

ORIGINAL ARTICLE**Determinants of Skilled Care Utilization among Pregnant Women Residents in an Urban Community in Kwara State, Northcentral Nigeria****A. Idowu¹, Samuel A. Olowookere^{2*}, Olajide O. Abiola³, Adebowale F. Akinwumi⁴, Caleb Adegbenro²****OPEN ACCESS**

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ABSTRACT

BACKGROUND: Skilled attendant at delivery (SBA) is one of the key indicators used in assessing progress towards improved maternal health. This study aimed at identifying factors influencing SBA utilization in Ilorin, Nigeria.

METHODS: This cross-sectional study was carried out using multi-stage sampling technique among 400 participants in Ilorin, Northcentral Nigeria. A pre-tested questionnaire was used for data collection, and data analysis was done using descriptive and inferential statistics.

RESULTS: SBA supervised 73.8% births. Determinants of skilled birth attendance at delivery include higher education (AOR; 10.94, 95% CI; 3.60-33.26), having only one child (AOR; 4.33, 95% CI; 1.18-15.82), having at least 4 ANC attendance (AOR; 18.84, 95% CI; 8.95-55.82) and residing near delivery sites (AOR; 11.49, 95% CI; 2.43-55.56).

CONCLUSION: The proportion of births supervised by SBA needs improvement in Northcentral Nigeria. Full implementation of reproductive health policies will enhance skilled births in Nigeria.

KEYWORDS: Skilled birth attendants, Antenatal care, utilization

INTRODUCTION

Skilled attendant at delivery is one of the key indicators used in assessing progress towards the Millennium Development Goal of improving maternal health (1). This is when a qualified health worker (such as a midwife, a nurse or a medical doctor) manages labour effectively, promptly identifies and manages complications and adequately supports with effective referral systems for specialised care when needed (2). The global target is for at least 90% of births to be supervised by Skilled Birth Attendants (SBA) worldwide by 2015 (3). However, for developing countries, the International Confederation of Mid-wives (ICM) and International Federation of Gynaecology and Obstetrics (FIGO) in 2002 proposed a target of one skilled birth attendant for every 5,000 populations. This means that a skilled attendant can be expected to attend 200 births every year (4).

Empirical evidences have shown that early and regular attendance of antenatal care (ANC) by pregnant women and delivery under supervision of a skilled attendant are associated with improved reproductive health outcomes with resultant decrease in maternal and peri-natal deaths (3,5). Studies have shown that SBA presence at delivery could prevent around 16% to 33% of maternal deaths (6,7). In fact, countries where SBA are utilized at delivery have reduced maternal mortality rate to as low as 50 per 100,000 live births (8).

Sub-Saharan Africa (SSA) currently contributes to 57% of the 358,000 global maternal deaths (9). The life time risk of a woman dying during pregnancy, childbirth or in the early post-natal period is also very high in this sub-region; 1 in 31 compared to 1 in 4300 in developed regions (10). Regrettably, greater than one-third of the approximately 2.65 million stillbirths and 3.3 million neonatal deaths globally occur in SSA (11, 12).

Generally, the proportion of SBA supervised births in developing regions increased from 53% in 1990 to 61% in 2007; yet in South Asia and Sub Sahara Africa (SSA), this figure remained less than 50% (13,14). Moreover, a substantial proportion of antenatal care users do not deliver with skilled attendants, and a significant proportion of mothers in developing countries still deliver at home unattended by SBA (15,16). In Nigeria, the National Demographic and Health Survey 2013 (NDHS) reports an overall coverage of 38% for SBA at delivery, which partly explains the high maternal mortality ratio of 576 maternal deaths per 100,000 live births in the country (17). This grave scenario requires more researches to help in identifying factors that are associated with utilization of skilled care at births among pregnant women. This study has the potential of providing useful information for evidence-based decision making for policy makers working in the field of maternal and child health.

