

The use of maternal health services in Nigeria: does ethnicity and religious beliefs matter?

Abstract

The social environment is known to influence our attitudes and behavior in all spheres of life including the utilization of maternal health services (MHS). This study was aimed to determine whether Nigerian women's cultural profile measured by ethnicity and religious beliefs is significantly associated with the use of antenatal care (ANC) and delivery services. A secondary data analysis of the Nigerian Demographic and Health Survey (DHS) was used to explore whether the ethnicity and religious affiliations of women influence the use of ANC and delivery services. A total of 33,385 women (15–49 years) were randomly selected using a stratified two stage cluster sampling from 286 and 602 urban and rural clusters respectively from the 36 states and the Federal Capital Territory (FCT) proportionate to population size of each cluster. Christians have higher proportion of women that had 4 or more ANC visits (28.2%) compared to women belonging to Islamic faith (21.6%). A woman's religious beliefs was found to be statistically associated with the number of ANC visits ($\chi^2=189.956$, df=2; $p<.001$). Christian women are more likely to have 4 or more ANC visits than their Muslim counterparts (AOR=1.172; CI 1.158–1.983; $p<.001$). Christian women are more 5 times more likely to deliver in a health facility than their Muslim counterparts (UOR=5.181; CI 4.844–5.542). However, after adjusting for confounding, this association was no longer statistically significant (AOR=1.308; CI 0.987–1.733; $p>.05$). The odds of a Yoruba woman (South west) giving birth in a health facility is 35 folds compared to a Hausa woman (UOR=34.817; CI 30.233–40.097), followed by Igala in the North central (UOR=29.723; CI 21.509–41.076) and Igbo in the south east (UOR=26.562; CI 23.035–30.63). This association remained statistically significant even after controlling for confounding. This study ethnicity and religious beliefs to a lesser extent have influenced the use of ANC and delivery services in Nigeria. Policy makers should consider systematic and deliberate involvement of tribal and religious leaders when formulating strategies to reach ethnic nationalities.

Keywords: ethnicity, religious beliefs, utilization, antenatal, delivery services

Introduction

Although there has been significant reduction in the total number of maternal deaths worldwide, however, many developing countries like Nigeria have not been able to achieve MDG 5 by the end of 2015.¹ This is buttressed by the fact that Nigeria and India recorded 58,000 (19%) and 45,000 (15%) maternal deaths respectively accounting for 34% of the total global maternal deaths.¹ Moreover, 59% of maternal deaths occurred in six Africa Countries (Democratic Republic of Congo, Ethiopia, Kenya, Nigeria, Tanzania and Uganda) and four Asian countries (Bangladesh, India, Indonesia, and Pakistan).²

The high number of maternal deaths in Nigeria may partially be due to low use of MHS.³ nearly half of the estimated 8.3million pregnant women in 2010 had no antenatal care. Moreover, among those that had reported to have had antenatal care (ANC), only 55% of them had made four or more ANC visits before delivery.³ fewer proportions (38%) of deliveries were attended by skilled health workers in Nigeria.³ The Demographic and Health Survey (DHS) estimated a maternal mortality ratio of 545 per 100,000 live births, with the true values likely ranging from 475 deaths in the south-western zones to 615 deaths in the north-eastern zone per 100,000 live births.⁴ This is an underestimation compared with the reported 630 per 100,000 live births³ and might be due to low sensitivity of maternal death surveillance⁵ and poor record keeping of vital events such as births and deaths.⁶ Women living in the Northern regions of Nigeria have the highest risk of dying from pregnancy and delivery

complications compared with women residing in other regions of the country.⁴ These national level performances does not reflect the significant disparities that exist between the various geopolitical zones that have predominant ethnic group and in most instances such ethnic groups are adherents of Christian or Islamic faiths.

Various studies from all parts of the world have reported that cultural factors such as ethnicity and religious beliefs influence the use of maternal health services and need to be taken into consideration for any effective intervention.^{7–13} This approach has been well covered in some parts of south America.¹⁰ Furthermore, WHO considers the inclusion of approaches that address ethno-religious barriers as good practices that will facilitate the optimal utilization of ANC, natal and post natal maternal health services.^{12,13} Hence, among possible ways to improve pregnancy outcome is by understanding the underlying causes of disparities within a given country or geopolitical region. Religion and ethnicity are part of the fabrics of culture of defined population and has been reported as a pointer to low utilization rate of maternal health services and poor pregnancy outcomes even in developed^{14–16} and developing countries.^{17–19} In general, poor pregnancy outcome has been reported to be common among pregnant women with low use of ANC and delivery services.^{20,21} In Nigeria, the low rate of ANC and delivery was partly due to cultural factors such as ethnicity and religious beliefs^{22,23} and low level of female autonomy which is driven by religion and ethnic beliefs.^{24–26} The role of ANC in averting pregnancy related deaths and other forms of

