

Male knowledge of birth preparedness in Ogun State, Nigeria: A rural/urban comparative cross-sectional study

Sodeinde K¹, Bamidele F², Adefala N², Sodeinde A³

¹ Babcock University, Ilishan-Remo, Ogun State, Nigeria.

² Babcock University Teaching Hospital, Ilishan-Remo, Ogun State, Nigeria.

³ Tai Solarin University of Education, Ijagan, Ogun State, Nigeria.

Abstract

Objective: This study aimed to compare the knowledge of men concerning birth preparedness between rural and urban dwellers of Ogun State, Nigeria.

Methodology: This comparative cross-sectional study was conducted among 440 men each in rural and urban areas of Ogun State using a multistage sampling method to select participants. A structured interviewer-administered questionnaire was used to elicit data about respondents' socio-demographic characteristics and knowledge of birth preparedness. Knowledge was graded as good and poor knowledge. Data analysis was done with SPSS version 20 and presented as tables.

Results: The mean ages of the urban and rural respondents were 36.58±6.760 and 37.61±9.788 respectively. The difference in the mean age of urban and rural residents was not statistically significant ($t = -1.819$, $P = 0.069$). A higher proportion of urban respondents (53.4%) had a statistically significant good knowledge of birth preparedness compared to 30.2% of rural men ($P < 0.001$). The association between age and knowledge of birth preparedness was statistically significant among rural respondents ($P < 0.001$) unlike urban respondents ($P = 0.874$). A statistically significant association was noted between education and knowledge ($P < 0.001$) in the urban area as against the rural area ($P = 0.084$).

Conclusion: Knowledge of birth preparedness is better among male urban dwellers than their rural counterparts. Knowledge is statistically significantly associated with age in the rural area and with the level of education in the urban area. There is a need for an improved appropriate strategy that can raise knowledge of maternity care among rural men.

Keywords: Male, knowledge, Birth preparedness, rural/urban, Ogun State

Background

Despite the global reduction in maternal mortality recorded in the dawn of the new millennium, the world still failed to meet the Millennium Development Goals target of a 75% decline in the global Maternal Mortality Ratio (MMR) by 2015 (1). With the introduction of the Sustainable Development Goals, a decrease in maternal deaths continues to be of utmost importance with a global target of reducing MMR to fewer than 70 maternal deaths per 100,000 by the year 2030 (1). Moreover, no country is expected to have

MMR above 140 maternal deaths per 100,000 live births (1).

However, there has been an obvious persistence of disparities in maternal deaths among different climes. For instance, the sub-Saharan Africa region has the highest prevalence of MMR at 546 maternal deaths per 100,000 as against only 12 maternal deaths per 100,000 reported in developed countries (1). According to the National Demographic Health survey 2018, Nigeria has an MMR of 512 maternal deaths per 100,000 (2). Birth preparedness embraces the practice of preparation for uncomplicated births

Correspondence: Sodeinde Kolawole.

Department of Community Medicine,
Babcock University, Ilishan, Ogun State, Nigeria
+2348062957695; kolawolesodeinde024@gmail.com

and forestalling the actions to be taken in the event of an emergency (3). It involves recognizing a skilled birth attendant, planning for means of transport, recognizing a health facility for delivery, saving money and identifying a potential blood donor in case the need arises for an obstetric emergency (3). The knowledge of men and their participation in birth preparedness is essential for women to patronize maternal health services and subsequently in reducing maternal morbidity and mortality (4). This is predominantly the case in male-controlled societies as seen in Nigeria and other African countries where men exercise enormous influence on the health of their spouses and offsprings (5). It has been documented that poor knowledge of birth preparedness is one of the reasons why men are not involved in maternal health care (6). For instance, the refusal of men to accompany their spouses to the hospital was ascribed to their ignorance of the importance of doing so during a Nigerian study (6). In a similar vein, men who were conversant with antenatal care (ANC) and who acquire knowledge from health workers were shown to be more likely to accompany their spouses to ANC in Tanzania (7).