METHODS

Study site: This study was conducted in Ilorin West Local Government Area (LGA) of Ilorin,

Kwara State, Nigeria, between August and November, 2015. According to the 2006 population figure, about 364,666 people live there, making it the most densely populated Local Government Area in Kwara State.

The study design was descriptive cross-sectional survey. A minimum sample size of 369 was calculated using the Leslie-Kish formula for estimating single proportion (18). According to the 2013 NDHS, 38% of deliveries were supervised by skilled birth attendants (17) with the margin of error set at 5%. The sample size was increased to 409 using a non-response rate of 10%. All consenting women in the reproductive age group of 15-49 years with history of childbirths within 12 months preceding the survey were interviewed. Women who were too ill to give required information were exempted from the study.

The respondents were selected using multi-stage sampling technique. In the first stage, one ward was selected by balloting from the 12 electoral wards in Ilorin, West LGA. In the second stage, one enumeration area was selected by balloting from all the enumeration areas in the selected ward. In the third stage, all households in the selected enumeration area were recruited into the study. In the fourth stage, all eligible women were approached in the selected households to recruit them till the sample size was achieved.

Data collection method and instruments: Data were collected using semi-structured interviewer-guided questionnaire based on findings from previous studies. The questionnaire was written in English language but translated into Yoruba, which is the major language spoken by the study population, and back translated into English language. The instrument was used to collect information on respondents' socio-demographic characteristics, antenatal and delivery care practices.

Data analysis: The data were field-edited daily and Statistical Package for Social Sciences (SPSS) version 21 (SPSS Inc, Chicago, IL, IBM Version) was used for analysis. Data were analysed using descriptive and inferential statistics. Bivariate chi-square test and multivariate logistic analyses were

performed on respondents' characteristics and factors that significantly predict availability of SBA at delivery. Adjusted odd ratio (AOR) and 95% CI were presented and used as measures of the strength of association. A *p* value <0.05 was accepted as significant.

Respondents' socio-economic status: Using Oyedepi's classification of Social Class (19), respondents' socio-economic status was classified into three: low, middle and high. This classification used a composite score of respondents' educational levels and occupational types of their spouses; both were scored. The score ranged from 1 to 5 for respondents' educational level and spousal occupational types respectively. Respondents' scores from each of the occupational and educational categories were added together and rated out of 10. Those who scored less than 5 points were grouped into lower social class; scores from 5 to 7 points were grouped into middle social class while those who scored between 8-10 points were grouped into high social class.

Ethical consideration: Approval to conduct the study was obtained from the Bowen University Ethical Review Committee and permission received from the Department of Primary Health Care, Ilorin, Central LGA. Written consent was obtained from study participants before they were allowed to participate in the study. Participation was entirely voluntary, and confidentiality was ensured. Study participants detected not to have used skilled birth attendants in the last delivery were adequately counselled against such practices in their subsequent deliveries.

RESULTS

A total of 400 copies of the questionnaire were considered satisfactorily completed by the respondents and were analysed out of the 420 that were administered (95% response rate). The mean age (SD) of the respondents was 30.3±6.0 years. Seventy-five percent of the respondents were married, while 58.3% had tertiary education. Most, (66.7%), belonged to the middle socio-economic class. The majority (91.8%) had their first pregnancies when they were ≥ 20 years of

age, while 58.0% had two to four children (Table 1).

Table 1: Respondents' Socio-economic characteristics.

