of reproductive age (15-49) who were either pregnant and attending the antenatal clinic or had had a live birth within the last 12 months. They were attending the immunisation clinic with their infants at BUTH. Women who were health workers were excluded from the study. The Cochran formula ($n = z^2pq/d^2$) was used to estimate a minimum sample size of 191 where n is the desired sample size, z represents the normal standard deviation given at 1.96 (for 95% confidence level), p is the prevalence of the characteristic of the study taken at 85.5% which was the proportion of women who had good knowledge of CS from a previous study conducted in Sokoto [11] northwest Nigeria, q is 1-p and d is the desired degree of accuracy taken as 0.05. A 10% non-response rate was projected and added to the sample, giving a new minimum sample of 212. Nevertheless, a total of 220 participants were recruited for the study. The purposive sampling method was used to select the study participants who were consecutively recruited during routine clinic visits until the desired sample size was reached.

Data collection and study instrument

Data were elicited using a pretested interviewer-administered questionnaire. The questionnaire was constructed from the review of related literature [9, 11, 15, 17-20]. Experts in reproductive health reviewed the instrument. It sought information about the participants' sociodemographic characteristics, knowledge, and perception of the women about CS and AVD. Data were collected by the researchers and trained research assistants.

Data management and analysis

The questionnaires were cross-checked for errors and cleaned. The information obtained from the questionnaires was entered into the Statistical Package for Social Sciences (SPSS) version 22 for analysis and statistical calculation. Composite variables were calculated for knowledge and perception. For knowledge, a total of 11 items were assessed. Every correct answer was scored as 1 and wrong answers were scored as 0. The total score was calculated. Anyone with at least six marks or 50% of the total score was categorised as having good knowledge, and those scoring below 50% (5 marks or less) had poor knowledge. [14] For perception, the 5-point Likert scale was used for the assessment. For a positive statement, strongly agreed, agreed, undecided/neutral, disagreed, and strongly disagreed were scored from 5 to 1, respectively. For negative statements, the scoring was reversed. Those who had 50% and above were considered as having good perception, and those who had below 50% had poor perception. Data were summarised using mean, standard deviation, and proportions. The Chi-Square test was used to assess the association between categorical variables. The results were presented in tables and $p<0.05$ was accepted as statistically significant.

Ethics approval

Ethical approval for this study was obtained from the Babcock University Health Research Ethics Committee (BUHREC 666/23). Each participant provided informed consent, and the other principles of the Helsinki Declaration were adhered to.

Results

Table I shows the sociodemographic characteristics of the respondents. The mean age of the participants was 31.9±6.6 years, and 175 (79.5%) were married. More than one-half (115; 52.3%) of the respondents were of the Yoruba tribe and most were Christians (193; 87.7%). Most (148; 67.3%) of the respondents had tertiary education. The majority (166;

85.6%) had their last antenatal care at private hospitals.

Table I: Sociodemographic characteristics of participants

Variable	*Frequency*	*Percentage*
Age (Years)		
≤ 24	26	11.8
25-34	132	60.0
35-44	48	21.8
≥45	14	6.4
Marital Status		
Single	39	17.7
Married	175	79.5
Separated	3	1.4
Divorced	3	1.4
Number of living children		
≤3	186	84.5
≥4	34	15.5
Highest level of education		
No formal education	7	3.2
Primary	8	3.6
Secondary	36	16.4
Tertiary	148	67.3
Others (Technical College, Arabic Schools)	21	9.5
Place of Antenatal care in the last pregnancy		
Government Hospital	28	14.4
Private Hospital	166	85.6
Monthly Income(n=153)		
≤50000	14	9.2
50000-99999	20	13.1
100000-149999	17	11.1
150000-199999	10	6.5
≥200000	92	60.1
Religion		
Christianity	193	87.7
Islam	23	10.5
Traditional	4	1.8
Ethnicity		
Yoruba	115	52.2
Igbo	77	35.0
Hausa	14	6.4
Others	14	6.4

Mean Age: 31.9±6.6 years

Table II shows that most respondents (201; 91.4%) had heard about CS, and 144 (65.5%) had heard about AVD. The majority, 141 (64.1%) of the participants, knew that vaginal delivery was possible after CS. The majority (178; 80.9%) of the respondents knew that women exhausted from prolonged labour may undergo a CS. Most respondents (192; 82.3%) believed that CS or AVD could be done if the baby is too big or is not lying well 184 (83.6%). About three-fifths (138, 62.7%) of the participants had good knowledge of CS and AVD, while the remaining 82 (37.3 %) had poor knowledge of CS and AVD.

