



This is a repository copy of *Religion, ethnicity and contraceptive use among reproductive age women in Nigeria.*

White Rose Research Online URL for this paper:  
<http://eprints.whiterose.ac.uk/154884/>

Version: Published Version

---

**Article:**

Obasohan, P.E. [orcid.org/0000-0002-6998-0276](https://orcid.org/0000-0002-6998-0276) (2014) Religion, ethnicity and contraceptive use among reproductive age women in Nigeria. *International Journal of MCH and AIDS*, 3 (1). pp. 63-73. ISSN 2161-8674

10.21106/ijma.39

---

**Reuse**

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:  
<https://creativecommons.org/licenses/>

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.



[eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk)  
<https://eprints.whiterose.ac.uk/>



## ORIGINAL ARTICLE

# Religion, Ethnicity and Contraceptive Use among Reproductive age Women in Nigeria

Phillips Edomwonyi Obasohan, MEd, MBA, MSc<sup>1</sup>✉

<sup>1</sup>Department of General and Liberal Studies, College of Administrative and Business Studies, Niger State Polytechnics, Bida Campus, NIGERIA

✉Corresponding author email: [philiobas@yahoo.com](mailto:philiobas@yahoo.com)

## ABSTRACT

**Background:** Religion and Ethnicity are the two most important factors that shape the behavioral pattern especially health seeking behaviors of the people of Nigeria. This study seeks to examine the mediatory effects of the linkage between ethnicity and religion with selected socio-demographic variables on the current use of contraception (CUC) among women of reproductive age in Nigeria.

**Methods:** Nationally representative sample of 39,948 women of reproductive age (15-49 years) in the 2013 Nigerian Demographic and Health Survey (NDHS) was used. Chi-square was used to analyze the bivariate relationship between exposure variables and CUC. Multivariate logistic regression analysis was used to determine the odds ratio with the 95% confidence interval.

**Results:** The prevalence of CUC was generally low for women of reproductive age in Nigeria, highest among the Yoruba women and lowest among the Hausa/Fulani/Kanuri/Seriberi (HFKS) women; highest among other Christian women and lowest for Muslim women and highest for Yoruba/other religion and lowest for women of Hausa/Fulani/Kanuri/Seriberi/Islam. The odds ratios showed that disparity across ethno-religious boundaries is significant.

**Conclusions and Global Health Implications:** Globally, and especially in sub-Saharan African countries, maternal mortality resulting from the abortion of unintended pregnancies pose a major challenge in health delivery system. In Nigeria, a cultural and religious heterogeneous society, current use of contraceptives by women of reproductive age is found not to be a matter of independent effects of ethnicity, religiosity and other socio-demographic variables but also dependent on the effects of interactions between the ethnicity and religion.

**Key words:** Ethnicity • Religion • Contraception • Reproductive • Nigeria

*Copyright © 2015 Obasohan. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

## Background

Globally, each year nearly 350,000 women die while another 50 million suffer illness and disability from complications of pregnancy and child birth and Nigeria is listed among the top six countries that contribute to about 50% of maternal death annually.<sup>[1-3]</sup>

Contraceptives help to prevent an estimated 2.7 million infant deaths and the loss of 60 million of healthy life in a year.<sup>[4]</sup> It helps prevent incidence of unwanted pregnancy, abortion and enhances adequate child spacing.<sup>[5-7]</sup> For instance, in the United States of America (USA), around 43 million (representing 70%) of the 62 million women of child bearing age (15-44) were at risk of unintended pregnancy.<sup>[8]</sup> Report for 2014, shows that some 62% of all women of reproductive age are currently using a contraceptive method and only about 11% of women at risk are not currently using contraceptive method.<sup>[8]</sup> Also, 75% of women aged 16-49 years in Great Britain used at least one form of contraception.<sup>[9]</sup> In Nigeria, the contraceptive prevalence rate for currently married women now is 15%, though it has increased by 2% since 2003 NDHS.<sup>[10]</sup> But for modern method use, it declined from 9% to 8% between 1999 and 2003 and slightly increased to 9.7% in 2008.<sup>[11]</sup>

Nigeria is geographically, culturally, religiously and ethnically heterogeneous with major ethnic group (68%) made up of Hausa/Fulani in the north, Yoruba in the west and Igbo/Ibo in the east; and 27% are comprised of the various minority groups.<sup>[12-15]</sup> This status significantly affects the ways of life of the people and of the women in particular. Different ethnic factors such as seeking medical treatment are serious barrier to timely health care utilization.<sup>[14,15]</sup> It is evidenced by the fact that health care utilization are lowest for the women of reproductive age among the (HFKS) than any other ethnic group.<sup>[16,17]</sup> Religion describes the belief system of the people and affects a number of health related outcomes.<sup>[12]</sup> Most people in Northern Nigeria practice Islam and those in Southern Nigeria practice Christianity (Catholics and Protestants). Contraceptive use is also common among women of all religious denominations.<sup>[4,8,18,19]</sup>

The heterogeneity of the Nigerian status form the basis for potential linkages in ethnicity and religion.