poor pregnancy outcomes such as vesico-vaginal fistula was further underscored by WHO in late 2016 that the recommended number of ANC visits should now be at least 8 instead of 4 for optimal pregnancy outcomes.²⁷ The implementation of the new recommendation requires an understanding of the cultural setting of a given area in order to develop ethno-religious appropriate communication strategies in order to sensitize communities on the new number of ANC visits expected during pregnancy. The approach further requires the systematic engagement for proactive involvement and participation of the leaders (tribal, religious, traditional, political, etc).²⁷ Hence, this work intend to understand whether Nigerian women's cultural profile measured by ethnicity and religious beliefs is significantly associated with the frequency of the utilization of ANC and delivery services.

Methods

Nigeria has an estimated population of 143 million. Women 15–49 years and annual number of pregnancies were estimated to be 31.4million and 8.3 million respectively.⁴ The country has 36 states and a federal capital territory (FCT). The 36 states and FCT were grouped into six geopolitical zones: South–south zone is mainly inhabited by Kalbiri, Ijaw, Ikoi, Itsekiri, and Ibibio; Yoruba in the South west zone as the principal ethnic group; North Central zone consist of Nupe, Ebira, Idoma, Tivs, Igala, Gwari, and Angas; the major tribal groups in the North East are Kanuri, Fulani, Marghi, Babur, Mumuye, and Jukun; the Igbo are the dominant tribe in the South East; while the North west zone are mostly belonging to Hausa and Fulani tribal groups. Islam and Christianity are the dominant religions having followership of about 99% of Nigerians in the Northern and Southern geopolitical zones respectively. This study is secondary data analysis using the raw data of the Nigerian Demographic and Health Survey (DHS). A two stage stratified cluster design was applied to select and interview 33,385 female participants in the reproductive age group (15–49years) from 286 and 602 for urban and rural areas respectively.⁴ However, only the data of 31,815(95.3%) were found to be complete and therefore, used in the analysis of this study. Details on sampling, training of interviewers, instruments of data collection and data storage were available online in the Demographic and Health report (DHS).⁴

Religious beliefs of women was coded as 1 for Muslims, code 2 for Christians and Traditional religion as code 3. Muslim women were compared to women of other religion. Ethnicity of women was coded as 1 for Hausa, 2 for Yoruba, 3 for Igbo, 4 for Fulani, 5 for Ijaw/Izom, 6 for Ibibio, 7 for Tiv, 8 for Kanuri/Baribari, 9 for Ekot, 10 for Igala and 11 for others which comprises of the remaining 364 ethnic groups.⁴ Those belonging to the Hausa ethnic group were compared to other ethnic groups. The research question of this study is: are Nigerian women's cultural profile measured by ethnicity and religious beliefs are significantly associated with the frequency of the antenatal care visits (ANC) and choice of place of delivery? The outcome variables are dichotomous categorical (had four ANC visits/had <four ANC visits; and delivered at home/delivered in hospital). Bivariate Pearson Chi-square statistic and Multivariate logistic regression were conducted at 95% confidence interval to test the following null hypothesis: H_{02A} : There is no significant statistical association between the religious beliefs of women and their use of MHS as measured by the number of antenatal visits and place of delivery.

a. H_{02A} : There is a significant statistical association between the religious beliefs of women and their use of MHS as measured by the number of antenatal visits and place of delivery.

b. H_{02B} : There is no significant statistical association between the ethnic affiliation of women and their use of MHS as measured by the number of antenatal visits and place of delivery.

c. H_{A2B} : There is a significant statistical association between the ethnic affiliation women and their use of MHS as measured by the number of antenatal visits and place of delivery.

Similar analytical approach using DHS data to determine the variables that influence the use of maternity and child services in Nigeria were conducted.^{28,29} The theoretical framework for the study was the Anderson health behaviour model,^{30,31} which consisted of construct on individual characteristics such as ethnicity/tribe and religion that explains differences in the utilization of health services. The study was approved by the Institutional Review Board (IRB) of Walden University, Minneapolis, USA through a communication dated 24th January, 2015 with approval reference number 01–23–15–0338613. Permission to use the DHS raw data was granted by ORC Macro and ICF International, Calverton Maryland, USA.

