

## Modern Contraceptive Use, Sex Refusal and Spousal Difference in Level of Education among Married Women in Nigeria: Are They Interrelated?

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### Abstract

#### **Background**

*Difference in spousal education level is an indicator of gendered efficacy of marriage. Researchers have consistently linked spousal education difference, sex refusal and contraceptive use with violence against women and marriage dissolution. This study examines the relationship between these variables which had been barely explored in the literature.*

#### **Methods**

*The study cross-examined 8,233 and 21,941 married women aged 15-49 and utilized 2008 Nigeria Demographic Health Survey. The dependent variables were Current Use of Modern Contraceptive Method (CMCM) and sex refusal. Chi-square and logistic regression were used for data analysis ( $\alpha=0.5\%$ ).*

#### **Results**

*Mean age of women was  $33.5\pm 9.0$  years and about 11% were more educated than their husbands. Women in all the regions in the southern Nigeria were CMCM and can refuse sex than their counterparts in the North. Higher proportions of women who are currently working are CMCM (16.4%) and can refuse sex (66.0%). Women who earn more income than their husbands are CMCM (22.6%) and can refuse sex (72.6%) than those who either earn less or the same income. Wives that were more educated than their husbands were 1.58(C.I=1.284-1.941;  $p<0.001$ ) and 1.41(C.I=1.268-1.560;  $p<0.001$ ) more likely to CMCM and can refuse sex respectively than wives whose their husbands were more educated than them. This pattern remains the same when other socio-demographic variables were included in the model.*

#### **Conclusion**

*Higher CMCM and sex refusal among women, who were more educated, working, earns more than their partners' points to the importance and need of women empowerment in Nigeria.*

**Keywords:** Educational attainment, Sex refusal, Modern contraceptive

#### **Background**

The Population in Nigeria was reported to be 151.87 million persons in 2009 and in 2015; Nigeria's Population is expected to be 178.72 million persons (IMF, 2010). Experts are beginning to express fears on how the population can be managed amid poverty, poor infrastructural development and present burden of healthcare (Onwuka, 2006). This has prompted the Government to cleverly suggest birth control for its citizens (Federal Republic of Nigeria, 1988; Federal Republic of Nigeria, 2004).

Achieving this aim without investing into women's education may be unfeasible in view of the fact that education plays a central role in all issues related to reproductive health (Rupasree and Vijay, 2010). In traditional African society, wives are seen as helping hand to their husbands and are expected to be totally submissive in terms of decision making including those that are beneficial to their health particularly contraceptive use (Orubuloye et al., 1997). However, civilization and modernization have given women more recognition in the society to make decisions on their own. Many factors can be attributed to this change, but women's education has been widely recognised in the literature as the foremost determinant (UNFPA, 1994; Roseline et al., 2010). Eliminating the gap between males and females education at all levels by 2015 was part of 2004 Nigeria population policy (Federal Republic of Nigeria, 2004). Consequently, school enrolment has increased for female children but surveys held in Nigeria still show that more females than males have never attended school (National Population Commission and ICF Macro, 2009; National Population Commission and ICF Macro, 2004).

It was part of African culture for the young to have respect for an older person irrespective of gender and this is embedded in the family structure. In most African settings, among couples, wives are more likely to be younger than their husbands and it is scarce to identify a family where reverse is the case, but variation exists across populations. Spousal age difference has been shown in previous studies as one of the key factors influencing some household decisions including fertility and contraceptive use (Laguna et al., 2000; Lee, 1986). Spousal endorsement on family planning is decisive in patterns of contraceptive use. If a husband does not consent to contraceptive use, it is a barrier even if the wife approves, especially in patriarchy societies and male dominating settings like Nigeria. It is widely known in the literature that the uptake of family planning method and women's education are low in Nigeria (National Population Commission and ICF Macro, 2009; National Population Commission and ICF Macro, 2004). Experimental studies in other parts of the World demonstrate that women's education is significantly associated with contraceptive use (UNFPA, 2005; United Nations, 2002; Laguna et al., 2000; Lee, 1986).

The power of the influence of age difference among couples on household decision making might be reduced where wives are adequately educated. In this situation, three possibilities can arise; situations where the level of husbands' education is the same, lower or higher than that of his wives. Aside the effect that spousal difference in level of education can have on contraceptive use, it can also play a key role in women sex refusal. A couple's sexuality is one of the very simple parts of their lives. When couples are not sexually expressing themselves satisfactorily, they are not really enjoying marriage to the fullest. Sex stimulates couples physically, mentally and binds them spiritually. Sex affects couples' health, enhances sleep, fights diseases, augments the defense mechanism and creates a feeling of total wellbeing (Sheryl, 2009; Waterman et al., 1979). Sex to a large extent is better when married and its impact resonates in all areas of health and social programming. One major factor that causes violence between couples, and which is hardly voiced out but often drives either of the couples away from home into the waiting hands of extra-marital affairs is sex. Researchers have confirmed that married couples have high coital frequency and enjoy sex than those who are either cohabitating or singles (Adena and Freya, 2011; Waterman et al., 1979).