As a component of antenatal care, couples should jointly be provided with comprehensive information about pregnancy and possible complications that may arise during childbirth (8). It has been documented that joint health talk with spouses is desired by most women so that the men can learn about optimum care for their pregnant wives (9). Unfortunately in developing countries, men are not allowed entrance into the clinics during health talk sessions (10). Despite, the importance of good male knowledge of birth preparedness in improving utilization of maternal health services and ensuring better health outcomes among women, their knowledge about maternity care has been documented to be poor particularly in developing countries (11).

Many factors have been postulated for the poor knowledge of birth preparedness among men in these areas. Since men seldom join their wives during health talk and clinical consultations, they become unacquainted with the preventive approaches that were deliberated at these periods. Consequently, men may not give adequate support to their wives, until perhaps complications arise (10). In some instances, it is the health workers who deliberately exclude men from getting the necessary information about maternal care (10). Other factors responsible for poor male knowledge include low facility delivery

of pregnant women and insufficient public health awareness programs (12).

Strategies that can improve male participation in maternal health such as enhancing their knowledge of the subject should be given priority; bearing in mind the significant role of the man in ensuring positive maternal health outcomes (11). Moreover, evidence has shown that the knowledge of men about risky signs, birth preparedness and mitigation of complications during pregnancy are not sufficiently studied (7). Studies have shown rural-urban disparities in men's knowledge of birth preparedness and this may cause regional differences in utilization of maternal health care. For instance, men who dwelt in rural areas of southeastern Nigeria had a lower level of knowledge of birth preparedness as compared to their counterparts who were living in urban areas and place of residence was a significant predictor of men's knowledge of birth preparedness in this study (13). Similarly, men and their spouses who live in rural areas of Tanzania have lower knowledge of birth preparedness as compared to those who reside in urban residents (7).

Methodology

This study was conducted in Ogun State, Southwest Nigeria. The state has a projected population of 5,217,700 (14) people in 2016 who are mainly of the Yoruba tribe. Ogun state has many public and private health institutions that render maternal health services (15). The study design was community-based comparative cross-sectional conducted among 440 men each in the rural and urban areas of the state who were 18 years and above and whose spouses have had a minimum of one live birth in the last five years. Using a power of 80% and a confidence level of 95%, the minimum required sample size was obtained from the formula for comparing proportions between two groups (16).

A multistage sampling method was adopted in selecting these participants. In stage one, simple random sampling was used to select one of the three senatorial districts in the state. Ogun Central senatorial district was selected. The senatorial district has six LGAs divided into five urban and one rural LGA. Odeda, the only rural LGA was included. Odeda LGA has a landmass of 1,560 square kilometres (17) with a projected population of 152,300 for the year 2016 (14). Simple random sampling was used to select one out of the five urban LGAs which turned out to be Abeokuta South LGA. The LGA has 15 wards, a projected population of 348,200 (14) in the year

2016 and a total area of 71 square kilometres (18). In the next stage, simple random sampling was used to select five wards from each rural and urban LGA. Two settlements were selected from each ward making a total of ten settlements from each LGA. Eligible men in households in these settlements were interviewed.

The study instrument was a structured interviewer-administered questionnaire constructed from a review of literature on male contribution to Maternal Health Care (6, 19, 20, 21). and administered with the help of eight trained research assistants. The instrument was pre-tested in Lagos State which is in the same geo-political zone with the study area. The instrument assessed respondents' socio-demographic data and the knowledge of men concerning birth preparedness. Questions were asked if respondents knew about certain facts about birth preparedness. This included knowledge of the components of birth preparedness and knowledge of danger signs in pregnancy. The data were collected from October to December 2017.

Data were collated and analyzed using Statistical Package for Social Sciences (SPSS) version 20.0. Every correct knowledge answer was scored as 1 and wrong answers were scored as 0. The mean knowledge score of respondents was calculated as 15.7 (approximated to 16). Average knowledge of at least 16 (mean score) was considered as good knowledge of birth preparedness and below 16 was considered as poor knowledge. Associations between

categorical variables were tested with Chi-squares, while the comparison between means was done with the student's t-test. The level of significance was set at a 95% confidence interval with P value= 0.05. The analyzed data were presented as frequency tables. Ethical approval was obtained from the Health Research and Ethics Committee of the Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State (OOUTH/HREC/64/2016). Verbal and written informed consent was obtained from the respondents and strict confidentiality of all information and results of findings were maintained throughout the study.