Socio-demographic characteristics	Number of respondents	Percent
	N=400	
Age group (years)		
≤19	14	3.5
20-29	174	43.5
30-39	168	42.0
40-49	44	11.0
Mean (SD) (years)	30.3 (6.4)	
Marital status		
Never married	51	12.7
Married	299	74.8
Separated	20	5.0
Divorced	19	4.8
Widowed	11	2.7
Educational status		
No formal education	16	4.0
Primary education	49	12.2
Secondary education	102	25.5
Tertiary education	233	58.3
Socio-economic status		
Low	37	9.2
Middle	96	24.0
High	267	66.8
Religion		
Christianity	176	44.0
Islam	218	54.5
Traditional	6	1.5
Age at first pregnancy		
≤19	33	8.2
≥20	367	91.8
Number of children		
1	144	36.0
2-4	232	58.0
≥5	24	6.0

The majority (82.2%) of the respondents had at least one antenatal care visit in their last pregnancies. Most participants (62.9%) had discussions on significant dangers signs in pregnancy, labour and puerperium during such visits. Over 77% commenced ANC visits at a

gestational age of more than three months. Decisions on where to go for ANC visits were taken by their spouses (53.2%). Most women (56.2%) had at least four ANC visits (Table 2).

Table 2: Respondents' antenatal care practice.

Variables	Frequency	%
Had ANC visits		
Yes	329	82.2
No	71	17.8
Total	400	100.0
Type of facility visited		
Private Hospital	146	44.4
Public Hospital	167	50.8
Health post	16	4.8
Total	329	100.0
Age of the pregnancy at first ANC visit		
<3 months	74	22.5
≥3months	255	77.5
Total	329	100.0
Frequency of ANC visits		
Once	26	7.9
Twice	66	20.1
Thrice	52	15.8
≥4 times	185	56.2
Total	329	100.0
Decision taker on where to deliver		
Self	90	27.4
Husband	175	53.2
Relatives	51	15.4
Others	13	4.0
Total	329	100.0
Had discussion on danger signs		
Yes	207	62.9
No	122	37.1
Total	329	100.0

Table 3 shows that 76.8% of had hospital deliveries with 39.0% and 37.8% in private and public hospitals respectively. Meanwhile, 2.8% delivered in Traditional Birth Attendant (TBA) homes while 15% of them had home deliveries. The major reason for hospital delivery was perceived better delivery services (40.1%). Over

two-fifth of those who delivered in hospitals lived close to those facilities i.e. within 10-30 minutes walking distance. Deliveries were supervised by nurses/midwives in 63.8% of them and by medical doctors in 32.2%. Most (96.1%) of our respondents who had hospital deliveries were satisfied with the services received.

Table 3: Respondents' delivery practice.

Variables	Frequency	%
Place of last delivery		
Government Hospital	151	37.7
Private Hospital	156	39.0
Religious Homes	23	5.8
Home deliveries	59	14.7
Traditional Birth Attendant	11	2.8
Total	400	100.0
Reasons for Hospital Delivery		
Perceived better services	123	40.1
Close proximity to place of residence	47	15.3
Perceived better outcome	98	31.9
Fear of unfavourable outcomes from home delivery	12	3.9
I was just told to deliver there	27	8.8
Total	307	100.0
Proximity of residents to the health facility		
<10minute walk	72	23.5
10-30 minute walk	130	42.3
>30 minutes walk	105	34.2
Total	307	100.0
Type of Birth Attendants at the health facility		
No attendants	5	1.6
Doctor	99	32.2
Nurse/ Midwife	196	63.8
Health Assistant	7	2.4
Total	307	100.0
Level of satisfaction with hospital delivery		
Satisfied	295	96.1
Not satisfied	12	3.9
Total	307	100.0

Table 4 shows that the proportion of women who delivered with SBA was significantly higher among women within the 30-39 age group, those with tertiary education, high socioeconomic status and whose age at first pregnancy was ≥ 20 years

($p=0.0001$). Higher proportion of respondents who delivered with SBA belonged to those who had ANC visits, received ANC in private hospitals, and those living within 10-30 minutes walking distance to places of deliveries ($p<0.05$) (Table 5).

Table 4: Association between respondents' Socio-demographic characteristics and availability of skilled birth attendants.