Table III shows the perception of respondents towards surgical and assisted delivery. Concerning the statement that CS is only for

women with medical conditions, 11 (5.0%) of the respondents strongly agreed, 21 (9.5%) agreed, 33 (15.0%) were undecided, 82 (37.3%) disagreed, and 73 (33.2%) strongly disagreed.

Table II: Knowledge of caesarean section and assisted vaginal delivery

Variable	Frequency	Percentage
Heard about caesarean section		
Yes	201	91.3
No	16	7.3
Don't know	3	1.4
Have heard about assisted vaginal delivery		
Yes	144	65.4
No	69	31.4
Don't know	7	3.2
Vaginal delivery is still possible after a previous CS		
Yes	141	64.1
No	19	8.6
Don't know	60	27.3
Women can decide to do CS if they want		
Yes	188	85.4
No	14	6.4
Don't know	18	8.2
Women without complications can be discharged 3-7 days after CS		
Yes	121	55.0
No	20	9.1
Don't know	79	35.9
Women who are tired because of prolonged labour can be offered CS		
Yes	178	80.9
No	12	5.5
Don't know	30	13.6
Women with medical conditions can have a CS or assisted vaginal delivery		
Yes	155	70.5
No	21	9.5
Don't know	44	20.0
CS can be done if the baby is not lying well		
Yes	184	83.6
No	14	6.4
Don't know	22	10.0
CS or assisted vaginal delivery can be done if the baby is too big		
Yes	192	83.2
No	12	5.5
Don't know	16	7.3
CS can deliver twins and triplets		
Yes	183	83.1
No	14	6.4
Don't know	23	10.5
Bonding with my child will not be affected by CS or assisted vaginal delivery		
Yes	137	62.3
No	33	15.0
Don't know	50	22.7
Knowledge score		
Good Knowledge	138	62.7
Poor Knowledge	82	37.3

Concerning the statement that CS is for women who fear (labour) pains, 18 (8.2%) of the participants strongly agreed, while 25 (11.4%) agreed. As regards the statement that operative vaginal delivery, even if properly done by an expert, will still cause harm to babies, 12 (5.5%) of the participants strongly agreed, and 27 (12.3%) agreed.

Table III: Maternal perception towards surgical and assisted delivery

Variable	*Strongly Agreed n (%)*	*Agreed n (%)*	*Undecided n (%)*	*Disagreed n (%)*	*Strongly Disagreed n (%)*
CS births are unnatural	31 (14.1)	40 (18.2)	26 (11.8)	64 (29.1)	59 (26.8)
CS is only for women with medical conditions	11 (5.0)	21 (9.5)	33 (15.0)	82 (37.3)	73 (33.2)
CS is for women who fear pain	18 (8.2)	25 (11.4)	28 (12.7)	84 (38.2)	65 (29.5)
CS takes the joy of giving birth	13 (5.9)	15 (6.8)	26 (11.9)	72 (32.9)	93 (42.5)
I will feel embarrassed to inform close family and friends that I gave birth by CS	18 (8.2)	14 (6.4)	22 (10.0)	71 (32.5)	94 (42.9)
Vaginal delivery is a more empowering experience than CS	26 (11.8)	31 (14.1)	47 (21.4)	57 (25.9)	59 (26.8)
The experience of child delivery is better with CS than vaginal delivery	15 (6.8)	18 (8.2)	64 (29.1)	67 (30.5)	56 (25.5)
The recovery after CS is faster than vaginal delivery	24 (10.9)	18 (8.2)	66 (30.0)	57 (25.9)	55 (25.0)
I will undergo CS if it is needed to save my life or my baby's life	132 (60.0)	36 (16.3)	18 (8.2)	16 (7.3)	18 (8.2)
CS is a death sentence	9 (4.1)	14 (6.4)	26 (11.8)	44 (20.0)	127 (57.7)
CS is a result of the doctor not being patient enough	13 (5.9)	15 (6.8)	39 (17.7)	58 (26.4)	95 (43.2)
Operative vaginal delivery even if properly done by an expert delivery will still cause harm to my baby	12 (5.5)	27 (12.3)	61 (27.7)	69 (31.3)	51 (23.2)
The use of operative vaginal delivery can save me and my baby	60 (27.2)	67 (30.5)	66 (30.0)	15 (6.8)	12 (5.5)

Percentages are calculated across rows.

