Decision making autonomy and fertility behaviour among currently married women in Nigeria.

Olufunmilayo O. Banjo[1], Olusina S. Bamiwuye[1], Luqman A. Bisiriyu[1]

& Olawunmi A. Akintayo[2]

[1]Department of Demography & Social Statistics, Obafemi Awolowo University,

Ile Ife, Nigeria

[2]UNFPA office, Oshogbo, Osun State. Nigeria

Email: banjoolufunmilayo@gmail.com

Abstract

Background: Decision-making autonomy as a component of women's status is a less studied indicator of fertility behaviour in Nigeria.

Data and Methods: The study utilizes the 2013 Nigeria Demographic and Health Survey (NDHS) data to determine women's characteristics associated with decision-making autonomy and examine the influence of decision-making autonomy on fertility behaviour among currently married women in Nigeria. Relationships between decision-making autonomy and fertility behaviour were examined using Poisson and Binary logistic regressions.

Results: Results showed that, about 60% of currently married women were of low autonomy. Decision-making autonomy was associated with women's age, age at marriage, level of education, religion, employment status, type of residence and household wealth status. The result further showed that women's decision-making autonomy was significantly associated with lower number of living children and increased contraceptive use.

Conclusion: The study concludes that women's decision-making autonomy is an important predictor of fertility behaviour among currently married women in Nigeria.

Keywords: decision-making autonomy, currently married women, fertility behaviour, Nigeria

Introduction

Women's decision-making autonomy is a component of women's status that relates to their ability to harness information received in making decisions about their private concerns and the concerns of people who are close to them. Although decision making is a complex process, women's ability to make decisions about their health, particularly their fertility is germane to their empowerment. Resulting from the patriarchal nature of many African societies where men dominate all household decisions, women often have very little or no say about issues that concern them including their fertility (Hindin, 2000; Makinwa-Adebusoye, 2007; Mosha, Ruben, &Kakoko, 2013). Although studies abound on the relationship between women's decision-making autonomy and maternal health care in other countries (Duah&Adisah-Atta, 2017; Fotso, Ezeh, & Essendi, 2009; Ghose et al., 2017; Haque, Rahman, Mostofa, &Zahan, 2012; Rominski et al., 2014; Sipsma, Ofori-Atta, Canavan, Udry, & Bradley, 2014; Woldemicael, 2010); not many of such studies have been conducted in Nigeria.

Literature review

Nigeria is the most populous country in Africa with an estimated population of about 170million people growing at an annual rate of 3.2% with a Total Fertility Rate (TFR) of 5.5 children per woman (National Population Commission (NPC) [Nigeria] and ICF International, 2014). Studies relating women autonomy to fertility behaviour in other developing regions of the world have shown the importance of women decision-making autonomy in driving the fertility decline in such countries (Dharmalingam& Morgan, 1996; Visaria, 1993; Wado, 2017). Like in many other sub-Saharan African (SSA) countries, Nigerian women are often under the collective decision-making of their spouses on household issues and other issues relating to fertility (Eguavoen, Odiagbe, &Obetoh, 2007; Feyisetan, 2000; Isiugo-Abanihe, 1994). Thus, factors influencing women's decision-making autonomy in the country include - Cultural factors, socio-economic factors, societal and environmental factors among others (Gammage, Madu, Shehu, &Sadiq, 1997; Makinwa-Adebusoye, 2001; Oyediran&Odusola, 2004). The inferior role assigned to women compared to the role of

superiority given to men as dictators and sole household decision maker/ taker is a major cultural factor that have negatively affected the involvement of women in decision-making in most African countries. This has also resulted to women's inability to effectively exercise their reproductive rights, due to absence of autonomy and lack of freedom over decisions regarding their sexuality (Mandara, 2012; Simelela, 2006).