Results

Table 1 shows that the mean age of the urban respondent was 36.58 ± 6.760 while that of the rural respondents was 37.61 ± 9.788 . The difference in the mean age of urban and rural residents was however not statistically significant ($t = -1.819, P = 0.069$). In the rural area, above one-fifth (21.1%) of the respondents had no formal education while only less than a tenth (8.4%) of the urban participants had no formal education. The association between educational status and place of residence was statistically significant ($\chi^2 = 13.069, P < 0.001$). The most common occupations in the rural and urban areas were farming (50.0%) and civil service (28.6%) respectively. The association between occupation and place of residence was also statistically significant ($\chi^2 = 223.366, P < 0.001$).

Table 1: Sociodemographic characteristics of respondents (N=440 per group)

Variable	Urban n(%)	Rural n(%)	Test Statistics
Age Group (Years)			
≤24	7(1.6)	11(2.5)	
25-34	172(39.1)	178(40.5)	
35-44	205(46.6)	152(34.5)	
45-54	53(12.0)	69(15.7)	
≥55	3(0.7)	30(6.8)	
Mean	36.58 ± 6.760	37.61 ± 9.788	$\chi^2 = 791.35, P < 0.001$ $t = -1.819, P = 0.069$
Marital Status			
Single	62(14.1)	17(3.9)	
Married	359(81.6)	407(92.5)	
Divorced	6(1.4)	5(1.1)	
Separated	13(2.9)	11(2.5)	$\chi^2 = 29.775$ $P < 0.001$
Highest Educational Status			
No Formal Education	37(8.4)	93(21.1)	
Primary	64(14.5)	130(29.5)	
Secondary	127(28.9)	156(35.5)	
Tertiary	212(48.2)	61(13.9)	$\chi^2 = 13.069$ $P < 0.001$
Occupation			
Trading	115(26.1)	85(19.3)	

Farming	29(6.6)	220(50.0)	
Unskilled	52(11.8)	13(3.0)	
Semi-Skilled	80(18.2)	52(11.8)	
Professional	29(6.6)	5(1.1)	
Civil Servant	126(28.6)	57(13.0)	$\chi^2=223.366$
Unemployed	9(2.0)	8(1.8)	$P < 0.001$
Religion			
Christianity	268(60.9)	258(58.6)	
Islam	169(38.4)	167(38.0)	$\chi^2=8.202$
Traditional worshipper	3(0.7)	15(3.4)	$P = 0.017$
Ethnicity			
Yoruba	402(91.4)	284(64.5)	
Igbo	28(6.4)	30(6.8)	
Hausa	4(0.9)	103(23.4)	$\chi^2= 121.930$
Others	6(1.4)	23(5.2)	$P = < 0.001$

Table 2 shows the knowledge of birth preparedness among men. Arranging money for delivery is the most known preparation a man should make for childbirth. This knowledge is higher among rural respondents (84.5%) compared to urban respondents (81.4%). The difference in knowledge was, however, not statistically significant ($P=0.209$). Knowledge of arranging for a skilled birth attendant was generally low among rural and urban respondents. However, this knowledge was

higher among urban respondents (34.1%) than rural respondents (30.0%). The difference in knowledge was not statistically significant ($P=0.194$). Arranging for blood donors in the event of emergencies was the least known preparation a man should make for childbirth. The knowledge was however higher among urban respondents (15.5%) than rural respondents (4.5%). The difference in this knowledge was statistically significant ($P < 0.001$).

Table 2: Knowledge of Components of Birth Preparedness (N= 440 per group)

Variable	Urban n(%)	Rural n(%)	χ^2	P-value
A man's preparation for childbirth include:				
Arrange money for delivery	358(81.4)	372(84.5)	1.575	0.209
Arrange a skilled birth attendant	150(34.1)	132(30.0)	1.691	0.194
Arrange for transportation	308(70.0)	205(46.6)	49.588	<0.001
Purchase birth kits	309(70.2)	171(38.9)	87.285	<0.001
Arrange blood donor	68(15.5)	20(4.5)	29.091	<0.001
Decide the place of delivery	125(28.4)	124(28.2)	0.006	0.940
Heard about ANC before				
Yes	431(98.0)	422(95.9)		
No	9(2.0)	18(4.1)	2.361	0.124
Place where women should receive care during pregnancy include				
It is not necessary	45(10.2)	6(1.4)	31.658	<0.001
Health facilities	392(89.1)	421(95.7)	13.587	<0.001
Traditional homes	33(7.5)	95(21.6)	35.143	<0.001
Mission homes	48(10.9)	120(27.3)	38.138	<0.001
Chemist shops	6(1.4)	29(6.6)	15.740	<0.001
A woman needs care and support after delivery				