In some religious sect, refusing sex by either wife or husband is considered inimical to marital relationship because it is believed that sex is part of the marriage covenant made by the spouses at marriage. Many marriages are in shamble today because of not implementing this rule. If a wife or husband refuses to have sex with her spouse for extended periods where there is no physical or poignant reason, it amounts to neglect, emotional abuse and violence (Wusu and Isiugo-Abanihe, 2008; Undie and Benaya, 2006). This is an indication of public health importance of sex refusal among couples. An important factor which has been less studied in the literature is the effect of spousal difference in level of education and sex refusal among couples. We thus hypothesized that, women who have attained higher level of education than their husbands are more likely to refuse their husband sex than those who either have equal or less.

Our study has two main objectives; to explore the association between difference in level of education of couples and current use of modern contraceptive. It also examines the relationship between difference in couple's level of education and sex refusal. Additional variables such as age difference between couples, earning of women relative to husbands, work status and a host of others were also examined to see their influence on the association between the contraceptive use, sex refusal and difference in couple's level of education.

**Research Questions:**

- a) Is there a relationship between difference in level of education of couples and current use of modern contraceptive?
- b) Is there a relationship between difference in level of education of couples and sex refusal among women?
- c) Does the couples' age difference influence the use of modern contraceptive and sex refusal?

**Methods**

The study was based on data from a national survey conducted in Nigeria, the most populous nation in Africa. The 2006 Population and Housing Census puts Nigeria's population at 140,431,790, with a national growth rate estimated as 3.2 percent per annum and the current estimate put the figure at 160 million (PRB, 2012; National Population Commission, 2006).

**Study design:**

The study was a cross-sectional design and utilized 2008 Nigeria Demographic Health and Survey dataset collected by National Population Commission (Nigeria) and ORC Macro Calverton, Maryland, USA. <sup>[9]</sup> The survey was designed to allow reliable estimation of most variables for a variety of health and demographic analyses at the various domains of interest. The population covered was women age 15-49 years. For subgroup analysis, the survey also provides estimates with acceptable precision for important population characteristics such as fertility, contraceptive prevalence and other selected health indicators.

Administratively, Nigeria is divided into states. Each state is subdivided into local government areas (LGAs), and each LGA is divided into localities. In addition to these administrative units, during the last 2006 Population Census, each locality was subdivided into convenient areas called census enumeration areas (EAs). Nigeria has 36 states, plus FCT-Abuja. At the time of the survey implementation, the list of EAs did not have census information for households and the population because the census frame was under segmentation revision. Therefore, the available cartographic material demarcated for each EA was used in the EA location and its identification.

The primary sampling unit (PSU), a cluster for the survey was defined on the basis of EAs from the 2006 EAs census frame. A minimum requirement of 80 households for the cluster size was used in the design. If the selected EA is small during the listing process, then a supplemental household listing was conducted in the neighbouring EA. About 36,800 households were selected, and all women age 15-49 were interviewed. The selected households were distributed in 888 clusters in Nigeria, 286 clusters in the urban areas, and 602 clusters in the rural areas. The sample was selected using a stratified two-stage cluster design consisting of 888 clusters, 286 in the urban and 602 in the rural areas.

**Data source and variables identification:**

The data was accessed on the web platform of measure DHS (<http://www.measuredhs.com/>). Interested readers should visit the website for more information on the sampling procedures, pre-test, recruitment of study participants and validation of the study instruments. In the original sample, 36,800 women aged 15-49 were interviewed. Our study focused on two key dependent variables. First, current use of modern contraceptive among currently married women who are not currently pregnant, not currently breast feeding, not menopausal and had sexual intercourse in the last 4 weeks preceding the survey. Setting these inclusion criteria reduced the number of women in the sample to 8233. The second dependent variable was sex refusal which included 21,941 currently married women.

**Data analysis**

The independent variable of interest was difference in spousal level of education. This was generated from the information provided by women on their current level of education and that of their husbands. The framework for the variable generation is shown thus; if the difference ( $\psi$ ) in level of education falls on the region shaded in the framework i.e  $\zeta_{ii} - \zeta_{jj}$ , this implies that the spouses have the same level of education and when  $\psi$  is  $\zeta_{1i} - \zeta_{j1}$ ,  $i, j = 2, 3, 4$ ;  $\zeta_{2i} - \zeta_{j2}$ ,  $i, j = 3, 4$  and  $\zeta_{3i} - \zeta_{j3}$ ,  $i, j = 4$ ; this implies that husband's educational level is higher than that of the wife. However, if wife's educational level is higher than that of the husband  $\psi$  is  $\zeta_{4i} - \zeta_{j4}$ ,  $i, j = 1, 2, 3$ ;  $\zeta_{3i} - \zeta_{j3}$ ,  $i, j = 2, 3$  and  $\zeta_{2i} - \zeta_{j2}$ ,  $i, j = 1$

**Framework for derivation of difference in levels of education**

<b>Levels of education</b>	<b>Husbands</b>			
	None=0( $\gamma_{1j}$ )	Primary=1( $\gamma_{2j}$ )	Secondary=2( $\gamma_{3j}$ )	Higher=3( $\gamma_{4j}$ )
None=0 ( $\zeta_{1i}$ )	$\zeta_{11}$ - $\gamma_{11}$	$\zeta_{12}$ - $\gamma_{21}$	$\zeta_{13}$ - $\gamma_{31}$	$\zeta_{14}$ - $\gamma_{41}$
Wives Primary=1( $\zeta_{2i}$ )	$\zeta_{21}$ - $\gamma_{12}$	$\zeta_{22}$ - $\gamma_{22}$	$\zeta_{23}$ - $\gamma_{32}$	$\zeta_{24}$ - $\gamma_{42}$
Secondary=2( $\zeta_{3i}$ )	$\zeta_{31}$ - $\gamma_{13}$	$\zeta_{32}$ - $\gamma_{23}$	$\zeta_{33}$ - $\gamma_{33}$	$\zeta_{34}$ - $\gamma_{43}$
Higher=3( $\zeta_{4i}$ )	$\zeta_{41}$ - $\gamma_{14}$	$\zeta_{42}$ - $\gamma_{24}$	$\zeta_{43}$ - $\gamma_{34}$	$\zeta_{44}$ - $\gamma_{44}$