The contraceptive prevalence rate (CPR) is usually defined as the percentage of currently married women who are currently using a method of contraception.<sup>[10]</sup> It is the level of current use of contraceptive that is a measure of actual contraceptive practice at the time of the survey.<sup>[10]</sup> In the recent times, many studies have been carried out to investigate the socio-demographic characteristics associated with contraceptive use among women of reproductive age. These include the examination of such factors as women autonomy,<sup>[1,20,21]</sup> area of residence (whether urban or rural);<sup>[22]</sup> women schooling level;<sup>[1, 23, 24]</sup> household wealth status and work status of the woman.<sup>[1,25,26]</sup> However, studies on the variations in ethnicity and religion as well as the interactions between the two variables on current use of contraception among the women of reproductive age in Nigeria are sparse. This study is designed to address this knowledge gap. Therefore, we hypothesized that ethnicity, religion and the linkages between them are important factors associated with current use of contraception among women of reproductive age 15-49 years in Nigeria.

## Research Question

The main research question for this study was whether women of reproductive age 15-49 years in Nigeria who are of the HFKS ethnicity and Muslim were at a disadvantage in terms of current use of contraceptive compared with reproductive age women from other ethnic and religious groups in Nigeria.

## Data and Methods

We conducted secondary analysis of population based cross-sectional data for reproductive age women included in the 2013 Nigerian Demographic and Health Survey (NDHS). Data were collected using a stratified 2-stage sampling procedure to select 38,948 women aged 15-49 years following a list of Standard Enumeration Areas as contained in the sampling frame of 2006 Population Census. A detailed description of this procedure is reported elsewhere.<sup>[10]</sup> Weights were constructed to correct

for over sampling and under sampling and to ensure national representativeness. However, a weighted sample still remains as 38,948 women of reproductive age in Nigeria which were used for the analysis.

## Ethical Approval

This study is based on analysis of secondary data where all participant identifications have been removed. Ethical permission to use the data for this study was obtained from Opinion Research Corporation (ORC) Macro International, Incorporated, Calverton, USA. Meanwhile, the approval for survey procedure and instruments for the 2013 NDHS were already approved by the Ethics Committee of ORC Macro Inc and by the National Ethics Committee of Federal Ministry of Health, Nigeria.

## Variable Measures

### Outcome Variable

In this study, the outcome or dependent variable was the Current Use of Contraceptive (CUC) methods which was dichotomized as 1 if respondent reported that they were currently using contraceptive or 0 if they reported otherwise.

### Explanatory Variables

The major explanatory variables considered in this study were Ethnicity, Religion and their mediating variables.

**Ethnicity.** This was categorized as: (1) Hausa/Fulani/Kanuri/Seriberi(HFKS) made up of 13,944 women representing 35.8%; (2) Igbo with a total of 5,636 representing 14.5%; (3) Yoruba of 5,482 representing (14.1%; and (4) others (minor ethnic groups) with a total of 13,886 women (i.e. 35.6%)

**Religion.** Religion of the woman was categorized as: (1) Muslim (Islam) has 20,145 respondents (i.e. 51.7%); (2) Catholics with 4,316 representing 11.1% (3) other Christians has 13,922 women representing 35.7% and (4) other religion has 561 women (i.e. 1.4%).

### Socioeconomic and demographic Variables

**Age.** The reproductive age of women in Nigeria is between 15 and 49 years. In this study, the ages were

grouped into 3 groups with group 1: 15-24 years consisting of 14,576 or 37.4% of women who responded; group 2: 25-34 years with 12,612 or about 32.4%; and group 3: 35 years and above containing 11,750 which is 30.2% of all women of reproductive age.

**Place of Residence.** This was categorized into whether the respondent resides in the rural or in the urban area. In this study, 16,414 representing 42.1% of the women lived in urban areas and 22,533 representing 57.9% lived in the rural areas.

**Household Wealth Index.** DHS does not collect data on direct measure of income.<sup>[11]</sup> The wealth index serves as a proxy for measuring the long-term standard of living and is based on household's ownership of consumer goods like cars, bicycles, dwelling characteristics, type of drinking water source that are related to a household's socio-economic status.<sup>[10,11]</sup> A more detailed description of the construction of wealth index is reported elsewhere.<sup>[10]</sup> In view of the above, wealth index was categorized into three. Women from 'Poor household' were 7,132 (poorest group); women from 'moderate poor household' were 7,428 (poor group); and women from 'not poor household' were 24,388 (Middle, richer and richest groups) representing 18.3%, 19.1% and 62.6% respectively.