Yes	420(95.5)	436(99.1)		
No	20(4.5)	4(0.9)	15.410	<0.001

Only responses in the affirmative were reported

Table 3 shows vaginal bleeding (78.9% urban; 69.8% rural) was the most known danger sign in pregnancy and that this knowledge was significantly higher among urban respondents (P=0.002). This was followed by swollen legs and face (56.1% urban and 57.7% rural). Only a few of the respondents knew that blurred vision was a sign of danger in pregnancy and that proportion of respondents who knew this was significantly higher in the urban area (P=0.019). A significantly higher proportion of respondents in the urban area also knew the loss of consciousness (urban 45.7; rural 18.0; P<0.001) as danger signs in pregnancy as compared to their rural

counterparts. During labour and delivery, retained placenta (81.8%), severe vaginal bleeding (72.0%) and prolonged labour (68.0%) were the three most known danger signs in the urban area while severe vaginal bleeding (60.5%), retained placenta (58.6%), and convulsion (29.1%) were the three most known danger signs in the rural area. The difference in knowledge of severe vaginal bleeding (P<0.001), Prolonged labour (P<0.001), Convulsion (P<0.001), Retained placenta (P<0.001) and loss of consciousness (P<0.003) as danger signs in labour were all statistically significantly higher in urban areas compared to rural areas.

Table 3: knowledge of danger signs in pregnancy and labour (N= 440 per group)

Variable	Urban n(%)	Rural n(%)	χ ²	P-Value
Danger signs in Pregnancy included				
Vaginal bleeding	347(78.9)	307(69.8)	9.526	0.002
Severe headache	127(28.9)	138(31.4)	0.653	0.419
Blurred vision	95(21.6)	68(15.5)	5.489	0.019
General body weakness	140(31.8)	181(41.1)	8.244	0.004
Swollen leg and face	247(56.1)	254(57.7)	0.227	0.634
Loss of consciousness	201(45.7)	79(18.0)	77.964	<0.001
High Fever	116(26.4)	63(14.3)	19.700	<0.001
Danger signs in labour/Delivery include				
Severe vaginal bleeding	317(72.0)	266(60.5)	13.219	<0.001
Prolonged labour > 12 hours	299(68.0)	109(24.8)	164.963	<0.001
Convulsion	181(41.1)	128(29.1)	14.010	<0.001
Retained placenta	360(81.8)	258(58.6)	56.545	<0.001
High fever	99(22.5)	81(18.4)	2.263	0.133
Loss of consciousness	143(32.5)	104(23.6)	8.561	0.003

Only responses in the affirmative were reported

Table 4 shows that a higher proportion of urban respondents (53.4%) had statistically significant

overall good knowledge of birth preparedness compared to 30.2% of rural men (P<0.001).

Table 4: Knowledge Score of birth preparedness (N= 440 per group)

Variable	Urban n (%)	Rural n (%)	χ ²
Poor Knowledge	205 (46.6)	307 (69.8)	χ ² =48.592
Good Knowledge	235 (53.4)	133 (30.2)	P<0.001
Total	440 (100.0)	440 (100.0)	
Mean	17.02 ± 5.129	14.39 ± 4.779	

Mean 15.70 ± 5.126

Table 5 shows that the association between age and knowledge of birth preparedness was statistically significant among rural respondents

(P<0.001) but not statistically significant among urban respondents (P=0.874). Participants' occupations were also significantly associated

with knowledge of birth preparedness in urban (P=0.017) and rural areas (P<0.001). Statistically significant associations were also noted between marital status (P=0.003) and education (P<0.001)

with knowledge in the urban area whereas these associations were not statistically significant in the rural area (P=0.736 and 0.084 respectively).