Despite that a good number of studies on women's decision-making autonomy have been conducted in other developing regions of the world, not many of such studies have been conducted in SSA generally and in West Africa, particularly. Osamor and Grady (2016) in their synthesis of literature on women's decision-making autonomy in health care issues showed that more than 60% of the studies reviewed were from South Asia, with less than 30% from Africa. Similarly,Upadhyay et al. (2014) in their review of literature on women's empowerment on making fertility related decisions showed that almost 60% of the reviewed studies were conducted in South Asia. Findings from a number of reviewed studies in that region have shown that women's demographic and socio-economic characteristics have contributed to enhancing women's decision-making autonomy in health care issues. Some of these characteristics include - age, education, employment, income, partners' educational attainment and number of living children among others (Acharya, Bell, Simkhada, van Teijlingen, &Regmi, 2010; Senarath&Gunawardena, 2009) Likewise, the environment or society a woman finds herself also affects her decision-making power positively or negatively (Bloom, Wypij, & Gupta, 2001; Dharmalingam& Morgan, 1996; Moursund&Kravdal, 2003); as well as her region and religion (Jejeebhoy&Sathar, 2001)

Acharya et al. (2010) examined the influence of women's socio-demographic factors on their health care decision-making autonomy using four outcomes from the 2006 Nepal Demographic and Health Survey. Their findings showed that women's decision-making autonomy was associated with age, employment, number of living children and increased educational attainment above the primary or secondary levels. Similarly, Senarath and Gunawardena (2009) examined women's decision-making autonomy in their health care decision in three South Asian countries. Findings from their study showed that decisions about women's health care were made without their involvement in almost half of South Asian households. Further findings from the study showed that women's age, education, number of living children and wealth increased women's decision-making autonomy.

Dharmalingam and Morgan (1996), examined the influence of women's work and autonomy on birth control in two south Indian villages. Their findings differ from the previously reviewed studies. In comparing the two villages, they found that women's involvement in paid employment and not the level of education attained as in the first village enhanced their level of decision-making autonomy in using birth control methods as a result of having an independent income, freedom of movement and interaction with other women compared to the second village where very few women work for pay. Similar to the above findings are those of Bloom et al. (2001) who examined some dimensions of women's autonomy on maternal health care utilization in North Indian city. Their findings showed that women's employment and their frequent contacts with their family enhanced their freedom of movement which was a major predictor of maternal health care utilization among the middle income group in the city.

Although there are limited studies relating women decision-making autonomy to health care issues in sub-Saharan Africa, findings from some of the studies have shown a similar pattern to what is observed in some South Asian countries. Some of the studies carried out in Ethiopia and other SSA countries have shown that women's age, educational attainment, freedom of movement and place of residence among others were major determinants of women's decision-making autonomy about their health seeking behaviour including their reproductive health (Bogale, Wondafrash, Tilahun, &Girma, 2011; DeRose&Ezeh, 2010; Hindin, 2000; Hogan, Berhanu, &Hailemariam, 1999; Wado, 2017; Woldemicael, 2010). For example, Hogan et al. (1999) carried out a study on how women's autonomy and household organization influenced contraceptive behaviour in southern Ethiopia. Findings from the study showed that women's literacy status was the most significant force in contraceptive knowledge and use in the study area. A similar study was carried out by comparing Ethiopia and Eritrea on women autonomy and maternal and child health-care in the two countries by Woldemicael (2010). Their findings showed that women's socio-economic factors were strong determinants of both autonomy and maternal and child-health utilization in the two countries. However, an earlier study conducted by Hindin (2000) in Zimbabwe, using the 1994 Zimbabwe Demographic and Health Survey data, showed that women's decision-making autonomy was not associated with modern contraceptive use in the country. Further findings from the study showed that women who were working and women with some primary level education approved of the use of

modern contraceptives compared with women who were either not employed or had no formal education. Women in monogamous homes used contraceptives more than those from polygamous families. Other findings from the study also showed that women who had no say about other household decisions had no say on whether to use or not to use contraceptives. Similarly, a study conducted in Kenya on the influence of women's autonomy on the use of obstetrics care services by Fotso et al. (2009) clearly showed that household wealth and education among other women's demographic characteristics influenced women's choice of obstetrics care services and not necessarily their decision-making autonomy.