Variables	Skilled Birth Attendants present at birth		χ^2	P-value
	Yes N=295 n(%)	No N=105 n(%)		
Age Groups				
≤ 19	1 (7.0)	13 (93.0)		
20-29	128 (73.6)	46 (26.4)		
30-39	134 (80.0)	34 (20.0)		
40-49	32 (73.0)	12 (27.0)	31.521**	0.0001*
Marital status				
Never married	33 (64.7)	18 (35.3)		
Married	231 (77.0)	68 (23.0)		
Separated	12 (60.0)	8 (40.0)		
Divorced	11 (58.0)	8 (42.0)		
Widowed	8 (73.0)	3 (27.0)	8.011**	0.091
Educational status				
No formal education	2 (2.5)	14 (87.5)		
Primary education	26 (53.0)	23 (47.0)		
Secondary education	70 (69.0)	32 (31.0)		
Tertiary education	197 (84.5)	36 (15.5)	53.237**	0.0001*
Socio-economic status				
Low	20 (54.0)	17 (46.0)		
Middle	57 (59.0)	39 (41.0)		
High	218 (82.0)	49 (18.0)	25.233**	0.0001*
Religion				
Christianity	140 (79.0)	36 (21.0)		
Islam	151 (69.0)	67 (31.0)		
Traditional	3 (50.0)	3 (50.0)	6.930**	0.0031*
Age at first pregnancy				
≤ 19	12 (36.0)	21 (64.0)		
≥ 20	283 (77.0)	84 (23.0)	25.968	0.0001*
Number of children				
1	108 (94.0)	8 (6.0)		
2-4	173 (99.0)	2 (1.0)		
≥ 5	14 (92.0)	2 (8.0)	9.190**	0.010*

*Significant at $p<0.05$ **likelihood chi-square used

Table 5: Association of respondents' obstetrics variables and availability of skilled birth attendants

Variables	Skilled Birth Attendants present at birth		X ²	p-value
	Yes (N=295) n(%)	No (N=105) n (%)		
Had ANC				
Yes	287 (97.0)	10 (3.0)		
No	28 (23.0)	95 (77.0)	234.124	0.0001*
Type of facility visited				
Health post	15 (23.0)	50 (77.0)		
Private Hospital	124 (83.0)	25 (17.0)		
Other Public Hospital	156 (84.0)	30 (16.0)	102.96**	0.001*
Gestational age at first ANC visits				
<3 months	67 (43.0)	87 (57.0)		
≥3months	228 (92.7)	18 (7.3)	118.309	0.0001*
Frequency of ANC visits				
1-3times	127 (66.0)	65(34.0)		
≥4 times	168 (80.8)	40 (19.2)	51.067	0.0001*
Decision maker on where to deliver				
Self	84 (77.0)	25 (23.0)		
Husband	149 (88.0)	20 (12.0)		
Relatives	62 (50.8)	60 (49.2)	51.136**	0.0001*
Had discussion on danger signs				
Yes	178 (81.6)	40 (18.4)		
No	117 (64.0)	65 (36.0)	15.451	0.0001*
Proximity of hospital to place of residence				
<10 minutes	67 (68.0)	32 (32.0)		
10-30 minutes	126 (88.0)	17 (12.0)		
>30 minutes	102 (65.0)	56 (35.0)	13.757**	0.001*

*Significant at $p < 0.05$ **likelihood chi-square used

Table 6 shows that determinants of utilization of SBA include age ≤ 19 years (AOR; 0.029, 95% CI; 0.003-0.245), tertiary education (AOR; 10.94, 95% CI; 3.60-33.26), respondents with one child (AOR; 4.33, 95% CI; 1.18-15.82), had ≥ 4 ANC visits (AOR; 18.84, 95% CI; 8.95-55.82) and those living near places of deliveries (AOR; 11.49, 95% CI; 2.43-55.56).