Table 5: Knowledge of birth preparedness by socio-demographic characteristics of respondents in urban and rural communities (N=440 per group)

Variable	Urban		Rural	
	Poor Knowledge N (%)	Good Knowledge n(%)	Poor Knowledge N (%)	Good Knowledge n(%)
Age Group(Years)				
≤24	3(42.9)	4(57.1)	11(100.0)	0(0.0)
25-34	79(45.9)	93(54.1)	126(70.8)	52(29.2)
35-44	100(48.8)	105(51.2)	117(77.0)	35(23.0)
45-54	22(41.5)	31(58.5)	33(47.8)	36(52.2)
≥55	1(33.3)	2(66.7)	20(66.7)	10(33.3)
χ ² (P Value)	1.226(0.874)		24.485(<0.001)	
Marital Status				
Single	42(67.7)	20(32.3)	10(58.8)	7(41.2)
Married	156(43.5)	203(56.5)	285(70.0)	122(30.0)
Divorced	3(50.0)	3(50.0)	4(80.0)	1(20.0)
Separated	4(30.8)	9(69.2)	8(72.7)	3(27.3)
χ ² (P Value)	13.902(0.003)		1.272(0.736)	
Educational Status				
No Formal Education	27(73.0)	10(27.0)	74(79.6)	19(20.4)
Primary	42(65.6)	22(34.4)	90(69.2)	40(30.8)
Secondary	57(44.9)	70(55.1)	100(64.1)	56(35.9)
Tertiary	79(37.3)	133(62.7)	43(70.5)	18(29.5)
χ ² (P Value)	27.227(<0.001)		6.644(0.084)	
Occupation				
Trading	58(50.4)	57(49.6)	59(69.4)	26(30.6)
Agricultural Worker	12(41.4)	17(58.6)	167(75.9)	53(24.1)
Unskilled	35(67.3)	17(32.7)	2(15.4)	11(84.6)
Semi-skilled	38(47.5)	42(52.5)	33(63.5)	19(36.5)
Professional	12(41.4)	17(58.6)	2(40.0)	3(60.0)
Civil Servant	46(36.5)	80(63.5)	38(66.7)	19(33.3)
Unemployed	4(44.4)	5(55.6)	6(75.0)	2(25.0)
χ ² (P Value)	15.476(0.017)		25.614(<0.001)	
Ethnicity				
Yoruba	187(46.5)	215(53.5)	193(68.0)	91(32.0)
Igbo	12(42.9)	16(57.1)	18(60.0)	12(40.0)
Hausa	3(75.0)	1(25.0)	78(75.7)	25(24.3)
Others	3(50.0)	3(50.0)	18(78.3)	5(21.7)
χ ² (P Value)	1.483(0.686)		4.320(0.229)	

Discussion

Birth preparedness is a vital tactic that ensures women have prompt access to skilled care during pregnancy and childbirth (22). This safeguards against undesirable health outcomes for women and newborns (22). What men know concerning birth preparedness has substantial influence in their participation in maternity care in a positive direction (12, 23), and subsequently in the utilization of maternal health services (23).

Like many developing countries (7, 19, 24) male knowledge of maternity care in this current study is poor. This may be relatively due to the erroneous belief that childbirth is exclusively the woman’s responsibility in these areas (6). Therefore, the men do not bother to acquire knowledge about pregnancy and childbirth. The implication of this may be reduced utilization of maternal health services since men are regarded as decision-makers concerning the health of their

family especially in patriarchal societies like this study area.

Furthermore, this current study reveals knowledge of birth preparedness was significantly better among urban participants as compared to rural participants where knowledge was particularly low. This may be because more urban residents had formal education which has been linked with improved male knowledge of family and reproductive health (20). It may also be because urban dwellers have more access to information through academic and health institutions, mass and social media which are more available and accessible in the urban areas. This particularly low level of knowledge in the rural area was also reported in Tanzania (7). However, the finding is in contrast to what was reported in rural Kenya where men had good knowledge (5).

In this current study, arranging money for delivery was the most known preparation a man should make for childbirth with a slightly higher proportion of rural residents knowing this and therefore, the difference in this knowledge was not statistically significant. This similar pattern of knowledge was documented in Ethiopia (20). Men are more concerned about financial responsibility than other aspects of birth preparedness (6, 25). In another similar study also in Southwest Nigeria, many of the men knew financial commitment as their only role in ANC (19). Increase knowledge of providing money for maternity care may be because men are usually the breadwinner in many developing countries whose responsibility is particularly to provide financial support for the wife and children. The implication of this may be that men may be nonchalant about other components of birth preparedness and complication readiness.