**Children Ever Born.** As contained in NDHS 2013 dataset, child ever born ranges from 0 – 18 children. This was grouped into 2 groups: 0 – 4 children and 5 and above.

**Number of Children Living.** This refers to the total number of children who were living as at the time of survey out of the children ever born. This was classified into 4 groups: Group 1, 'No child', 11,750 women representing 30.2% responded. Group 2 was 9,737 representing 25%, group 3, 3-4 contained 8,876 made up of 22.8%; and group 4, 5 children and above with 8,586 women representing 22% respondents.

**Woman's Level of Autonomy.** This refers to the extent to which a woman has a say in issues concerning her wellbeing and that of the family. This was classified into 2 levels as described elsewhere.<sup>[8]</sup> As such low autonomy was 13,382 women and more

autonomy had 25,565 women representing 34.4% and 65.6% respectively.

**Educational Level.** Although educational level was classified into 4 groups in NDHS 2013 data set, however in Nigeria, anyone who is having secondary and above is assumed literate.<sup>[10]</sup> Therefore, in this study education level is classified into 2 groups: Lower than secondary with 21,463 reproductive age women representing 55.1% and secondary and above with 17,485 women representing 44.9%

**Region.** Nigeria is sub-divided into six geopolitical zones. In NDHS 2013, North Central zone has 5,572 reproductive age women; North East zone has 5,766 reproductive age women; North West zone has 11,877 reproductive age women; South East zone contained 4,476 reproductive age women; South-South with 4,942 reproductive age women; South West has 6,214 reproductive age women 14.3%, 14.8%, 30.5%, 11.5%, 12.7% and 16.2% respectively.

**Marital Status.** This was classified into 2 groups: 'never in relationship' containing 9,326 representing 23.9% and 'ever in relationship' containing 29,622 representing 76.1%

**Work Status.** The work status in NDHS 2013 was given in several categories. However, in this study, we classified this into 2 groups: 'Not working' containing 14,260 (36.6%) and 'working' containing 24,687 (63.4%) of the reproductive age women respondents in the survey.

**Data Analysis Methods.** Two levels of data analyses were adopted. First, bivariate analysis was used to determine the relationship between principal exposure variables, some selected socioeconomic and demographic background variables and CUC with Pearson chi-square test. In the last analysis, multivariate logistic regression was used because of the dichotomous nature of the response variables. STATA version 12<sup>[28]</sup> software was employed to carry out the analysis at the different levels.

**Models of Interest.** To examine the effects of ethnicity and religion on current use of contraceptive (CUC) among reproductive age women, eight different models were developed. Models 1 and 2 examined the individual effect of ethnicity and religion variables

on CUC among women of reproductive age. Model 3 examined the combination of the two principal explanatory variables. Model 4 checked for the interaction effects of these two principal explanatory variables. Models 5, 6 and 7 examined the individual effects of ethnicity, Religion and interaction effect of ethnicity and religion respectively, while controlling for other socioeconomic and demographic background variables. Finally, Model 8 examined the combined effects of the 3 explanatory variables, while controlling for other background variables.

## Results

**Overall Contraceptive Use.** Table 1 shows that the percentage distribution of women of reproductive age in Nigeria who are currently using contraceptives is very low (15.3%) and is significantly highest for women of Yoruba origin (38.3%,  $p < 0.001$ ) and lowest for women of HFKS with just 1.4%. For religion, CUC was significantly lowest for the Muslim women (5.6%,  $p < 0.001$ ) and highest for women of Other Christian (26.4%).

As expected from the above, the interaction effects of ethnicity and religion showed that CUC is significantly ( $p < 0.001$ ) lowest for women of HFKS origin and are of Islamic religion with only 1.2%, and interestingly CUC is highest for women of Yoruba origin who are of other religions (36.9%).

**Sociodemographic Characteristics.** For other selected characteristics in the analysis, the percentage of those who are CUC is significant (at  $p < 0.001$ ) for women of age group 25-34 years, for women resident in urban areas, women from wealthy households (22.4%), women having 3-4 children living (19.8%), women that have more autonomy (20.8%), women who are literate (secondary and above with 25.7%). However, CUC is significantly lowest for women from North East geopolitical zone (3.0%,  $p < 0.001$ ), lower for women ever in a relationship (14.3%) and for women not working (9.9%). Also CUC was significantly lower for women who have had five or more children (14.1%,  $p < 0.05$ ).