There are not many studies in West Africa on factors influencing women decision-making autonomy and the effects on maternal and other health care issues. Most of the available studies were conducted in Ghana with some similarities as well as variations in the findings compared to what have been found in other developing areas including other SSA countries as reviewed earlier (Ameyaw, Tanle, Kissah-Korsah, &Amo-Adjei, 2016; Duah&Adisah-Atta, 2017; Fuseini&Kalule-Sabiti, 2015; Rominski et al., 2014; Sipsma et al., 2014). Duah and Adisah-Atta (2017) conducted a study on the determinants of decision-making autonomy on health related issues among women having under-5 children in Ghana. Findings from the study clearly showed that most Ghanaian women were autonomous with respect to health care decision making. Their level of health care decision-making autonomy increased as their level of educational attainment increased. Further findings from the study also showed that women whose husbands had some level of education and women who took decisions jointly with their spouses on their earnings were more likely to be autonomous in health care decision-making than other women whose husbands had no education or took decisions on earnings alone. The study also showed that very few rural women were autonomous in taking health care decisions compared with the urban women. Fuseini and Kalule-Sabiti (2015) examined the influence of religion on women's autonomy in Ghana. Their findings also showed that most Ghanaian women were autonomous with respect to various issues in their lives. Although religion made no significant difference in the level of women's autonomy, economic status and marriage type influenced women's autonomy in all settings. Also, Rominski et al. (2014) in relating female autonomy to abortion seeking reporting in Ghana found that women's age, educational attainment and urban residence were significant predictors of abortion decision-making autonomy. These findings are also similar to that of Ameyaw et al. (2016) who found

that higher educational attainment, being younger in age, living in urban area and wealth status contributed to the use of skilled birth attendant during delivery in Ghana. Also, health care decision-making autonomy was a significant predictor of skilled birth attendant among women in Ghana.

Few studies in Nigeria relating women decision-making autonomy to maternal health issues have shown both similar and diverging results. Lamidi (2016) in her study of the State variation in the participation of women in household decision-making found that increased level of education and household wealth enhanced women's participation in household decision-making. Although urban residence did not significantly influence household decision-making; women who were low on the scale of decision-making ranked low on educational attainment and employment. Such women were mostly from Sharia states in Northern Nigeria. Oyediran and Odusola (2004) in an earlier study relating poverty to women's participation in household decision-making in Nigeria found that age, educational attainment, religion, employment status and spousal educational attainment had significant influence on women's participation in reproductive decisions. Bamiwuye, De Wet, and Adedini (2013) examined the linkages between autonomy, poverty and contraceptive use by comparing currently married women from Nigeria and Namibia. Findings from their study revealed that close to 50% of Nigerian women had low autonomy compared with only 14% of Namibia women. Although increased wealth status enhanced women's level of autonomy in both countries, autonomy consistently increased with women's age only in Nigeria. Further findings showed that education and urban residence enhanced women autonomy which in turn influenced contraceptive behaviour in the two countries. Also, Banjo (2014) examined the influence of women's decision-making autonomy on contraceptive use among married women in a peri-urban society in south-west Nigeria. Findings from the study showed that most household decisions were made solely by the spouses and that decision about family health care was less likely to be taken jointly by husband and wife. A significant relationship exists between decision-making about contraceptive and contraceptive use in the region. Age at first sex and Children ever born were also found to be significant predictors of contraceptive use among women in the region.

Available evidence from the reviewed studies has clearly showed that most studies on decision-making autonomy were conducted in South Asia compared to other developing regions of SSA. Most of the studies were on the determinants of women's

autonomy with only few relating decision-making autonomy with maternal and other health care issues. Also, there are many studies relating women autonomy with maternal and child care than that relating autonomy with fertility behaviour, especially in SSA generally and West African region as clearly demonstrated by studies conducted in Ghana. Given the dearth of studies on decision-making autonomy and reproductive behaviour in Nigeria and other West African countries, as well as mixed findings in the available studies; it became necessary to establish a link between women's decision-making autonomy and fertility behaviour in Nigeria. This is with the aim of having a clearer picture of the nexus between women autonomy and fertility behaviour in the country, which may be necessary to generalize to the other countries in West Arica. This study therefore seeks to provide answers to the following questions – (a) To what extent do currently married women have autonomy in decision-making in Nigeria? (b) what are the background characteristics influencing their level of autonomy? (c) What are the implications of decision-making autonomy on their reproductive behaviour, particularly Contraceptive use and the number of living children?

Methodology
Data source
The 2013 Nigeria Demographic and Health Survey (NDHS) constitute the data for this study. Demographic and Health Survey (DHS) is a project funded by the United States Agency for International Development and implemented by ICF Macro. DHS data are cross-sectional, nationally representative household sample surveys. After obtaining permission from MEASUREDHS to download the 2013 NDHS data for further analysis; data for currently married women were extracted from the data on all women aged 15-49. Appropriate weighting were applied to the variables so as to make the sample analyzed to be representative of the entire study population. Thus, from the data of 38,948 women, weighted data for 27,829 currently married women were analyzed using descriptive and analytical statistical techniques. Data were analyzed using STATA 14.