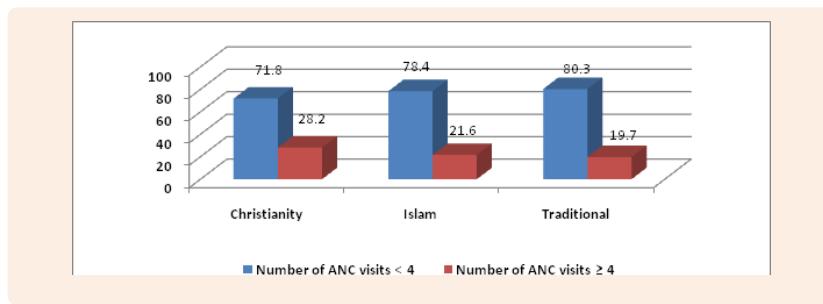
Results

Cultural characteristics of respondents

The ethnic distribution showed that, out of the 31,985 of women, the Hausas (21.3%), Igbo's (14.4%), Yoruba's (13.3%) and Fulani's (7.6%) accounted for 56.6% of the whole sample. Yoruba women from south west zone of Nigeria have the highest use rate for ANC (36.8%), while the Kanuri/Beriberi women of North east zone had the lowest of 14.6% (Table 1). Islam and Christianity are the dominant religions accounting for 46.8% and 51.6% respectively (Figure 1). Moreover, Christians have higher proportion of women that had 4 or more ANC visits (28.2%) compared to women belonging to Islamic faith (21.6%). A woman's religious beliefs was found to be statistically associated with the number of ANC visits ($\chi^2=189.956df=2; p<.001$). Christian women are more likely to have 4 or more ANC visits than their Muslim counterparts (AOR=1.172; CI 1.158–1.983; $p<.001$) (Table 2). Religion has significant statistical association with the place of delivery ($\chi^2=2542.37df=2; p<.001$) (Table 3). Christian women are mores 5 times more likely to deliver in a health facility than their Muslim counterparts (UOR=5.181; CI 4.844–5.542). However, after adjusting for confounding, this association was no longer statistically significant (AOR=1.308; CI 0.987–1.733; $p>.05$) (Table 3).

Table 1 The frequency of antenatal care visits by respondent's ethnic affiliation.

Independent Variable	Proportion of Samples (%)	Number of ANC Visits	
		< 4	≥ 4
Ethnicity			
Hausa	21.3	83.4	16.6
Yoruba	14.4	63.2	36.8
Igbo	13.3	73.1	26.9
Fulani	7.6	85.3	14.7
Ijaw/Izom	3.6	80.4	19.6
Ibibio	2.1	72.7	27.3
TIV	2.8	81	19
Kanuri/baribari	2.6	85.4	14.6
Ekot	1.8	68.5	31.5
Igala	1.6	70.8	29.2
Others	29.1	71.6	28.4

**Figure 1** Proportion of ANC visits made by religious beliefs of women.

Note: Variables adjusted in the model: education, income, religion, geopolitical zone of residence, availability of skilled health worker and place of domicile.

Table 2 Association between woman's religious beliefs and the number of antenatal visits.

	ANC Visits	Bivariate Analysis						Multivariate Logistic Regression Analysis					
		< 4 Visits	≥ 4 Visits	Pearson's Chi-square	UOR	95% CI for AOR		AOR	P Values	95% CI for AOR			
Religion								Lower limit	Upper limit			Lower Limit	Upper Limit
Islam	11680	3218	0.001*	1.000						1.000			
Christianity	11776	4628		1.426	1.354	1.502	1.172	0.001*	1.158	1.983			
Traditional	412	101		0.89	0.713	1.11	1.202	0.231	0.889	1.624			

*p is significant at the 0.05 level.

Note: Variables adjusted in the model: income, parity, education, age and distance.

Table 3 Association between women's religious beliefs and the place of delivery.

	Place of Delivery		Bivariate Analysis						Multivariate Logistic Regression Analysis					
	Home	Facility	Pearson's Chi-square	UOR	95% CI for UOR		AOR	P value	95% CI for AOR					
Religion								Lower limit	Upper limit			Lower Limit	Upper Limit	
Islam	8002	1909	0.001*	1.000						1.000				
Christianity	3397	4199		5.181	4.844	5.542	1.308	0.611	0.987	1.733				
Tradition	296	43		0.609	0.441	0.842	0.492	0.932	0.198	1.219				

*p is significant at the 0.05 level.

Note: Variables adjusted in the model: income, parity, education, age, availability of skilled health worker and distance.