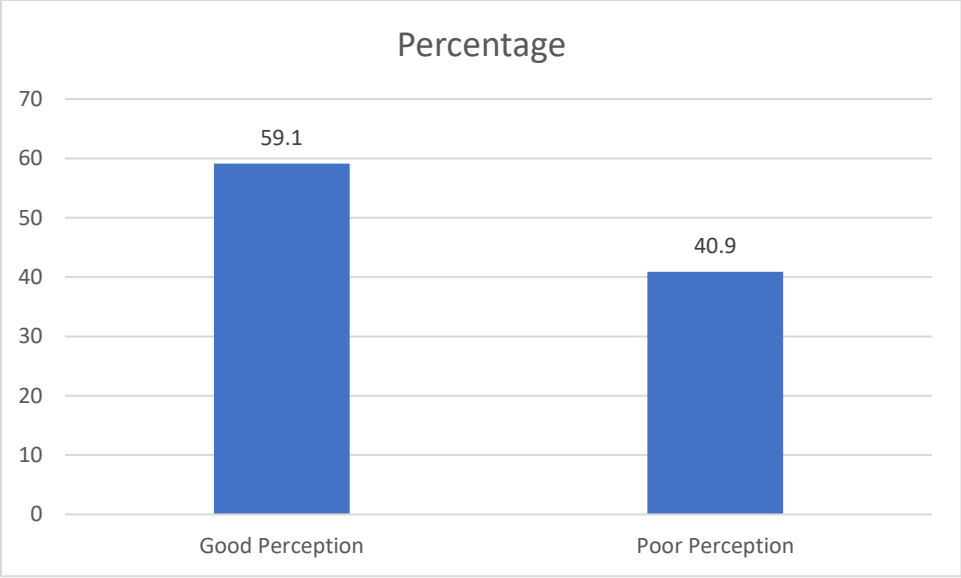

Figure 1: Perception Score

Table IV shows a statistically significant association between the participants' age and their knowledge of CS and AVD (p = 0.006), with younger participants demonstrating better knowledge. There was also a statistically significant association between marital status and knowledge of CS and AVD (p = 0.034), with married women being less knowledgeable than single or divorced women.

Table IV: Association between participants' characteristics and knowledge of caesarean section and assisted vaginal delivery

Variable	*Knowledge score*		X^2	*p-value*
	Good Knowledge n (%)	*Poor Knowledge n (%)*		
Age				
≤ 24	21 (80.8)	5 (19.2)		
25-34	79 (59.8)	53 (40.2)		
35-44	34 (70.8)	14 (29.2)		
≥45	4 (28.6)	10 (71.4)	12.42	0.006
Marital Status				
Single	31 (79.5)	8 (20.5)		
Married	103 (58.9)	72 (41.1)		
Separated	1 (33.3)	2 (66.7)		
Divorced	3 (100.0)	0 (0.0)	8.70	0.034
Number of living children				
≤3	119 (64.0)	67 (36.0)		
≥4	19 (55.9)	15 (44.1)	0.81	0.369
Highest level of education				
No formal education	5 (71.4)	2 (28.6)		
Primary	5 (62.5)	3 (37.5)		
Secondary	24 (66.7)	12 (33.3)		
Tertiary	88 (59.5)	60 (40.5)		
Others	16 (76.2)	5 (23.8)	2.77	0.597
Place of Antenatal care in the last pregnancy				
Government Hospital	18 (64.3)	10 (35.7)		
Private Hospital	101 (60.8)	65 (39.2)	0.12	0.729
Monthly Income(n=153)				
≤50000	11 (78.6)	3 (21.4)		
50000-99999	15 (75.0)	5 (25.0)		
100000-149999	10 (58.8)	7 (41.2)		
150000-199999	5 (50.0)	5 (50.0)		
≥200000	56 (60.9)	36 (39.1)	3.73	0.444
Religion				
Christianity	119 (61.7)	74 (38.3)		
Islam	16 (69.6)	7 (30.4)		
Traditional	3 (75.0)	1 (25.0)	0.81	0.666
Ethnicity				
Yoruba	72 (62.6)	43 (37.4)		
Igbo	47 (61.0)	30 (39.0)		
Hausa	9 (64.3)	5 (35.7)		
Others	10 (71.4)	4 (28.6)	0.56	0.905

Percentages are calculated across rows.

Table V shows that there was no significant relationship between the participants' characteristics and their perception of CS and AVD. Figure 1 shows that 130 (59.1%) of respondents had a good perception of CS and AVD, while the remaining 90 (40.9%) had a poor perception.