Outcome variable (OV)
The Outcome Variables (OV) for this study is fertility behaviour, measured by total number of living children and the current contraceptive use. Number of living children is a measure of fertility behaviour, which is used as a measure of the actual fertility of a population. Use of contraceptives is also a proxy measure of fertility behaviour in any population. This is grouped as "using contraceptives" and "not using contraceptives", irrespective of the method.

Explanatory variable
The principal explanatory variable is "level of autonomy", which is measured by women's involvement in household decision-making. This is captured by a series of questions about who makes the decisions or who has the final say on a number of decisions in the home. Issues to be decided on include – major household purchases, purchases for daily household needs and visit to family and relatives. For each of the domain of decision-making, five responses were usually given as "respondent alone", "respondent with husband/partner", "husband/partner alone", "someone else" or "others". For each of the domains, responses were grouped as "1", where women take decision alone or jointly with husband; and "0", where husband alone, someone else or others take such decisions. Autonomy level was determined by women's involvement or no involvement. Hence, on a scale of 0 to 3, classification was made as "low status" and "high status"; with scores "0-1" regarded as low status and scores "2-3" regarded as high status. The classification is in tandem with classification made in an earlier study conducted by Bamiwuye et al. (2013).

Other explanatory variables include demographic and socio-economic characteristics of married women – age, age at marriage, religion, place of residence, educational status, employment status and household wealth status. These variables were selected based on their known relationship with the outcome and the main explanatory variables as in many of the earlier reviewed studies. Other variables controlled for were partner's age and level of education attained and the regions. Studies have established the role of partners/spousal level of education on women's contraceptive use (Berhane, 2015; Ezeh, 1992) and health care decisions (Duah&Adisah-Atta, 2017). The need to control for regions stems from the fact that Nigeria has 6 geo-political zones which differ with respect to the fertility levels and women's characteristics as demonstrated by Lamidi (2016).

Table 1: Operationalization variable.

Explanatory Variable	Variable Code (NDHS)	Operational definition	
Decision Making Role	Health Decision	Low Autonomy	(1)
	Purchase Decision	High Autonomy	(2)
	Visit of Family Decision		
Age of respondents in single years	Numeric Variable ranging from 15 to 49	15-24	(1)
		25-34	(2)
		35 and above	(3)
Religious Affiliation	Roman Catholic	Christianity	(1)
	Protestant/other	Islam	(2)
	Christianity	Traditionalists/Others	(3)
	Islam		
	Traditionalist		
	Other		
	No religion		
Age at first marriage	Numeric Variable ranging from 10 to 46	<20 years	(1)
Age at first marriage in single years		20-29	(2)
		30 and above	(3)
Wealth Status	Poorest	Poor	(1)
	Poorer	Middle	(2)
	Middle	Rich	(3)
	Richer		
	Richest		
Spousal Characteristics			
Spousal Age	Numeric Variable ranging from 16 to 99	<30 years	(1)
		30 - 39	(2)
		40 - 49	(3)
		50 and above	(4)
Spousal Level of Education	No education	None	(1)
	Primary	Primary	(2)
	Secondary	Secondary/Higher	(3)
	Higher		
Outcome Variable			
Fertility Behaviour	Numeric Variable ranging from 0 to 16.	No child	(1)
Number of living children		1-3 children	(2)
		4 and above children	(3)
Modern Contraceptive use	No method	Not using contraceptive	(0)
	Folkloric	Using Contraceptive	(1)
	Traditional		
	Modern		

Data analysis

Data Analysis was done in three stages. The first stage is Univariate analysis, which involves the frequency distribution of women's demographic and socio-economic characteristics and other partners characteristics. Women's levels of decision-making autonomy were also presented at this stage. At the second stage, which is the bivariate analysis, Chi-square was used to examine the association between women's characteristics and their level of autonomy, having grouped the levels of autonomy into "low autonomy" and "high autonomy".