Ethnicity showed a statistically significant variation ($\chi^2=900.570$; df=10; $p < .001$) within and between the geopolitical zones of northern and southern Nigeria (Table 4). For instance, the highest proportion of women who had four or more ANC visits in order of magnitude were the Yoruba's (South west), Ekot (South-south), Igala (North central), Ibibio (South-south) and Igbos (South east). The lowest belonged to Kanuri/Baribari (north east), Hausa (North west) and Tiv (North central). The Fulani's of the North east and North west zones had higher proportion of women who have made four or more ANC visits compared to ethnic groups of the south such as Ijaw/Izom (South-south) and approximate what is observed among the Igbo's of the south east zone (Table 4). Compared to the Hausa's (North West), the odds for a Yoruba woman have adequate number of ANC is three fold (UOR=2.923; CI 2.678–3.19), followed by Ekot (UOR=2.31; CI 1.915–2.787), Igala (OR=2.065; CI 1.69–2.521) and Ibibio (UOR=1.88; CI 1.573–2.266) (Table 4). Women belonging to the Hausa ethnic group (Northern Nigeria) were 1.2 times less likely

to achieve the 4 recommended number of ANC visits compared to Yoruba women (Southern Nigeria) even when covariates were controlled (AOR=1.272; CI 1.048–1.543; $p < .05$) (Table 4). There appeared to be an association between ethnicity and place of delivery ($\chi^2=5329.865$; df=10; $p < 0.001$) (Table 5). The highest proportion ($\geq 70\%$) of women who delivered in a health facility in order of magnitude were the Yoruba's in the South west (78.7%), Igala in the North central (75.9%), and Igbos in the South east (73.8%). The lowest belonged to Fulani in the north east (7.9%), Kanuri/Beriberi, north east (8.6%), and Hausa in the North West (9.6%). The odds of a Yoruba woman (South west) giving birth in a health facility is 35 folds compared to a Hausa woman (UOR=34.817; CI 30.233–40.097), followed by Igala in the North central (UOR=29.723; CI 21.509–41.076) and Igbo in the south east (UOR=26.562; CI 23.035–30.63) (Table 5). This association remained statistically significant even after controlling for confounding.

Table 4 Association between the tribal/ethnic affiliation of women and the number of antenatal visits.

Ethnicity	ANC Visits		Bivariate Analysis Pearson Chi-square	Multivariate Logistic Regression Analysis					
	<4visits	>4visits		UOR	95% CI for UOR	AOR	P values	95% CI for AOR	
				Lower Limit	Upper Limit			Lower Limit	Upper Limit
Hausa	5670	1130	0.001*	1.000		1.000			
Yoruba	2908	1694		2.923	2.678	3.19	0.015*	1.048	1.143
Igbo	3119	1147		1.845	1.681	2.005	0.889	0.346	0.696
Fulani	2061	355		0.864	0.759	0.984	0.727	0.121	0.62
Ijaw/	913	223		1.226	1.045	1.438	0.54	0.011*	0.417
Ibibio	481	181		1.888	1.573	2.266	0.964	0.808	0.717
TIV	723	170		1.18	0.987	1.411	0.685	0.441	0.532
Kanuri/Beriberi	707	121		0.859	0.701	1.062	0.545	0.211	0.429
Ekot	391	180		2.31	1.915	2.787	1.079	0.626	0.794
Igala	367	151		2.065	1.69	2.521	1.186	0.25	0.887
Others	6657	2636		1.987	1.837	2.148	1.191	0.011*	1.041

*p is significant at the 0.05 level.

Note: Variables adjusted in the model: education, income, autonomy, religion, geopolitical zone of residence, and place of domicile.**Table 5** Association between the tribal/ethnic affiliation of women and the place of delivery.

Ethnicity	Place of Delivery		Bivariate Analysis Pearson's Chi-square	Multivariate Logistic Regression Analysis					
	Home	Facility		UOR	95% CI for UOR	AOR	P values	95% CI for AOR	
				Lower Limit	Upper Limit			Lower Limit	Upper Limit
Hausa	4377	464	0.001*	1.000		1.000			
Yoruba	453	1672		34.817	30.233	40.097	2.318	0.002*	1.36
Igbo	467	1315		26.562	23.035	30.63	2.13	0.037*	1.046
Fulani	1573	135		0.81	0.663	0.989	1.473	0.197	0.818
Ijaw/Izom	416	129		2.925	2.349	3.643	0.326	0.088	0.155
Ibibio	146	135		8.722	6.774	11.232	0.703	0.37	0.325
TIV	270	218		7.616	6.22	9.326	2.595	0.031*	1.092
Kanuri/Beriberi	501	47		0.885	0.647	1.211	0.977	0.956	0.425
Ekot	246	145		5.56	4.434	6.973	0.49	0.053	0.238
Igala	53	167		29.723	21.509	41.076	9.902	0.001*	3.913
Others	3273	1747		5.035	4.502	5.631	1.082	0.72	0.703

*p is significant at the 0.05 level.