**Multivariate Logistic Analysis Results.** Table 2 presents the multivariate logistic analysis of the independent effects (unadjusted) of the principal

**Table 1.** Relationship between current use of contraceptive (outcome), religion, ethnicity level and some socio-demographic background characteristics

	Current use of contraceptives		
	Not Using (%)	Currently Using (%)	Chi-square
<b>Religious background</b>			
Hausa/Fulani/Kanuri	98.7	1.4	4180.61**
Igbo/Ibo	72.2	27.8	
Yoruba	66.7	33.3	
Others	82.8	17.2	
<b>Religious background</b>			
Islam	94.4	5.6	3145.50**
Catholics	74.2	25.8	
Other Christians	73.6	26.4	
Other Religion	90.7	9.3	
<b>Ethnicity/Religion</b>			
Hau-Ful-Kan/Islam	98.8	1.2	4978.51**
Igbo/Islam	79.1	20.9	
Yoruba/Islam	67.1	32.9	
Others/Islam	95.3	4.7	
Hau-Ful-Kan/Catholics	84.4	15.6	
Igbo/Catholics	71.8	28.2	
Yoruba/Catholics	71.2	28.8	
Others/Catholics	77.5	22.5	
Hau-Ful-Ka/other Christians	84.5	15.5	
Igbo/other Christians	71.9	28.1	
Yoruba/other Christians	66.3	33.7	
Others/Christians	77.0	23.0	
Hau-Ful-Kan/other religion	96.8	3.2	
Igbo/other Religion	91.7	8.3	
Yoruba/other Religion	63.1	36.9	
Others/other Religion	93.9	6.1	
<b>Age group</b>			
15-24 years	89.2	10.8	376.10**
25-34 years	81.5	18.5	
35 and above	82.4	17.6	
<b>Place of Residence</b>			
Urban	76.6	23.4	1427.93**

	Current use of contraceptives		
	Not Using (%)	Currently Using (%)	Chi-square
Rural	90.6	9.5	
<b>Household wealth</b>			
Poor	98.8	1.2	2582.35**
Moderate	94.4	5.6	
Not poor	77.6	22.4	
<b>Children ever born</b>			
0-4 Children	84.1	15.9	20.01*
5 Children and plus	85.9	14.1	
<b>No of children living</b>			
0	86.2	13.8	191.90**
1-2	86.7	13.3	
3-4	80.2	19.8	
5+	84.8	15.2	
<b>Autonomy Level</b>			
Low	95.1	4.9	1718.74**
More	79.2	20.8	
<b>Education Level</b>			
Lowe than secondary	93.1	6.9	2603.91**
Secondary and higher	74.3	25.7	
<b>Region</b>			
North Central	86.2	13.8	4038.39**
North East	97.0	3.0	
North West	95.7	4.3	
South East	73.8	26.3	
South-South	72.8	27.2	
South West	68.3	31.7	
<b>Marital status</b>			
Never in marriage	81.4	18.6	97.70**
Ever in marriage	85.7	14.3	
<b>Work status</b>			
Not working	90.1	9.9	521.08**
Working	81.5	18.5	
<b>Total</b>	<b>84.7</b>	<b>15.3</b>	

\*p<0.05, \*\*p<0.001

exposure variables on the status of CUC by women of reproductive age in Nigeria. Model 1 shows the unadjusted odd ratios of effects of ethnicity on CUC. For instance, the odds of CUC for women of Yoruba origin was 37 times higher compared with women of

HFKS origin. For women of Igbo/Ibo origin, the odds are 27.26 times and significantly higher than our reference group, the HFKS reproductive age women.

Model 2 presents the unadjusted effects of religion on CUC. The odds of CUC are significantly

**Table 2.** Multivariate logistic analysis of effect of principal exposure variables on current contraceptive use by women of reproductive age (15-49) years in Nigeria

Variables	Model 1 UOR (95% CI)	Model 2 UOR (95% CI)	Model 3 UOR (95% CI)	Model 4 UOR (95% CI)
<b>Ethnicity</b>				
Hau/Fulani/Kanuri	1.00		1.00	
Igbo/Ibo	28.26 (22.1 36.2)**		5.82 (4.96 6.83)**	
Yoruba	36.63 (28.8 46.5)**		5.99 (5.23 6.87)**	
Others	15.35 (11.7 19.9)**		1.71 (1.06 2.76)*	
<b>Religion</b>				
Islam		1.00	1.00	
Catholics		12.22 (9.26 16.12)**	2.44 (2.08 2.87)**	
Other Christians		22.49 (17.4 29.06)**	2.31 (2.03 2.61)**	
Other Religion		8.22 (6.26 10.79)**	0.84 (0.56 1.25)	
<b>Eth/Religion</b>				
Hau-Ful-Kan/Islam				1.00
Igbo/Islam				21.15 (4.53 98.86)**
Yoruba/Islam				39.22 (30.17 50.98)**
Others/Islam				3.94 (2.82 5.51)**
Hau-Ful-Kan/Catho				14.74 (5.74 37.82)**
Igbo/Catholics				31.42 (24.09 40.96)**
Yoruba/Catholics				32.37 (19.29 54.31)**
Others/Catholics				23.28 (17.03 31.81)**
Hau-Ful-/Other Ch				14.71 (5.52 39.18)**
Igbo/Other Christia				31.29 (23.85 41.04)**
Yoruba/Other Chris				40.63 (31.45 52.48)**
Others/Christians				23.87 (18.26 31.20)**
Hau-Ful-Ka/oth rel				2.64 (0.61 11.42)
Igbo/Other Rel				7.22 (3.15 16.55)**
Yoruba/Other Rel				46.76 (29.22 74.84)**
Others/Other Rel				5.16 (2.63 10.14)**