**Bivariate analysis**

Cross-tabulation of the dependent variables with selected background characteristics was performed to assess the prevalence of the outcome variables among subgroup of women involved in the study. Chi-square analyses was used to examine the degree of association between the dependent and independent variables with significant level set at ( $\alpha = 5\%$ ).

**Multivariate analysis**

Multinomial regression model was used to establish the relationship between women who are currently using modern contraceptive and spousal difference in level of education. Current use of modern contraceptive method was classified into three categories (Never used, currently using other methods different from modern and currently using modern method). The multinomial model uses maximum likelihood estimation to weigh up the probability of categorical membership of each type of contraceptive method used.

The dependent variable has 3 categories, this requires the calculation of 3-1=2 equations, one for each category relative to the reference category (not using any contraceptive method) to describe the relationship between current contraceptive use and the spousal difference in level of education. We chose the first category (non users) as the reference, then, for  $j = 2,3$

$$\frac{p(\omega_i=j)}{p(\omega_i=1)} = e^{(\alpha_j + \beta_{j1}X_{i1} + \beta_{j2}X_{i2} + \dots + \beta_{jn}X_{in})} = H_{ji}$$

Consequently, for each case, there will be 2 predicted log-odds, one for each category relative to the reference category. When there are more than 2 groups, computing probabilities is a little more challenging than it was in logistic regression. For  $j = 2,3$

$$p(\omega_i = j) = \frac{\exp(H_{ji})}{1 + \exp(H_{2i}) + \exp(H_{3i})}$$

For the reference category;

$$p(\omega_i = 1) = \frac{1}{1 + \exp(H_{2i}) + \exp(H_{3i})}$$

For the second dependent variable (sexual intercourse refusal autonomy), logistic regression was used. Respondents who reported that they have sexual intercourse refusal autonomy were assigned code 1 and 0 if otherwise.

The logistic regression model is defined as;

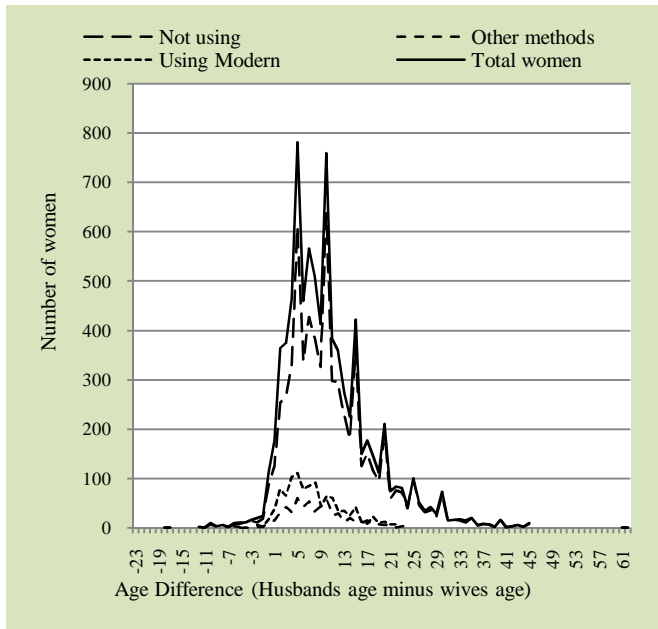
$$\log\left(\frac{\pi}{1-\pi}\right) = \alpha_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \dots + \beta_kx_k$$

Where  $\pi$  is the outcome measure and  $i = 1$  if  $\pi$  is the proportion of respondents that can refuse sex. Also,  $\beta_1, \beta_2, \beta_3, \dots, \beta_k$ , are the regression coefficients to be estimated,  $x_1, x_2, x_3, \dots, x_k$  are the independent variables such as spousal difference in level of education, age, religion, current work status, wealth index etc.

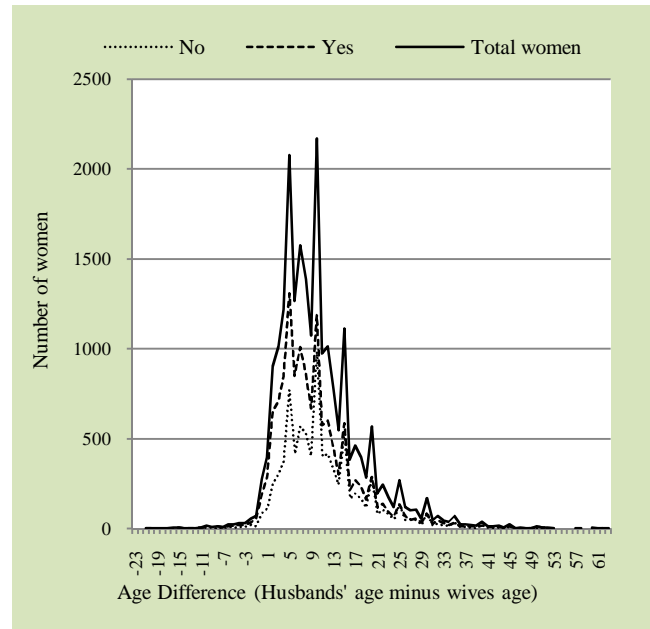
**Results**

Figures 1a and 1b show the distribution of difference in age of the respondents and their husbands for the two dependent variables. The data is evidence that the difference is approximately normally distributed, but slightly skewed to the right. It shows that majority of the husbands are older than their wives and the age gap was more prominent between 3 and 22 years.