Poisson and Binary logistic regressions were used at the multivariate level. Poisson regression fits a model where the independent variables are either grouped, categorical or ordinal and the dependent variable is a count variable like the number of living children. Poisson Regression model has a quantity known as the Incidence Rate Ratio (IRR), which is analogous to

Relative Risk Ratio (RRR) in Multinomial logistic regression analysis and Odds Ratio (OR) in binary logistic regression analysis. Binary logistic regression fits a model where the dependent variable has a binary outcome like contraceptive use categorized as – "use of contraceptives" and "non-use of contraceptives". At this level of analysis, four models were fitted to examine the influence of women's autonomy on fertility behaviour among currently married women in Nigeria. The first model examined the influence of women's level of decision-making autonomy on fertility behaviour; the second model examined the influence of women's level of decision-making autonomy on fertility behaviour while controlling for some women's characteristics; the third model examined the influence of women's level of decision-making autonomy on fertility behaviour, while partners' characteristics and the six regions were controlled for. The fourth model is the full model which examined the influence of women's level of decision-making autonomy on fertility behaviour while controlling for women's characteristics, partners' characteristics as well as the regions.

Results

The result of women's background characteristics and other partners' characteristics (table 2) shows that, most currently married women were aged 25-34 years and about 58% were married before age 18. About 48% had no formal education, while 69.4% were working. About 64% were rural dwellers, with 45% from the poor households. About 43% had more than 4 living children at the time the survey was conducted, with only 15% using contraceptives. Spousal characteristics also showed that about 32% of partners were aged 30-39, while almost 42% had secondary or higher education attainment.

The result of women's involvement in decision-making is presented in figure 1 below. The diagram shows clearly that the level of decision-making autonomy is generally low in the population. Less than 40% of the women were involved in decisions about their own health. About 38% were involved in decisions about large household purchase. Less than 50% were involved in decisions about visits to family or relatives. The result of decision-making by regions also showed from figure 2 and table 3 that most women from the northern regions rated low on the scale of autonomy. While more than 80% of married women from the north western region were of low status with respect to decision-making autonomy; about 80% from the south western region were of high autonomy. Overall level of autonomy showed that about 60% were of low autonomy. In other words, 3 out of 5 women were either not involved in any of the decisions or involved in only one of the three issues for which decisions were made.
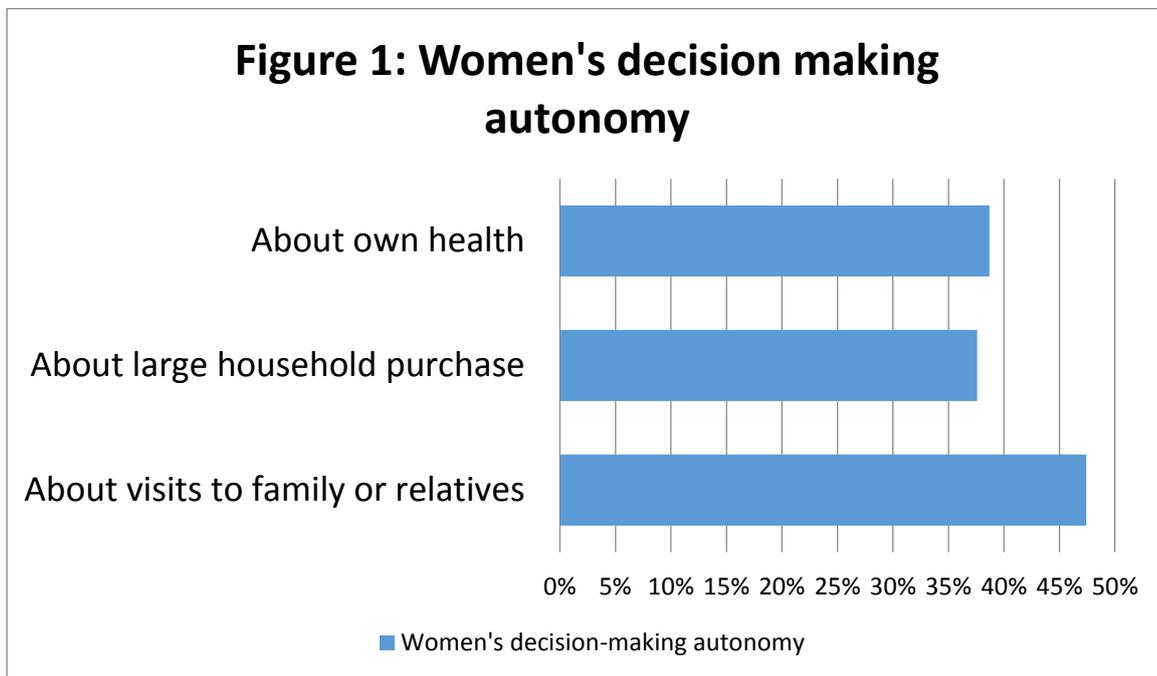
Result of the chi square analysis on the relationship between women's background characteristics and decision-making autonomy as presented on table 2 shows that, women's level of autonomy increased with age, age at first marriage and level of education attained. Christian women have the highest level of autonomy compared to women in the other religious groups. Working women and women living in urban areas have higher autonomy compared with women not working and women in rural areas respectively. Women from rich households have the highest level of autonomy compared with women from poor and middle households.