\*p<0.05, \*\*p<0.001, UOR=Unadjusted odd ratios,AOR=Adjusted odd ratios

highest for women of other Christians compare to Muslim women.

Model 3 displays results of unadjusted combine effects of the principal exposure variables and establishes that the ethnicity and religion are important predictors of CUC among women of reproductive age in Nigeria. The odds of CUC is 5.99 times higher for Yoruba women, odds of 5.82 times higher for Igbo/Ibo women and odds of 1.71 times higher for women of others (minor ethnic groups) compare with women of HFKS group. However, the odd for Catholics women and Other Christians are significantly higher compare

with Muslim women, but is not significant for women of other religion.

Model 4 shows the independent effects of interaction between the two principal exposure variables—religion and ethnicity. The odds of CUC for Yoruba and other religion is 47 times higher than the reference category (i.e. HFKS and Islam). Also, women of Yoruba origin and of other religions has 40.63 times higher odds of using contraceptives than women in the reference group. The results of models 5 – 8 are displayed in table 3. After adjusting for some socioeconomic and demographic characteristics,

model 5 revealed that the odds of CUC for other Christian women reduced significantly to as low as two times compared with Muslim women. The same is true for Igbo women. However, the relationship between women of other religion with CUC is no longer significant.

Model 6 shows that Yoruba women, Igbo/Ibo women and women of other tribe all at  $p < 0.001$  compare with the Hausa/Fulani/Kanuri/Seriberi women. Model 7 considers the interaction

effects of the principal exposure variables while controlling for other background characteristics. It was found that only the odds of CUC for women of HFKS and women that are of other religion was no longer significant after adjustment for interaction effects. Model 8 shows the combined effects of all principal exposures while controlling for some selected characteristics. Significant relationships were only visible at  $p < 0.05$  for women of Yoruba origin, Catholic women, women of other Christian, Igbo/Islam women, Yoruba/

**Table 3.** Multivariate logistic analysis of effect of principal exposure variables and some selected characteristics on current contraceptive use by women of reproductive age (15-49) years in Nigeria

Variables	Model 5 AOR (95% CI)	Model 6 AOR (95% CI)	Model 7 AOR (95% CI)	Model 8 AOR (95% CI)
<b>Ethnicity</b>				
Hausa/Fulani/Kanuri		1.00		1.00
Igbo/Ibo		10.24 (6.71 15.60)**		1.28 (0.25 6.56)
Yoruba		11.44 (7.74 16.90)**		8.24 (1.90 35.87)*
Others		8.44 (5.70 12.50)**		1.61 (0.36 7.32)
<b>Religion</b>				
Islam	1.00			1.00
Catholics	2.46 (2.00 3.02)**			9.57 (2.13 43.08)*
Other Christians	2.00 (1.66 2.40)**			7.46 (1.66 33.49)*
Other Religion	1.19 (0.78 1.80)			2.88 (0.72 11.55)
<b>Ethnicity/Religion</b>				
Hau-Ful-Kan/Islam			1.00	1.00
Igbo/Islam			16.02 (3.16 81.53)**	12.56 (1.30 120.68)*
Yoruba/Islam			14.80 (10.14 21.59)**	1.80 (0.42 7.64)
Others/Islam			3.93 (2.62 5.90)**	2.44 (0.54 11.08)
Hau-Ful-Kan/Catho			6.73 (2.75 16.50)**	0.70 (0.10 4.81)
Igbo/Catholics			14.43 (9.66 21.55)**	1.18 (0.42 3.31)
Yoruba/Catholics			12.20 (6.94 21.44)**	0.15 (0.06 0.38)**
Others/Catholics			15.46 (10.52 22.73)**	*****
Hau-Ful-/Other Ch			7.53 (2.88 19.70)**	1.01 (0.27 3.71)
Igbo/Other Christia			13.64 (9.06 20.52)**	1.43 (0.51 3.98)
Yoruba/Other Chris			14.31 (9.83 20.84)**	0.23 (0.12 0.47)**
Others/Christians			12.05 (8.26 17.57)**	*****
Hau-Ful-Ka/oth rel			2.88 (0.72 11.55)	*****
Igbo/Other Rel			3.67 (1.44 9.37)*	*****
Yoruba/Other Rel			4.65 (2.44 8.85)**	*****
Others/Other Rel			23.71 (13.77 40.83)**	*****
<b>Age group</b>				
15-24 years	1.00	1.00	1.00	1.00

Table 3. Contd...