**Figure 1a&b: Line graph of husbands-wives age difference for women who responded to question on contraceptive use (1a) and sex refusal (1b)**



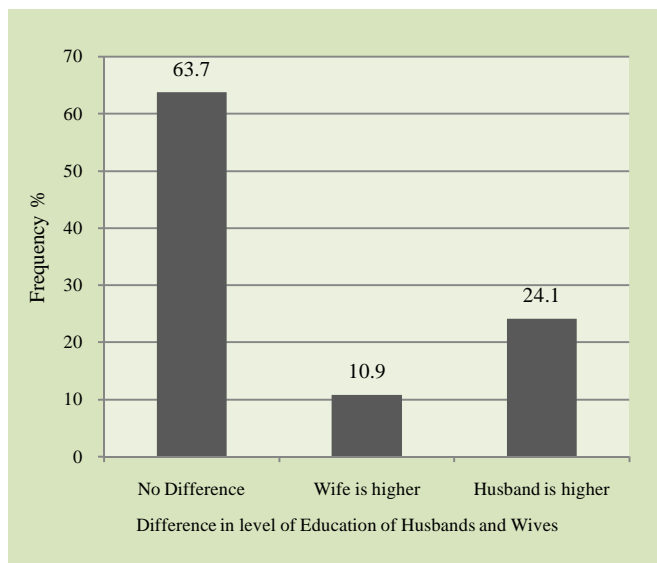
1a



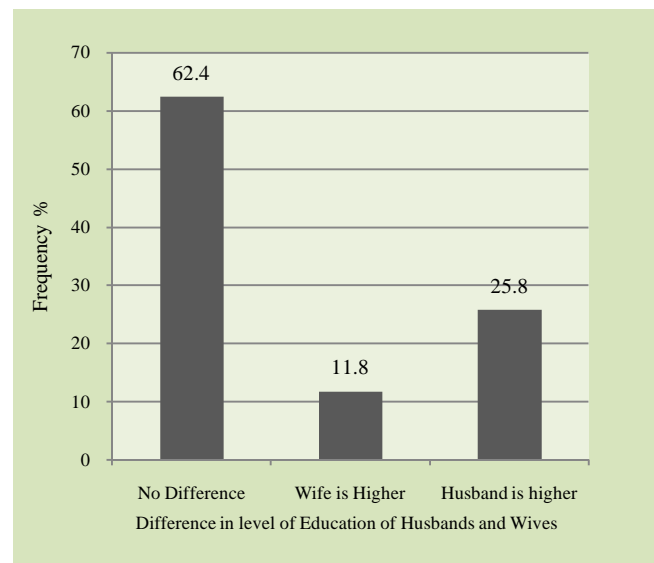
1b

In figures 2a and 2b, the data show that majority of the couples had the same level of education and higher proportion of husbands was more educated than their wives.

**Figure 2a&b: Bar chart of husbands' wives difference in level of education for women who responded to question on contraceptive use (2a) and sex refusal (2b)**



2a



2b

The mean age of the respondents was  $33.5 \pm 9.0$  years and varies significantly between women who are currently using modern contraceptive method and those who are not. Also, the mean age of women who can say no to their husbands when they want to have sex with them was  $31.9 \pm 8.5$  years. In table 1, the data depict that the prevalence of current use of modern contraceptive method (CMCM) and sex refusal were 13.4% and 60.9% respectively.

The prevalent of current modern contraceptive use (19.9%) and sex refusal (70.8%) was highest among women who were more educated than their husbands ( $p < 0.001$ ). Also, the more the gap in age difference of husbands and wives, the higher the lower the proportion of women who are CMCM and it also reduces consistently among women who can refuse sex to their husbands ( $p < 0.001$ ).

Christian women constitute higher proportion of those who are CMCM (22.6%) and those who can refuse sex (78.8%) than their Muslim counterparts (5.6% for CMCM and 46.6% for sex refusal). Proportion of women who were CMCM increases steadily with increasing wealth quintiles. For instance, the percentage of CMCM ranges from 2.0% among the poorest to 27.5% among the richest ( $p < 0.001$ ). Similar pattern was observed among women who can refuse sexual intercourse.

In terms of region, striking differential exist in modern contraceptive among the six geo-political zones in Nigeria with highest prevalence observed in south west (27.7%) and least in north-west (3.0%) ( $p < 0.001$ ). Moreover, women in all the regions in the southern part of Nigeria have more autonomy to refuse sexual intercourse than their counterparts who are residents in the North. The highest prevalence of sex refusal was equally observed in the south west (84.9%) and least in the north-west (39.0%).