Table 2: Women's demographic and socio-economic characteristics and partners' characteristics

Variables		N= 27, 829 (100%)
Age	15-24	6,613 (23.8)
	25-34	10,782 (38.7)
	35+	10,434 (37.5)
	Mean Age	32
Age at marriage	<18	16,042 (57.6)
	18-24	9,126 (32.8)
	25+	2,661 (9.6)
	Mean	18
Highest level of Education	None	13,470 (48.4)
	Primary	5,336 (19.2)
	Secondary/Higher	9,023 (32.4)
Religion	Christianity	10,581 (38.0)
	Islam	16,812 (60.4)
	Traditional/Others	437 (1.6)

Employment Status	Not Working	8,508 (30.6)
	Working	19,321 (69.4)
Type of Residence	Urban	10,124 (36.4)
	Rural	17,705 (63.6)
Household Wealth Status	Poor	12,409 (44.6)
	Middle	4,983 (17.9)
	Rich	10,437 (37.5)
No of living children	0	2,823 (10.1)
	1-3	12,963 (46.6)
	4+	12,044 (43.3)
Current Contraceptive Use	Not Using contraceptives	23,613 (84.9)
	Using contraceptives	4,216 (15.1)
Spousal Age	<30	3,470 (12.5)
	30-39	8,852 (31.8)
	40-49	8,452 (30.4)
	50+	7,055 (25.3)
Spousal Level of Education	None	10,972 (39.8)
	Primary	5,100 (18.5)
	Secondary/Higher	11,500 (41.7)
Region	North Central	3,895 (14.0)
	North East	4,679 (16.8)
	North West	10,034 (36.0)
	South East	2,333 (8.4)
	South South	2,699 (9.7)
	South West	4,189 (15.1)