The World Health Organization (WHO) defines a skilled birth attendant (SBA) as an accredited health professional such as a midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (26). The organization, therefore, advocates the presence of SBA at every delivery because their presence during delivery is crucial in reducing maternal and child deaths (26).

Men influence the utilization of health facilities and SBAs by their wives (27). In this current study, only a few men in both urban and rural areas knew they were to arrange for skilled birth

attendants for their pregnant wives. Since male knowledge of birth preparedness is a determinant of their involvement (6) which in turn enhances the utilization of health services by women, poor men knowledge of SBAs may lead to deliveries unsupervised by these professionals, hence increased risk of maternal morbidity and mortality (26). This finding is similar to what was reported in Ethiopia where only 32.7% of men knew they had to arrange for a skilled birth attendant (20). It, however, differs from the report of a similar study in Southwest Nigeria where most of the men knew they were to arrange for a skilled attendant for their pregnant wives (19). The higher proportion of urban men who knew about preparation for a skilled birth attendant in this current study is not surprising since it has been reported that the urban area of Nigeria has a higher proportion of SBA-supervised deliveries as compared to the rural areas (27).

Increased spousal knowledge of danger signs during pregnancy and labour somewhat contributes to a reduction in maternal mortality (24). This is partly because improved knowledge of obstetric complications is key in prompt utilization of health services (28). In this current study, vaginal bleeding and swollen leg and face were the most frequently known danger signs in pregnancy by participants in both urban and rural areas. During labour and delivery, the most frequently known danger signs were severe vaginal bleeding and retained placenta with statistically significantly higher knowledge among participants in the urban area as compared to their counterparts in the rural area. This might be attributed to the fact that these signs are directly linked with pregnancy and labour and are therefore easily recognizable by pregnant women, their spouses, and neighbours. On the other hand, only a small proportion of respondents in both urban and rural areas identified blurred vision and severe headache as danger signs during pregnancy. Likewise, few of the men recognized convulsion and loss of consciousness as danger signs in labour. This may be because these signs are not directly related to obstetric factors and that the signs have multiple causes. Since men are decision-makers in the family including areas of health-seeking behaviour, poor identification of danger signs may have unpleasant consequences.

The pattern of recognizable danger signs in this study is a little different from what was documented in Edo State (21), South-south Nigeria where the three most frequently recognized danger signs in pregnancy were

vaginal bleeding (100.0%), convulsion (96.2%) and blurred vision (95.8%). In labour, the most frequently recognized symptoms were severe vaginal bleeding (100.0%), convulsion (99.6%) and high fever (92.4%). The findings in this current study also differs a little from what was found in Northern Nigeria where vaginal bleeding (51.9%), convulsion (37.8%) and loss of consciousness (33.2%) were the most frequently known danger signs in pregnancy (6).

Men's socio-demographic characteristics influence their knowledge and involvement in birth preparedness. A study in Northern Nigeria reported age, educational status, and ethnicity as predictors of male involvement in maternity care. In Rwanda (29) and Malawi (30), education and age have been shown to determine male knowledge in Maternity care. In this current study, age is significantly associated with male knowledge in rural areas but not in urban areas. On the other hand, marital status and level of education are significantly associated with male knowledge in the urban area but not in the rural area. However, there is no significant relationship between ethnicity and male knowledge in both urban and rural areas. This may be a result of the presence of various ethnic groups in both urban and rural areas of the state.

The implication of the findings of this study particularly in rural areas where men's knowledge of birth preparedness is poor is policy and program in the context of improving male interest, knowledge, and participation in maternal health care. The cross-sectional nature of this study and the absence of multivariate analysis poses a limitation to the study as factors associated with male knowledge of birth preparedness cannot be specified.

Conclusion

Male knowledge of birth preparedness was better among urban dwellers compared to their rural counterparts. There is a need for improved strategy in the context of raising men's awareness about maternity care.