The data further revealed that higher proportion of women who are currently working are currently using modern contraceptive method (16.4%) and those who said that they can refuse their husbands sexual intercourse (66.0%). Women who earn more income than their husbands, currently use modern contraceptive method (22.6%) and have higher sexual intercourse refusal autonomy (72.6%) than those who were either earn less or the same income as that of their husbands. Significant variations also existed across other socio-demographic characteristics, CUMC and sex refusal. These include; place of residence, number of living children and marital duration.

**Table 1: Percentage Distribution of the respondents according to current contraceptive use, sex refusal by background characteristics**

Background Characteristics	Contraceptive use			$\chi^2$ -value (p-value)	Sex refusal		$\chi^2$ -value (p-value)
	Other Methods	Modern Method	Total		Yes	Total	
Total	7.3	13.4	8233		60.9	21941	
Mean Age	34.7±6.9	35.1±7.0	33.5±9.0	p<0.001	31.9±8.5	31.3±8.7	p<0.001
<u>Difference in Spousal level of education</u>				89.03*			147.82*
No Difference	6.5	11.9	5300	(p<0.001)	58.3	13847	(p<0.001)
Wife higher	12.0	19.9	920		70.8	2359	
Husband higher	7.1	14.5	2013		63.2	5735	
<u>Difference in Spousal Age</u>				183.20*			311.50*
0-4 years	8.7	20.1	1570	(p<0.001)	70.4	3987	(p<0.001)
5-9 years	8.4	15.1	2764		63.5	7457	
10-14 years	7.1	11.0	2016		56.7	5504	
15-19 years	5.3	9.7	1009		55.5	2646	
20+ years	3.7	6.3	986		53.0	2607	
<u>Religion</u>				873.70*			2352*
Christian	12.2	22.6	3800	(p<0.001)	78.8	9754	(p<0.001)
Islam	2.9	5.6	4367		46.6	11940	
Traditional	4.9	1.6	123		49.3	349	
others	7.1	16.1	55		73.3	30	
<u>Number of living children</u>				354.00*			76.394*
0	1.8	2.5	1295	(p<0.001)	53.3	2223	(p<0.001)
1-2	7.1	9.9	2104		61.8	7003	
3-4	9.9	18.8	2480		63.4	6774	
5+	7.5	16.5	2467		59.9	6201	
Mean	3.6±1.8	3.9±1.8	3.3±2.4	p<0.001	3.28±2.2	3.27±2.3	
<u>Region</u>				146.50*			3506*
North Central	3.6	16.3	1126	(p<0.001)	66.6	3149	(p<0.001)
North East	0.6	3.6	1110		43.3	3303	
North West	0.4	3.0	2557		39.0	6748	
South East	16.5	16.8	685		77.8	2014	
South South	13.9	19.1	1090		79.7	2745	
South West	15.9	27.7	1778		84.9	4241	
<u>Residence</u>				513.30*			427.30*
Urban	12.5	21.7	2925	(p<0.001)	70.8	7027	(p<0.001)
Rural	4.4	8.9	5420		56.3	15175	
<u>Wealth Index</u>				1246*			160.30*
Poorest	0.6	2.0	1709	(p<0.001)	44.4	4993	(p<0.001)
Poorer	2.4	5.5	1618		50.8	4700	
Middle	4.9	9.4	1444		61.8	4081	
Richer	10.8	19.4	1571		72.4	4040	
Richest	15.7	27.5	2003		79.0	4387	
<u>Marital Duration</u>				76.704*			11.163*
0-4	6.1	8.1	1448	(p<0.001)	61.3	4897	0.011
5-9	8.9	15.2	1319		62.4	4581	
10-14	9.4	16.2	1382		61.5	3854	
15+	6.4	13.6	4195		59.6	8869	
<u>Work status</u>				258.30*			497.80*
Not working	3.3	6.2	2435	(p<0.001)	50.4	7103	(p<0.001)
working	8.8	16.4	5866		66.0	14981	
<u>Earning of Women relative to partner</u>				35.28*			169.70*
More than him	12.4	22.6	267	(p<0.001)	72.6	584	(p<0.001)
Less than him	8.8	16.5	4157		65.0	10623	
About same	7.5	20.3	282		76.3	654	
Partner DBH	12.8	20.5	39		85.5	117	
Don't know	10.2	7.8	323		48.7	822	

\*Significant at 0.1%

### **Multivariate analysis results**

In table 2, the data show that wives that were more educated than their husbands were 1.58(C.I=1.284-1.941;  $p<0.001$ ) more likely to currently using modern contraceptive than wives whose their husbands were more educated than them. But the likelihood was lower among women whose their husbands have the same level of education as they have (OR=0.789; C.I=0.679-0.917) (model 1a). The pattern was similar when difference in age of the couples was used as control (model 2a). However, including age difference into the initial model increases the odd ratio from 1.579 to 1.665.

In model 2, the odds of current use of modern contraceptive fall consistently as the spousal age difference becomes wider. For example, wives whose their husbands were 0-4 years difference in age were 4.13(C.I=3.092-5.512;  $p<0.001$ ) times more likely to currently using contraceptive than those where the gap was 20 years and above (model 2a). Similar pattern was observed with slight reduction in odd ratio of using modern contraceptive among women with the same level of education as their husband when earning of women relative to their husbands was included in the model (model 3a). The strength of the likelihood of using modern contraceptive disappeared completely across all the categories of difference in spousal level of education when other background characteristics such as region, religion, residence e.t.c were used as control (model 4a).