Source: NDHS, 2013

Figure 1: Women's decision making autonomy

Women's decision-making autonomy

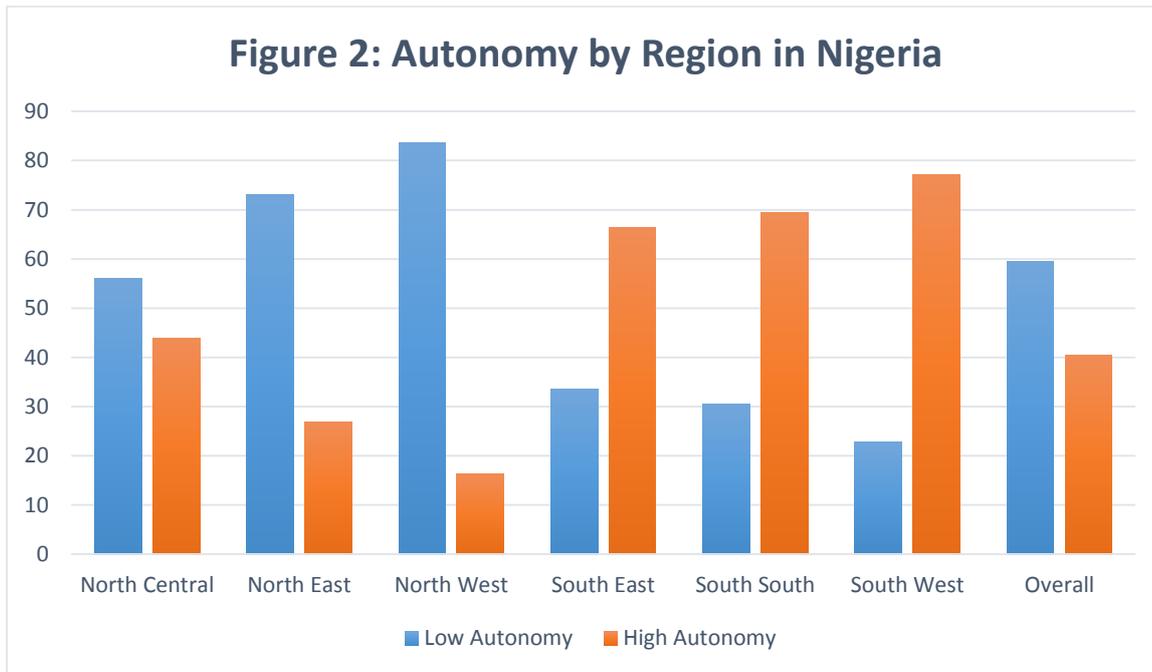Figure 2: Autonomy by Region in Nigeria

Table 3: Relationship between women's background characteristics and decisionmaking autonomy.

Variables		Low Autonomy	High Autonomy	Chi square (χ^2)
Age	15-24	72.9	27.1	162.70***
	25-34	58.0	42.0	
	35+	52.6	47.4	
Age at marriage	<18	72.2	27.8	362.04***
	18-24	45.3	54.7	
	25+	32.0	68.0	
Highest level of Education	None	80.7	19.3	501.55***
	Primary	47.7	52.3	
	Secondary/Higher	34.9	65.1	
Religion	Christianity	31.7	68.3	428.18***
	Islam	77.1	22.9	
	Traditional/Others	57.5	42.5	
Employment Status	Not Working	78.7	21.3	404.32***
	Working	51.1	48.9	
Type of Residence	Urban	43.4	56.6	84.15***
	Rural	68.8	31.2	
Household Wealth Status	Poor	78.9	21.1	238.22***
	Middle	56.8	43.2	
	Rich	37.8	62.2	
Region	North Central	56.1	43.9	129.98***
	North East	73.1	26.9	
	North West	83.7	16.3	
	South East	33.6	66.4	
	South South	30.5	69.5	
	South West	22.9	77.1	

***p<0.001

Table 4 presents the result of the Poisson regression analysis of decision-making autonomy, women's characteristics, partners' characteristics and the number of living children. From model 1, women with high autonomy have about the same number of living children with women with low autonomy. Model 2 showed that women with high autonomy have significantly fewer number of living children than women with low autonomy (IRR=0.978, CI=0.963-0.993). The number of living children significantly increased with women's age and significantly decreased with age at marriage. Also, the number of living children significantly decreased with the level of education attained above the primary level (IRR=0.896, CI=0.876-0.917). Women in the traditional and other religious group have the highest number of living children than Christian and Muslim women (IRR=1.061, CI=1.009-1.116). Working women have significantly higher number of living children than non-working women (IRR=1.074, CI=1.058-1.092). Rural women have fewer number of living children than urban women , while women from the middle wealth households have the highest number of living children than women from either poor or rich households (IRR=1.047, CI=1.027-

1.067). Model 3 showed a similar pattern of relationship between women's autonomy and the number of living children as observed in model 1. While the number of living children increased significantly with partner's age, the number of living children decreased significantly with increased level of education. The result for the regions showed mixed results as women from the south west region have the least incidence of living children (IRR=0.937, CI=0.914 – 0.961). Model 4 (the full model) showed the relationship between women's decision-making autonomy and fertility, while all other variables were controlled for. The model showed almost the same pattern of relationship between women's autonomy, women's characteristics, partner's characteristics and the regions as observed in models 2 and 3. However, the significant relationship between fertility and women's level of education disappeared at the primary level. Also, the significant relationship between fertility and partners' level of education disappeared above the primary level. Unlike the result in model 3, the number of living children increased significantly in the South east region, with a slight reduction in the significant relationship in the South West region.

Table 4: Poisson regression for the number of living children, women's decision making autonomy, women's characteristics and partners' characteristics.

VARIABLES		Model 1 IRR (CI)	Model 2 IRR (CI)	Model 3 IRR (CI)	Model 4 IRR (CI)
No of living children					
Level of autonomy	Low Autonomy	RC	RC	RC	
	High Autonomy	1.009 (0.996 – 1.022)	0.978 (0.963 – 0.993)**	1.004 (0.989 – 1.020)	0.977 (0.962 – 0.992)**
Age	15-24		RC		
	25-34		2.674 (2.607 – 2.742)***		2.303 (2.238 – 2.370)***
	35+		4.262 (4.158 – 4.369)***		3.393 (3.287 – 3.503)***
Age at Marriage	<18		RC		