Table V: Association between participants' characteristics and perception of caesarean section and assisted vaginal delivery

Variable	*Perception Score*		X^2	*p-value*
	Good Perception n (%)	*Poor Perception n (%)*		
Age				
≤ 24	16 (61.5)	10 (38.5)		
25-34	76 (57.6)	56 (42.4)		
35-44	30 (62.5)	18 (37.5)		
≥45	8 (57.1)	6 (42.9)	0.44	0.931
Marital Status				
Single	25 (64.1)	14 (35.9)		
Married	99 (56.6)	76 (43.4)		
Separated	3 (100.0)	0 (0.0)		
Divorced	3 (100.0)	0 (0.0)	5.02	0.170
Number of living children				
≤3	110 (59.1)	76 (40.9)		
≥4	20 (58.8)	14 (41.2)	0.00	0.972
Highest level of education				
No formal education	6 (85.7)	1 (14.3)		
Primary	4 (50.0)	4 (50.0)		
Secondary	20 (55.6)	16 (44.4)		
Tertiary	86 (58.1)	62 (41.9)		
Others	14 (66.7)	7 (33.3)	3.07	0.546
Place of Antenatal care in the last pregnancy				
Government Hospital	16 (57.1)	12 (42.9)		
Private Hospital	98 (59.0)	68 (41.0)	0.04	0.851
Monthly Income(n=153)				
≤50000	7 (50.0)	7 (50.0)		
50000-99999	11 (55.0)	9 (45.0)		
100000-149999	12 (70.6)	5 (29.4)		
150000-199999	5 (50.0)	5 (50.0)		
≥200000	47 (51.1)	45 (48.9)	2.38	0.672
Religion				
Christianity	110 (57.0)	83 (43.0)		
Islam	18 (78.3)	5 (21.7)		
Traditional	2 (50.0)	2 (50.0)	3.98	0.136
Ethnicity				
Yoruba	66 (57.4)	49 (42.6)		
Igbo	45 (58.4)	32 (41.6)		
Hausa	8 (57.1)	6 (42.9)		
Others	11 (78.6)	3 (21.4)	2.37	0.499

Percentages are calculated across rows.

Discussion

In this current study, most of the participants had a good knowledge and a good perception of CS and AVD. Many of them would undergo CS and AVD if medically indicated. The study showed a relationship between the age of the participants and their knowledge of CS and AVD. The younger age groups had higher proportions with good knowledge. There was also an association between marital status and knowledge of CS and AVD. However, none of the participants' characteristics was statistically significantly associated with perception.

In all, more than three-fifths of participating women had good knowledge. This was similar to studies in other parts of Nigeria and Sub-Saharan Africa, [13, 17-19] where high proportions of good knowledge of surgical deliveries, ranging from 60% to 82.2%, were reported. However, the present study was at variance with the report by Roaya *et al*. in Saudi Arabia where only 12.6% of the participants had good knowledge of CS. [20] Similarly, a Pakistani study by Sultana *et al.* showed that only 44.6% had good knowledge of CS [21], much lower than the findings in the present study. The high level of good knowledge of surgical and assisted vaginal delivery reported in this study is desirable as it will enable women to make informed decisions concerning their reproductive health, particularly during childbirth.

The association observed between participants' age and knowledge of surgical deliveries agrees with another research conducted by Abazie *et al.* in Lagos State, southwest Nigeria where an association was also reported between the age of the participants and the knowledge of surgical delivery. [18] Furthermore, we noticed that women in younger age groups had higher proportions of good knowledge than women in the older age groups. This might be because younger people are usually more exposed to sources of information. For instance, it is a fact that younger people utilise social media more frequently to access information concerning various issues. [22]

Women's marital status has been linked with different aspects of their reproductive health. [23, 24] Marital status also influences decision-making; for instance, health choices for married women, including pregnancy and childbirth, depend on the husband and mother-in-law in many developing societies. [15] This correlation may explain why our study observed a statistically significant association between marital status and the knowledge of CS and AVD. This contrasts with the study in north India which reported no statistically significant association between marital status and awareness of CS. [25]

The majority (59.1%) of the participants in this study had a good perception of CS and AVD. This corroborates another Nigerian study by Panti *et al*., which reported that 96.5% of the participants had a good perception of CS. [11] Likewise, a study by Nolen *et al.* in Uganda reported high perceptions of AVD. [26] In contrast to our findings, studies in Lagos, Kansas and Uganda reported poor perceptions of CS and AVD. [18, 27, 28] The good perception reported by the majority in this study may partially be due to participants' high level of tertiary education since a direct relationship exists between education and health. [3]

Limitations: This study's cross-sectional nature and the absence of a multivariate analysis limit it, as factors associated with the knowledge and perception of CS and AVD could not be specified.

Conclusions

Most participants had good knowledge and a good perception of CS and AVD. The implication of the findings of this study will include policy and programme that will further consolidate the propensity to have good knowledge and perception of surgical birth

interventions among women of childbearing age in southwest Nigeria. Health education in the context of details and benefits of CS and AVD should be promoted particularly among older women of childbearing age.

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