Variables	Model 5 AOR (95% CI)	Model 6 AOR (95% CI)	Model 7 AOR (95% CI)	Model 8 AOR (95% CI)
25-34 years	1.51 (1.33 1.71)**	1.55 (1.37 1.75)**	1.52 (1.34 1.73)**	1.52 (1.35 1.72)**
35 and above	1.09 (0.92 1.27)	1.11 (0.95 1.30)	1.07 (0.92 1.25)	1.07 (0.92 1.25)**
<b>Place of residence</b>				
Urban	1.00	1.00	1.00	1.00
Rural	0.74 (0.66 0.84)**	0.78 (0.70 0.86)**	0.75 (0.68 0.83)**	0.75 (0.68 0.83)**
<b>Household wealth</b>				
Poor	1.00	1.00	1.00	1.00
Moderate	2.48 (1.71 3.60)**	2.10 (1.48 2.98)**	1.90 (1.34 2.70)**	1.90 (1.34 2.70)**
Not Poor	4.73 (3.29 6.82)**	3.63 (2.57 5.12)**	3.48 (2.48 4.89)**	3.48 (2.48 4.89)**
<b>No of children living</b>				
0	1.00	1.00	1.00	1.00
1-2	2.53 (2.18 2.93)**	2.47 (2.13 2.86)**	2.47 (2.13 2.86)**	2.47 (2.13 2.86)**
3-4	5.64 (4.67 6.80)**	5.34 (4.40 6.48)**	5.38 (4.44 6.51)**	5.38 (4.44 6.51)**
5+	7.77 (5.95 10.15)**	7.47 (5.71 9.79)**	7.56 (5.77 9.90)**	7.56 (5.77 9.90)**
<b>Region</b>				
North Central	1.00	1.00	1.00	1.00
North East	0.40 (0.32 0.51)**	0.51 (0.40 0.66)**	0.63 (0.49 0.80)**	0.63 (0.49 0.80)**
North West	0.60 (0.42 0.86)*	1.50 (1.06 2.12)*	1.38 (1.02 1.85)*	1.38 (1.02 1.85)*
South East	1.10 (0.92 1.32)	1.32 (1.04 1.70)*	1.10 (0.87 1.40)	1.10 (0.87 1.40)
South South	1.27 (1.07 1.52)*	1.64 (1.38 1.96)**	1.32 (1.11 1.57)*	1.32 (1.11 1.57)*
South West	1.65 (1.40 1.96)**	1.44 (1.20 1.73)**	1.27 (1.07 1.51)*	1.27 (1.07 1.51)*
<b>Children ever born</b>				
0-4 Children	1.00	1.00	1.00	1.00
5 Children and plus	0.86 (0.72 1.03)	0.88 (0.74 1.05)	0.90 (0.75 1.06)	0.89 (0.75 1.06)
<b>Autonomy level</b>				
Low	1.00	1.00	1.00	1.00
More	1.62 (1.39 1.89)**	1.39 (1.19 1.61)**	1.24 (1.07 1.43)*	1.24 (1.07 1.43)*
<b>Education level</b>				
Lower than secondary	1.00	1.00	1.00	1.00
Secondary & higher	2.19 (1.96 2.46)**	2.15 (1.92 2.41)**	1.96 (1.75 2.19)**	1.96 (1.75 2.19)**
<b>Marital status</b>				
Never in marriage	1.00	1.00	1.00	1.00
Ever in marriage	0.37 (0.31 0.43)**	0.36 (0.31 0.42)**	0.36 (0.31 0.43)**	0.36 (0.31 0.43)**
<b>Work status</b>				
Not working	1.00	1.00	1.00	1.00
Working	1.12 (0.82 1.52)	1.17 (0.86 1.61)	1.14 (0.83 1.55)	1.14 (0.83 1.55)

\*p<0.05, \*\*p<0.001, UOR=Unadjusted odd ratios, AOR=Adjusted odd ratios

Catholics and Yoruba/other Christians. However, the adjusted variables such as age group, place of residence, household wealth, number of children living, region of residence (except for women of

South East), autonomy level, education level and marital status were significantly related to CUC. Interestingly, in all (models 5-8), variation in work status was never significant.