List of Abbreviations

ANC:	Antenatal Care
LGA:	Local Government Area
MMR:	Maternal Mortality Ratio
SBA:	Skilled Birth Attendant
SPSS:	Statistical Package for Social Sciences
WHO	World Health Organization

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Health Research and Ethics Committee of the Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State (OOUTH/HREC/64/2016). Verbal and written informed consent was obtained from the respondents and strict confidentiality of all information and results of findings were maintained throughout the study.

Consent for Publication

The authors hereby transfer all copyright ownership exclusively to the journal, if this work is published by the journal.

Conflicts of Interest

The authors have declared no conflict of interest.

Funding

The authors received no research funding.

Authors Contributions

JS conceived the research idea and wrote the first draft. All authors drafted, reviewed the manuscript and approved the final submission.

References

1. Maternal Health Task Force. The Sustainable Development Goals and Maternal Mortality. Available at <https://www.mhtf.org/topics/the-sustainable-development-goals-and-maternal-mortality/> Accessed on 6/03/2020.
2. National Population Commission. ICF International: Nigeria Demographic and Health Survey 2018. Abuja, Nigeria. 2019. Available at <https://dhsprogram.com/pubs/pdf/SR264/SR264.pdf>. Accessed on 6/03/2020.
3. The world health report 2005: make every mother and child count Policy brief one: integrating maternal, newborn and child health programmes. Geneva: World Health Organization; 2005 Available at https://www.who.int/whr/2005/media_centre/pb_1_en.pdf. Accessed on 7/03/2020
4. Bhusai CK, Bhattarai S. Involvement of male in birth preparedness in Tulsipur Municipality of Dang District, Nepal. Journal of Chitwan Medical College. 2017; 5(14):33-38. <https://doi.org/10.3126/jcmc.v5i4.16550>
5. Dunn A, Haque S, Innes M. Rural Kenyan men's awareness of danger signs of obstetric complications. Pan Afr Med J 2011; 10:39