The data further revealed that Muslim women were 0.53(C.I=0.336-0.524;  $p<0.001$ ) less likely to currently using modern contraceptive than their counterparts who were Christians. Being in the poorest wealth quintile inhibits current use of modern contraceptive as women in the richest wealth quintile were 7.6(4.303-13.445) times more likely to currently using modern contraceptive than those in the poorest.



**Table 2: Logistic Regression of Current use of Modern Contraceptive and Background Characteristics**

Background Characteristics	Model 1a Odd Ratio(95% C.I)	Model 2a Odd Ratio(95% C.I)	Model 3a Odd Ratio(95% C.I)	Model 4a Odd Ratio(95% C.I)
<u>Difference in Spousal level of education</u>				
No Difference	0.789 <sup>+</sup> (0.679-0.917)	0.818 <sup>^</sup> (0.703-0.952)	0.881(0.734-1.059)	1.080(0.879-1.327)
Wife higher	1.579*(1.284-1.941)	1.665*(1.350-2.054)	1.551 <sup>+</sup> (1.207-1.992)	1.279(0.966-1.694)
Husband higher	1	1	1	1
<u>Difference in Spousal Age</u>				
0-4 years		4.128*(3.092-5.512)	3.775*(2.674-5.331)	1.330(0.902-1.961)
5-9 years		2.880*(2.174-3.814)	2.846*(2.037-3.975)	1.312(0.902-1.909)
10-14 years		1.988*(1.479-2.673)	1.963*(1.380-2.791)	1.201(0.810-1.782)
15-19 years		1.676 <sup>+</sup> (1.200-2.342)	1.791 <sup>+</sup> (1.207-2.656)	1.307(0.838-2.037)
20+ years		1	1	1
<u>Earning of Women relative to partner</u>				
More than him			1	1
Less than him			0.730(0.531-1.002)	0.760(0.533-1.083)
About same			0.889(0.580-1.363)	0.678(0.424-1.084)
Partner DBH			0.997(0.415-2.397)	0.631(0.234-1.705)
Don't know			0.332*(0.199-0.556)	0.329*(0.186-0.581)
<u>Religion</u>				
Christian				1
Islam				0.419*(0.336-0.524)
Traditional others				0.153 <sup>^</sup> (0.034-0.700)
				1.563(0.520-4.696)
<u>Number of living children</u>				
0				1
1-2				4.127*(2.463-6.915)
3-4				15.18*(8.679-26.559)
5+				26.59*(14.791-47.80)
<u>Region</u>				
North Central				1
North East				0.421 <sup>+</sup> (0.258-0.687)
North West				0.307*(0.202-0.466)
South East				0.477*(0.331-0.688)
South South				0.873(0.639-1.193)
South West				1.469 <sup>+</sup> (1.130-1.910)
<u>Residence</u>				
Urban				1
Rural				0.735 <sup>+</sup> (0.597-0.906)
<u>Wealth Index</u>				
Poorest				1
Poorer				2.188 <sup>^</sup> (1.204-3.977)
Middle				3.476*(1.971-6.131)
Richer				5.924*(3.391-10.349)
Richest				7.606*(4.303-13.445)
<u>Work status</u>				
Not working				1
working				2.213 <sup>^</sup> (1.094-4.474)
-2loglikelihood	6265.1	6115.1	4087.4	3224.1

\*Significant at 0.1%; <sup>+</sup>Significant at 1%; <sup>^</sup>Significant at 5%

Table 3 shows the logistic regression of ability of women to refuse sex according to background characteristics of the respondents. The data is an indication that women who were more educated than their husbands and those who no difference exists in the level of education of the spouses, were 1.407(C.I=1.268-1.560) times more and 0.814 (0.764-0.867) less likely respectively to refuse sex than women who were less educated than their husbands.

This pattern of odd ratio of sex refusal was also observed when difference in spousal age was used as control, although including this variable causes a slight increase in the odd ratio, the strength of the relationship became stronger (model 2b).

Inserting a third variable (earning of women relative to their husbands) into the model does not change the pattern (model 3b). When other socio-demographic factors were included into the equation, a sharp drop in odd ratio of sex refusal was seen among women who have higher education than their husbands, but the strength of the relationship completely disappeared (model 4b).

In model 4b, the data further depict that significant variation exists in sex refusal among subgroup of women in different wealth quintiles, region, religion, number of living children and work status. For instance, the likelihood of sex refusal was higher among women in higher wealth index. Also, women in the south west and those who were working were 2.489(C.I.=2.144-2.890;  $p < 0.001$ ) and 1.209(C.I.=1.009-1.448,  $p < 0.01$ ) more likely to have SRA than those in the north central and not working respectively. Women who had given birth to at least a child were more likely to have SRA than those who had no children. The odd ratio increases consistently to women of parity 4 and falls among women who had already given birth to five children and above.