## Summary of Findings

This study shows that, in general, the prevalence of current use of contraceptive (CUC) among women of reproductive age in Nigeria is very low compared to their counterparts in the United States,<sup>[8]</sup> Namibia,<sup>[11]</sup> and in Ethiopia.<sup>[1]</sup> However, with respect to the research question, whether women of reproductive age 15-49 years in Nigeria who are of the HFKS ethnicity and are Muslims were at a disadvantage in terms of current use of contraceptive compared with other reproductive age women in other categories, a number of major findings of the study are worth noting.

First, CUC among women of reproductive age in Nigeria significantly varied by ethnicity. This agrees with findings from other studies that reported the influence of cultural beliefs and practices on childbirth fertility-related behaviors most associated with the HFKS ethnic group of Northern Nigeria.<sup>[1,12,27,29]</sup> Second, there was significant variation observed in CUC among women of reproductive age in Nigeria by religion, however, this study shows that it is significantly lowest among Muslim women. The study also found that CUC varied significantly among women across all categories of association between ethnicity and religion thereby justifying their predictor effect on CUC. For instance, the prevalence of CUC among women of HFKS ethnic origin and are Muslim is quite expected. The possible reason for this is the cultural belief of most of these women that God has placed Children in the womb of a woman and until they are given birth to, you do not stop. Also, Islam permits polygamy and as such most of these women believed that they can gain much of their husband's attention when they are often pregnant for him. This explains the findings in Ethiopia that women who had polygamous marriage were by half less likely to use modern contraceptive methods than women in monogamous marriage.<sup>[1]</sup> Another possible reason is that, Under-Five Mortality (U5M) is high among HFKS and Muslim mothers than any other category of women in Nigeria.<sup>[5,12,17,30]</sup> The cultural attempts to replace children who died before age five discourage the use of family planning methods. It must be noted, however, that variations in the association between ethnicity and religion was still significant, even after

controlling for some confounding socioeconomic and demographic variables.

**Limitation.** One major limitation of this study is that a cause-effect relationship could not be measured as a result of cross-sectional nature of DHS data. Considering the influence of men on women decision to use contraceptives, future studies should be done to determine the mediatory effects of men's factors on current use of contraceptives among reproductive age women in Nigeria.

## Conclusion and Global Health Implications

This study concluded that current use of contraceptives by women of reproductive age in Nigeria is not just a matter of independent effects of ethnicity, religiosity and some socio-demographic variables but also dependent on the effects of interaction between the ethnicity and Religion. The findings of this study have far-reaching policy implications that will improve the process of preventing unwanted/unplanned pregnancy, reduction of abortion, maternal mortality and other pregnancy/fertility-related complications in Nigeria. Such policies must include strategies to address ethnic, religion and cultural impediments to the use of family planning methods. By promoting strategies to reduce socio-economic disparities among women of various ethnic groups through a strong advocacy to increase the level of educational attainment by women. By promoting awareness among the various religious and community leaders of use of family planning methods who will in turn sensitize their followers through frequent congregational conversation programs. Any policy on public health objectives aimed at increasing the use of contraceptives should also consider that linkages between religion and ethnicity are very important factors and should be addressed.

## Acknowledgement

The author acknowledges the permission granted to him by ICF Macro International and MEASURE DHS for the release of the datasets used in this study.

**Conflict of Interest:** Author declares no conflict of interest. **Funding:** The author has no financial assistance to carry out the research.

### Key Message

- CUC among women of reproductive age in Nigeria significantly varied by ethnicity. The influence of cultural beliefs and practices on childbirth fertility-related behaviors are pervasive and most prevalent among women of the HFKS ethnic group of Northern Nigeria.