Discussions on findings

In this study, ethnicity and to a lesser extent religion were found to influence the use of MHS with women belonging to Hausa–Fulani and kanuri/Bari–Bari ethnic groups and Muslims less likely to achieve the recommended number of ANC visits and deliver in a health facility. Plausible explanations include lower levels of female literacy,^{4–33} empowerment,³⁴ and autonomy²³ among the Hausa–Fulani and kanuri/Bari–Bari women compared to even women in belonging to other ethnic groups of northern Nigeria such as Igala and the Tivs. This finding was consistent with other studies where

it has been documented that ethno-religious belief influenced the use of MHS.^{32–36} Female autonomy was further reported to be low among the Hausa–Fulani and kanuri/Bari–Bari ethnic groups of Northern Nigeria due to adherence to aged long stereotyping as to what is an ideal woman that was based on ethnic and religious norms, beliefs, traditions and practices which was reported to result in low use of MHS and higher incidence of poor pregnancy outcomes in developing^{29–39} and developed countries.^{15–40} However, it should be noted that failure to attain the recommended number of ANC visits and to deliver in a health facility will invariably defeat the basic objective of Maternal health Services such as promoting the health

of women through health education, counseling, vaccination, family planning, chemo-prophylaxis against malaria, minerals, vitamins and nutritional supplements (iron, and folic acid, screening and early detection of high-risk pregnancies. The low utilization of ANC and delivery services among the Muslim Hausa–Fulani and kanuri/Bari–Bari women as observed in this study is consistent with other reports that indicated that the odds for a Muslim woman to achieve the recommended number of ANC visits and or deliver in modern health facility is very low compared to their Christian counterparts residing in the same geographical area and belong to same socio-economic level.³⁷

However, previous reports noted that the effect of ethnicity and religious beliefs on the use of MHS was inconsistently after controlling for educational attainment and the level of income. For instance, although in this study, the Yoruba ethnic group was found to have the highest proportion of women who had the recommended number of ANC visit and delivery in a health facility. However, Adelaja⁴¹ reported that about 70% of Christian Yoruba's had delivered at home despite the fact that majority of them are literate, employed and have higher autonomy compared to the Muslim Hausa–Fulani and kanuri/Bari–Bari ethnic groups.^{4,34} Religious and ethnic beliefs and practices may affect the rate of utilization of MHS as exemplifies by a study among the Hausa Fulani of North western Nigeria that women preferred to deliver in homes because they consider the lithotomy position and being supervised by not a close relative as embarrassing.⁴² Similar findings were reported from some countries in Southern Africa,⁴³ West Africa,⁴⁴ and South East Asia.^{45,46} Hence, the observed ethno-religious influence on the use of MHS underscored the need for systematic and consistent pro-active involvement and participation of community, religious and tribal leaders in the planning, implementation, and monitoring of population based MHS in order to enhance ownership, commitment and oversight functions.

Conclusion and recommendations

The findings of my study have demonstrated that:

- a. Ethnicity and to a lesser extent religion were found to influence the use of MHS with women belonging to Hausa–Fulani and kanuri/Bari–Bari ethnic groups have the lowest proportion of women who had achieved the recommended number of ANC visits and or delivered in a health facility;
- Women belonging to Islamic faith were less likely to make the recommended number of ANC visits and or deliver in health facility;
- b. The lower utilization rate for ANC and delivery services was lower among Hausa–Fulani and kanuri/Bari–Bari ethnic groups even after controlling for confounders such as education, income, place of domicile, availability of skilled health workers, and distance;
- c. These findings have underscored the need for systematic and consistent pro-active involvement and participation of community, religious and tribal leaders in the planning, implementation, and monitoring of population based MHS in order to enhance ownership, commitment and oversight functions.

Strengths and weaknesses of this study

The large sample size (33,385) and the recruitment of participants across various strata using stratified two stage cluster sampling had strengthened the external validity and generalizability of the findings

of this study.⁴⁷ However, the DHS being a cross-sectional study design does only demonstrate an existing association (not causality) between ethnicity and religious beliefs and the use of ANC and delivery services.

Acknowledgement

The author extends his sincere thanks to Dr. Chinaro Kennedy; Dr. Hebatullah Tawfiq and Dr. Daniel Okenu all of Walden University, USA, for their immense contribution in all aspect of this work. I would also like to thank and acknowledge ORC Macro and ICF International Calverton Maryland, USA for granting me the permission to use the DHS dataset.

Conflicts of interest

None.

Funding

None.

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