**Table 3: Logistic Regression of Sex refusal and Background Characteristics**

Background Characteristics	Model 1b Odd Ratio(95% C.I)	Model 2b Odd Ratio(95% C.I)	Model 3b Odd Ratio(95% C.I)	Model 4b Odd Ratio(95% C.I)
<u>Difference in Spousal level of education</u>				
No Difference	0.814*(0.764-0.867)	0.821*(0.770-0.875)	0.781*(0.716-0.852)	0.851*(0.772-0.938)
Wife higher	1.407*(1.268-1.560)	1.434*(1.292-1.592)	1.413*(1.231-1.622)	0.993(0.853-1.156)
Husband higher	1	1	1	1
<u>Difference in Spousal Age</u>				
0-4 years		2.088*(1.883-2.316)	2.221*(1.931-2.554)	1.009(0.862-1.181)
5-9 years		1.556*(1.421-1.705)	1.679*(1.484-1.900)	1.004(0.874-1.153)
10-14 years		1.170 <sup>+</sup> (1.065-1.287)	1.187 <sup>+</sup> (1.044-1.349)	0.975(0.846-1.123)
15-19 years		1.107(0.992-1.236)	1.112(0.959-1.289)	1.056(0.898-1.243)
20+ years		1	1	1
<u>Earning of Women relative to partner</u>				
More than him			1	1
Less than him			0.754 <sup>+</sup> (0.623-0.911)	1.159(0.944-1.424)
About same			1.243(0.958-1.612)	1.242(0.942-1.637)
Partner DBH			2.339 <sup>+</sup> (1.343-4.072)	2.712 <sup>+</sup> (1.510-4.870)
Don't know			0.387*(0.307-0.489)	0.592*(0.458-0.765)
<u>Religion</u>				
Christian				1
Islam				0.516*(0.457-0.582)
Traditional				0.429*(0.313-0.588)
others				0.610 <sup>^</sup> (0.378-0.984)
<u>Number of living children</u>				
0				1
1-2				1.241 <sup>^</sup> (1.047-1.470)
3-4				1.292 <sup>+</sup> (1.072-1.558)
5+				1.265 <sup>^</sup> (1.039-1.541)
<u>Region</u>				
North Central				1
North East				0.626*(0.535-0.732)
North West				0.485*(0.420-0.560)
South East				1.373 <sup>+</sup> (1.133-1.664)
South South				1.681*(1.398-2.021)
South West				2.489*(2.144-2.890)
<u>Wealth Index</u>				
Poorest				1
Poorer				1.122(0.991-1.269)
Middle				1.300*(1.132-1.493)
Richer				1.661*(1.422-1.941)
Richest				1.513*(1.273-1.798)
<u>Work status</u>				
Not working				1
working				1.209 <sup>^</sup> (1.009-1.448)
-2loglikelihood	29205.8	28901.6	15882.5	13724.5

\*Significant at 0.1%; <sup>+</sup>Significant at 1%; <sup>^</sup>Significant at 5%; Ref. Cat.: Reference Category; Hh: Husband higher

## **Discussion**

Difference in spousal level of education is considered by some scholars to be one of the main measures of the success of marriage (Hindin and Asara, 2008; Yount, 2005). Researchers have demonstrated that this difference might be essential indicator of the nature of marital gender relations, and have consistently linked the gap with women's limited decision making power, intimate partner violence, and increased health risks (Hindin and Asara, 2008; Yount, 2005). Our study undertook comprehensive analysis of the relationship between modern contraceptive use, difference in the spousal's level of education and women's sex refusal using 2008 Nigeria Demographic and Health Survey. The idea was conceived against the background of exploring perspectives and framework that had been barely examined in the literature. It also reveals how the inter-relationship of some socio-demographic characteristics, current use of modern contraceptive and sex refusal may possibly make a mark on policy and future research.

The analysed data reveal that minority of the women were older than their husbands and the age difference between husbands and wives was mostly between 3 and 15 years. Usually, in Nigeria settings as the case for Africans, husbands are older than their wives. The timing of first union has close temporal link between marriage and the onset of childbearing, this is because the age when men and women marry has implications for the organization of family life and for gender relations within society (Evelyn, 2008; Mensch et al., 2005). The wide difference in spousal's age found in our study could be attributed to increasing age at first marriage among men in Nigeria (National Population Commission and ICF Macro, 2009; National Population Commission and ICF Macro, 2004). Men face few social pressures to marry compared to what the females have to face and an average young Nigerian man believes that acquiring basic needs and means of livelihood before marriage is a necessity. However, the economic harsh condition, high rate of unemployment and poor salary structure are part of the challenges in this regard. Conversely, gender inequality in favour of male children has not been completely eliminated in some parts of Nigeria (Odozi, 2012) For instance, in the Northern part of the country, early marriage among women is still very common (Adebowale et al., 2012; National Population Commission and ICF Macro, 2009).

High equality in the couples' level of education reported in this study should not be perceived as high rate of women empowerment among the generality of Nigerian women rather it should be seen as women ideology and mind-set of not marrying men who are less educated than them. While a quarter of the husbands were more educated than their wives, only 1/5<sup>th</sup> of the wives who participated in this study have higher level of education than their husbands. This finding corroborates the outcome of the similar studies conducted in other parts of West Africa (Mian and Saifuddin, 2010; Ahmed et al., 2010).

The prevalence of current use of modern contraceptive method among married women estimated in this study is very low (13.4%) in spite of the high rate of sexual activity and extensive knowledge of the various contraceptive methods in Nigeria. The estimate is consistent with literature on contraceptive use in Nigeria where low prevalence was also reported (PRB, 2012; Monjok et al., 2010). Although, the estimate from our study may not represent true situation for different segments of Nigerian population as wide differential in contraceptive use across socio-demographic factors have been established in earlier studies in different parts of the country (Adebowale et al., 2011; Oye-Adeniran et al., 2005; Sa'adatu et al., 2009). There is ample research evidence identifying the various factors that contribute to the low prevalence of modern contraceptive use in Nigeria, but striking level of unmet needs for modern contraceptives in Nigeria, specifically accessibility and affordability are important factors (Monjok et al., 2010; Ekabua et al., 2010). Nigeria has a vast land-mass and the geographical distribution of the population is more of rural communities than urban (National Population Commission and ICF Macro, 2009; National Population Commission, 2006). Family planning programmes, clinics and contraceptives are yet to reach most of the rural communities in Nigeria (Obinna et al., 2013), where available, the clients choices are limited and cultural mindsets constitute different forms of barrier to use (Osede et al., 2011).