### References

1. Yihunie L, Ayalu AR, Habtamu T, Susan B and Kebede D, Geographical Variation and Factors Influencing Modern Contraceptive Use among Married Women in Ethiopia: Evidence from a National Population Based Survey; *Reproductive Health*. 2013, 10:52.
2. Monjok E, Smesny A, Ekabua JE, Essien EJ. Contraceptive Practices in Nigeria: Literature Review and Recommendation for Future Policy Decisions. *Open Access Journal of Contraception*. 2010:19–22.
3. Okonofua F. Need to intensify safe motherhood interventions in Africa. *African Journal of Reproductive Health*. 2003;7(3):7–12.
4. Jones RK and Dreweke J, *Countering Conventional Wisdom: New Evidence on Religion and Contraceptive Use*, New York: Guttmacher Institute, 2011.
5. Gbenga AK, Victor TA and Olalekan AU, Risk Factors and a Predictive Model for Under-Five Mortality in Nigeria: evidence from Nigeria Demographic and Health Survey, *BioMed Central Pregnancy and Childbirth*. 2012, 12:10.
6. Palloni A, Aguirre GP, Lastiri S: The Effects of Breast-Feeding and the Pace of Childbearing on Early Childhood Mortality in Mexico. *Bull Pan American Health Organ*. 1994, 28:93-111.
7. Umar G, Anand K, Kant S, Kapoor SK: Scale for Identification of “At Risk” Families for Under-Five Deaths. *Indian Journal of Pediatrics*. 2000, 67:411-417.
8. Jones J, Mosher WD and Daniels K, Current Contraceptive Use in the United States, 2006–2010, and Changes in Patterns of use since 1995, *National Health Statistics Reports*, 2012, No. 60, <<http://www.cdc.gov/nchs/data/nhsr/nhsr060.pdf>>, accessed Sept. 28, 2014.
9. Factsheet, Contraception: Pattern of Use <http://www.fpa.org.uk>, accessed Oct. 13<sup>th</sup>, 2014.
10. National Population Commission and ICF Macro (2014): Nigeria Demographic and Health Survey, 2013 Abuja, Nigeria: National Population Commission and ICF Macro.
11. Olusina B, Linkages between Autonomy, Poverty and Contraceptive Use in Two sub-Saharan African Countries, *African Population Studies*. 27, No 2, October, 2013.
12. Diddy A, Inequalities in Under-5 Mortality in Nigeria: Do Ethnicity and Socioeconomic Position Matter? *Journal of Epidemiology*. 2011; 21(1):13-20.
13. Mustapha A. Ethnic Structure, Inequality and Governance of the Public Sector in Nigeria Democracy, Governance and Human Rights. United Nations Research Institute for Social Development (UNRISD); 2006.
14. Adedini SA., Odimegwu C, Bamiwuye O, Fadeyibi O and DeWet N, Barriers to Accessing Health Care in Nigeria: Implications for Child Survival, *Global Health Action*. 2014, 7:23499.
15. Adedini SA, Odimegwu C, Imasika ENS, Ononokpono DN, Ethical Differentials in Under-Five Mortality in Nigeria, *Ethnicity & Health* 2014. Doi: 10.1080/13557858.2014.890599.
16. Ononokpono DN, Odimegwu CO, Isika E, Adedini S, Contextual Determinants of Maternal Health Care Service Utilization in Nigeria. *Women Health* 2013, 53: 647-68.
17. Babalola S, Fatusi A. Determinants of use of Maternal Health Service in Nigeria- Looking beyond Individual and Household Factors, *BioMed Central Pregnancy Childbirth*. 2009, 9-43.
18. Fayiesetan B and Pebley AR. Premarital Sexuality in Urban Nigeria. *Studies in Family Planning*. 1989; 20, 6: 343-354.
19. Amizigo U, Silva N, Kaufman J and Obikeze DS. Sexual Activity and Contraceptives Knowledge and Use among In-School Adolescents in Nigeria. *International Family Planning Perspectives*: 1997; 20, 29-33.
20. Stephenson R, Baschieri A, Clement S, Hennink M, Madise N: Contextual Influences on Modern Contraceptive use in Sub-Saharan Africa. *American Journal of Public Health*. 2007, 97(7): 1233-1240.
21. Stephenson R, Beke A, Tshibansu D: Contextual Influences on Contraceptive use in the Eastern Cape. *South African Health Place*. 2008, 14(4): 841-852.
22. Bogale B, Wondatrash M, Tilahun T, Girma E: Married

- Women's Decision Making Power on Modern Contraceptive Use in Urban and Rural Southern Ethiopia. *BioMed Central Public Health*. 2011, 11: 341.
23. Kebede Y: Contraceptive Prevalence in Dembia District, Northwest Ethiopia. *Ethiopia Journal of Health Development*. 2006, 20(1):32-38.
  24. Kravdal O: Education and Fertility in sub-Saharan Africa: Individual and Community Effects, *Demography*. 2002, 39(2):233-250.
  25. Ettarh RR: Spatial Analysis of Contraceptive use and Unmet need in Kenyan. In *MEASURE Evaluation PRH Working Paper Series*. Chapel Hill, NC and Nairobi: Carolina: Population centre University of North Carolina and African Population and Health research centre; 2011.
  26. Gakidou E, Vayena E: Use of Modern Contraceptive by the Poor is Falling Behind, *Plos Medicine*. 2007, 4(2): 31.
  27. Caldwell J, McDonald P. Influence of Maternal Education on Infant and Child Mortality: Levels and Causes. *Health Policy Education*. 1982;2(3-4): 251-67.
  28. Stata Corporation. Stata Statistical Software, College Station, TX; 2012.
  29. Dressler WW, Oths KS, Gravlee CC. Race and Ethnicity in Public Health Research: Models to Explain Health Disparities. *Annual Review of Anthropology*. 2005; 34(1):231-52.
  30. Williams DR, Jackson JS. Race/ethnicity and the 2000 census: Recommendations for African American and other black populations in the United States. *American Journal of Public Health*. 2000; 90(11):1728-30.