DISCUSSION

This study assessed the factors associated with the use of skilled delivery care among women in Ilorin, Northcentral Nigeria. It reported that most women received ANC in their last pregnancies during which discussions on major danger signs in pregnancy, labour and puerperium were done. This agrees with the 2013 NDHS report for

Nigeria which shows that 67% of the women in Northcentral Nigeria received ANC from skilled personnel (17). However, studies elsewhere reported differing figures such as 31% in Nepal and 34% in Ethiopia (20,21). Good ANC practice has been proven to correlate positively with availability of SBA at births (22,23).

Husbands were the main decision makers with regard to where to receive ANC service in most respondents. Most communities in Nigeria practice patrimonial family system where most decisions are taken by men who are often the heads of the families. Families with supportive husbands in reproductive matters are more likely to utilize maternal health services compared to families where women take reproductive actions independent of their husbands (24-25).

Table 6: Logistic regression of respondent's variables and availability of skilled birth attendants at delivery.

Variable	AOR	95%CI	p-value
Age group (years)			
≤19	0.029	0.003-0.245	0.001*
20-29	1.043	0.496-2.196	0.911
30-39	1.478	0.689-3.169	0.315
40-49 (ref)			
Education level			
None (ref)			
Primary	2.487	0.751-8.230	0.136
Secondary	4.813	1.544-15.000	0.007*
Tertiary	10.944	3.601-33.262	0.0001*
Age at first pregnancy (years)			
<19	0.651	0.186-2.276	0.502
≥20 (ref)			
Number of children			
1	4.337	1.189-15.817	0.026*
2-4	2.204	0.728-6.668	0.162
≥5 (ref)			
Had ANC			
Yes	18.843	8.946-39.689	0.0001*
No (ref)			
Proximity of hospital to place of residence (minutes)			
<10	11.494	2.433-55.556	0.002*
10-30	1.149	0.222-5.962	0.868
>30 (ref)			

AOR=adjusted odds ratio CI=confidence interval
*significant at $p < 0.05$

Almost three-quarter of the respondents in the current study had their deliveries supervised by SBA. According to the Nigerian NDHS report for 2013, 46.5% of the women in the Northcentral geopolitical zone had SBA present during their deliveries, which was the fourth highest figure among the six geopolitical zones in Nigeria (17). The reason for the increased figure reported in the current study could have been due to socio-economic class and urban location of our respondents. These could have impacted positively on their knowledge-base subsequently creating a positive health-seeking behaviour with regard to delivery care utilization which is mostly present in the urban communities. In the current study, having SBA at births was significantly associated with age ≥ 20 years and

having higher education. Age and education status have been reported as important socio-demographic variables determining maternal healthcare services utilization (26,27). Our finding could have been due to the fact that pregnant adolescents in developing countries tend to have inadequate knowledge about reproductive health matters and are usually in poor financial status. Hence, they are less likely to have access to high quality obstetric services provided by SBA.

This study reported that respondents who attended at least one ANC visit were more likely to have SBA at delivery. This could be because these respondents have received appropriate health information during their ANC visits regarding benefits of SBA utilization. Moreover, our study revealed that respondents who had one child had significantly increased odds of SBA uptake compared to those with five or more children. Besides, respondents whose homes were within walking distances from tend to deliver with SBA. These findings are in keeping with previous research (20,24). Long distances could discourage SBA utilization among pregnant women particularly in developing countries with poor road networks and high level of insecurity.

Since the survey relied on information voluntarily provided by the respondents, the study may not be totally free from information bias as all the answers given may not be a true representation of actual utilization of SBA. Effort was made to minimize this bias by explaining in details how their response would assist policy makers in designing cost-effective "safe delivery programmes" for pregnant women in Nigeria.

In conclusion, although most women in the Northcentral geopolitical zone of Nigeria utilized SBA as revealed by the current study; it is below the global target of $\geq 90\%$ of deliveries being supervised by SBA. Thus, more efforts are required to ensure SBA at each delivery. In achieving this goal, stakeholders must guarantee enough health facilities offering Basic and Comprehensive obstetric care services to stem the tide of maternal deaths in Nigeria and other African countries thereby making the Sustainable Development Goals a reality.

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