Furthermore, our study revealed that 3/5<sup>th</sup> of the married women can say no to their husbands when they want to have sexual intercourse with them (60.9%). Sex refusal among women has been widely used as part of the yardsticks for measuring women empowerment in the literature (Upadhyay and Karasek, 2012, National Population Commission and ICF Macro, 2009). If a woman can refuse sexual intercourse particularly when either not in the mood or the husband/sexual partner does not agree to use contraceptive have significant importance to her health.

This reduces; coital frequency, chances of contacting sexually transmitted diseases including HIV/AIDS, incidence of unwanted pregnancies, abortion and fertility rate in the population. Although, it is not part of Nigerian culture for women to refuse their husband sex all things being equal and women often believe that such attitude can make husbands to seek for alternative elsewhere (THISDAY Newspaper, 2012). High level of sex refusal found in this study can have positive implication on women in Nigeria particularly when husbands fail to use condom when the need arises and in terms of gender equality and women's right which have been issues of contemporary discourses in international community (Center for Disease control, 2012; UN, 2000; UNFPA, 1994).

Educational differences among married couples can affect the status of women relative to their spouses within the family, and may therefore affect the family planning practices among women. Additionally, this study show that highest prevalence of current use of modern contraceptive was observed among women who attained higher level of education than their husbands and those who can refuse sex. The multivariate results support these findings even when other potential confounding variables were used as control. Wives' having higher education than husbands give them a form of control over domestic and health related issues. Attainment of higher education could mean higher income and this can give women some financial independent other than depending solely on husbands for their daily needs. For a woman, being financially independent can enhance her ability to take household decisions on her own or jointly with her husband.

Modern contraceptive use and sex refusal fall consistently with increasing age gap between spouses. This outcome is consistent with the study conducted by Lee where he found that Fertility control is higher when the age of a woman is closer to her husband's (Lee, 1986). He concluded that age difference between a woman and her husband is an important factor in fertility control. Women whose age is closer to their spouse's exhibit greater fertility control. Mohammad study equally supports the outcome of our study (Mohammad, 2013).

It is fascinating to know that the odds of using modern contraceptive method and sex refusal were higher among Christian women than Muslims. The role of religion cannot be overemphasized in modern contraceptive use. Christian women are known to be more empowered in terms of education, more participatory in household roles and decision making than their counterparts who are Muslims (National Population Commission and ICF Macro, 2009; National Population Commission and ICF Macro, 2004). Our finding has been widely established in the literature both conducted in Nigeria and other parts of the World where consistent higher odds of using contraceptive among Christians were reported than Muslims (Avong, 2012; Agadjanian et al., 2009; Agadjanian and Scott, 2005). As established in other similar studies in Nigeria, wide variations also exists among different geopolitical zone with southwest and north east having highest and least use of modern contraceptive respectively (Adebowale et al., 2011; National Population Commission and ICF Macro, 2009; Sa'adatu et al., 2009; National Population Commission and ICF Macro, 2004). These two regions; southwest and north east have highest and least sex refusal across Nigeria respectively.

Moreover, our study is evidenced that women who are currently working or earning more income than their husbands are currently using modern contraceptive method and can refuse sex than their counterparts who are not working. These outcomes are quite understood in Nigeria where constant maternity leave particularly in private organisation can lead to appointment termination. Earning income can give women some controls over sexually related decision within the family.

Current use of modern contraceptive was found to be lower among poorer women than the richer. The same pattern was observed for the women in terms of their ability to refuse their husbands sex. Possible explanation for this expected finding is that more women in the poorer wealth quintile are likely to reside in the rural areas. Women residing in rural areas are more likely to be less educated and have higher unmet needs for contraceptive than those in higher wealth quintile. These claims have been justified in previous studies as constituting higher barriers to contraceptive use among poorer women than the richer (Andreea et al., 2011; Demeterio-Melgar, 2010; Gakidou, 2007). Higher sex refusal among women in higher wealth quintile group in our study might be cumbersome to explain as literature is scarce to support this finding. Therefore, we recommend further research in this regard.

## Conclusion

Higher current use of modern contraceptive and sex refusal among women, who were more educated, working, earn more income than their partners' points to the importance and need for women empowerment in Nigeria. Improving the prevalence of current use of modern contraceptive should be an issue of urgent attention among family planning programmers in Nigeria. It is also necessary to note that if a wife is refusing her husband sex, he needs to look inward to see what he has done wrong and also think of the circumstances that could warrant such rejection. Husbands should take their time to find out from their wives other than resulting into violence.

## Competing interests

The authors declare that they have no competing interests.

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## Contribution of Authors

Dr. Adebowale conceived the idea did the data extraction, data analysis and interpretation. Prof. Palamuleni wrote the study background. The authors reviewed appropriate literatures, wrote the methodology and discussion section. All the authors reviewed and approved the manuscript.

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