6. Illiyasu Z, Abubakar IS, Galadanci HS. Aliyu MH. Birth preparedness, complication readiness and fathers' participation in maternity care in a northern Nigerian community. *Afr J Reprod Health*, 2010; 14(1):21-32.
7. August F, Pembe AB, Mpenuhi R, Axemo P and Darj E. Men's Knowledge of Obstetric Danger Signs, Birth Preparedness and Complication Readiness in Rural Tanzania. *PLoS One*. 2015; 10(5): e0125978. <https://doi.org/10.1371/journal.pone.0125978>
8. Carroli G, Villar J, Piaggio G, Khan-Neelofur D, Gülmezoglu M, Mugford M et al. WHO systematic review of randomised controlled trials of routine antenatal care. *The Lancet*. 2001;357(9268):1565-1570. [https://doi.org/10.1016/s0140-6736\(00\)04723-1](https://doi.org/10.1016/s0140-6736(00)04723-1)
9. Adeniran AS, Aboyeji AP, Fawole AA, Balogun RO, Adesina KT, Adeniran PI. Male partner's role during pregnancy, labour, and delivery: expectation of pregnant women in Nigeria. *Int J Health Sci (Qassim)* 2015; 9(3):305-313. <https://doi.org/10.12816/0024697>
10. Mullick S, Kunene B, and Wanjiru M. Involving men in maternity care: health service delivery issues. *Agenda Special Focus* 2005; 6: 124–35. Available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.192.5507&rep=rep1&type=pdf>.
11. Mersha, A.G. Male involvement in the maternal health care system: implication towards decreasing the high burden of maternal mortality. *BMC Pregnancy and Childbirth* 2018; 18(1): 493. <https://doi.org/10.1186/s12884-018-2139-9>
12. Gize, A., Eyassu, A., Nigatu, B. et al. Men's knowledge and involvement on obstetric danger signs, birth preparedness and complication readiness in Burayu town, Oromia region, Ethiopia. *BMC Pregnancy and Childbirth* 2019; 19: 515. <https://doi.org/10.1186/s12884-019-2661-4>
13. Ekabua JE, Ekabua KJ, Odusolu P, Thomas UA, Iklaki CU, Etokidem AJ. Awareness of birth preparedness and complication readiness in south eastern Nigeria. *ISRN Obstetrics and Gynaecology* 2011, Article ID 560641, 6 pages. <https://doi.org/10.5402/2011/560641>
14. Ogun State, Nigeria. Population Statistics Charts, Map and Location. Available at <https://citypopulation.de/php/nigeria-admin.php>. Accessed on 12/04/2020.
15. Ogun State Ministry of Health. Ogun State Health Bulletin 2010. Available at <https://mamaye.org.ng>. Accessed on 04/10/15.
16. Taylor DW. The calculation of sample size and power in the planning of experiments. *Dept. Clin. Epid. Biostat. McMaster University. Hamilton Ontario, Canada.* 1994:1-23.
17. Odeda-Ogun Statebiz. Available at <https://ogunstatebiz.tripod.com>. Accessed on 11/08/17.
18. Abeokuta South- Ogun Statebiz. Available at <https://ogunstatebiz.tripod.com>. Accessed on 11/08/17.
19. Olugbenga-Bello A, Asekun-Olarinmoye EO, Adewole AO, Adeomi AA, Olanrewaju SO. Perception, attitude, and involvement of men in maternity health care in a Nigerian Community. *J Pub Health Epidemiology*. 2013; 5(6): 262-70.
20. Gebrehiwot H, Gebregziabher W, Gidey Gebreamiak. Assessment of husbands' participation in birth preparedness and complication readiness in Enderta Woreda, Tigray Region, Ethiopia, 2012. *J Women's Health Care* 2013; 3:140. <https://doi.org/10.4172/2167-0420.1000140>
21. Obi AI, Abe E, Okojie OH. Male and community involvement in birth preparedness and complication readiness in Benin City, Southern Nigeria. *IOSR Journal of Dental and Medical Sciences* 2013; 10(6): 27-32. <https://doi.org/10.9790/0853-1062732>
22. Nanjala M, Walmawa D. Determinants of male partner involvement in promoting deliveries by skilled attendants in Busia, Kenya. *Glob J Health Sci* 2012; 4:60-7. <https://dx.doi.org/10.5539%2Fgjhs.v4n2p60>
23. Othman K, Dan KK, Michael OO. Male involvement in birth preparedness and complication readiness for emergency obstetric referrals in rural Uganda. *Reprod Health* 2011; 8:12. <https://doi.org/10.1186/1742-4755-8-12>
24. Tamiso A, Merdekios B, Tilahum M. Association of men's awareness of danger signs of obstetric complication and male involvement in birth preparedness practices at South Ethiopia. *International Journal of Public Health Science* 2015; 4(1):63-70. <https://doi.org/10.11591/ijphs.v4i1.4713>
25. Dumbaugh M, Tawiah-Agyemang C, Manu A, Ha ten Asbroek G, KirkwundM, Hill Z.

- Perception of, attitude towards and barriers to male involvement in newborn care in rural Ghana, West Africa: a qualitative analysis. *BMC Pregnancy and childbirth* 2014; 14:269. <https://doi.org/10.1186/1471-2393-14-269>
26. WHO. Skilled birth attendant Situation and trends. Available at https://www.who.int/gho/maternal_health/skilled_care/skilled_birth_attendance_text/en/ Accessed on 18/03/2020.
 27. National Population Commission. ICF International: Nigeria Demographic and Health Survey 2013. Abuja, Nigeria. 2014. Available at <https://www.dhsprogram.com/pubs/pdf/FR293/FR293.pdf>. Accessed on 12/04/2020.
 28. Lori JR, Dahlem C.H, Aekah JV, Adanu RMK: Examining antenatal health literacy in Ghana. *J Nursing Scholarship*, 2014; 46(6): 432-40. <https://doi.org/10.1111/jnu.12094>
 29. Kowalczyk J, Jolly P, Karita E, Nibarere JA, Vyankandondera J, Salihu H. Voluntary Counselling and Testing for HIV among pregnant women presenting in labour in Kigali, Rwanda. *J Acquir Immune Def Syndr*. 2002;31(4):408-415. <https://doi.org/10.1097/00126334-200212010-00007>
 30. Lucy IK, Johanne S, Address M, Ellen C. Striving to promote male involvement in maternal health care in rural and urban settings in Malawi- a qualitative study. *Reprod Health* 2011; 8:36. <https://doi.org/10.1186/1742-4755-8-36>