	18-24	0.797 (0.784 – 0.809)***		0.802 (0.789 – 0.815)***
	25+	0.521 (0.506 – 0.535)***		0.528 (0.513 – 0.543)***
Level of education	None	RC		
	Primary	1.031 (1.011 – 1.051)**		1.021 (1.000 – 1.042)
	Secondary/Higher	0.896 (0.876 – 0.917)***		0.906 (0.884 – 0.929)***
Religion	Christianity	RC		
	Islam	0.998 (0.981 – 1.016)		1.021 (1.000 – 1.042)
	Traditional/Others	1.061 (1.009 – 1.116)**		1.068 (1.015 – 1.123)**
Employment status	Not working	RC		
	Working	1.074 (1.058 – 1.092)***		1.075 (1.058 – 1.093)***
Place of Residence	Urban	RC		
	Rural	0.984 (0.968 – 1.001)		0.985 (0.968 – 1.002)
Wealth status	Poor	RC		
	Middle	1.047 (1.027 – 1.067)***		1.037 (1.017 – 1.058)***
	Rich	0.991 (0.970 – 1.013)		0.987 (0.965 – 1.010)
Partners' age	<30		RC	
	30-39		2.085 (2.014 – 2.158)***	1.325 (1.276 – 1.377)***
	40-49		3.376 (3.265 – 3.491)***	1.500 (1.441 – 1.561)***
	50+		4.014 (3.882 – 4.151)***	1.524 (1.462 – 1.588)***
Partners' education	None		RC	
	Primary		1.025 (1.005 – 1.045)**	1.034 (1.012 – 1.056)**
	Secondary/Higher		0.909 (0.892 – 0.925)***	1.010 (0.989 – 1.032)
Region	North Central		RC	

North East	1.036 (1.013 – 1.061)**	1.033 (1.008 – 1.058)**
North West	0.993 (0.971 – 1.016)	0.977 (0.953 – 1.001)
South East	0.973 (0.946 – 1.000)	1.059 (1.027 – 1.091)***
South South	1.059 (1.033 – 1.087)***	1.056 (1.028 – 1.085)***
South West	0.937 (0.914 – 0.961)***	0.969 (0.944 – 0.995)**

IRR – Incident Rate Ratio   RC – Reference Category   CI – Confidence Interval   *** p<0.001, ** p<0.05
Source: Authours' computation; NDHS 2013.

Table 5 presents the result of the Binary logistic regression analysis of decision-making autonomy and contraceptive use, among currently married women in Nigeria, while controlling for their own characteristics, their partners' characteristics and the 6 geo-political regions. Model 1 showed that contraceptive use is significantly higher among women of high autonomy than women of low autonomy (OR=4.324; CI=4.021-4.650). Model 2 showed that the odds of using contraceptives among women with high autonomy remain significantly higher than that of women of low autonomy (OR=1.697; CI=1.562-1.843), when women's characteristics were controlled for. The model showed that the odds of contraceptive use increased significantly with women's age. Women who were aged 18-24 at marriage have the highest odd of contraceptive use compared to women who were married at earlier or later age (OR=1.186; CI=1.088-1.293). The likelihood of contraceptive use increased significantly with increased level of educational attainment among married women as women having secondary or higher educational attainment were more than three times more likely to use contraceptives than women with no formal education (OR=3.537; CI=3.065-4.082). Women in the other religious groups have significantly lower odds of contraceptive use compared to women in the Christian religion. Working women have significantly higher odds of using contraceptives than women who do not work (OR=1.185, CI=1.072-1.309). The odds of contraceptive use is significantly lower among women in the rural area compared with women in the urban area (OR=0.710, CI=0.653-0.772). The odds of contraceptive use increased significantly with the household wealth status. Model 3 showed a similar pattern of relationship between decision-making and contraceptive use as observed in models 1 and 2 when partners' characteristics and the regions were controlled for. Women whose partners were aged 40-49 have the highest odd of contraceptive use than those in the younger or older age groups (OR=1.766; CI=1.541-2.024). Women whose partners had secondary or higher levels of education were 4 times more likely to use contraceptives than women whose partners had only primary or no formal education. Women from the south western region have the highest odd of using contraceptives compared with women from the remaining 5 regions. Model 4 shows the relationship between women's decision-making autonomy and contraceptive use, while all the other variables were controlled for. Although the pattern of relationship looks similar to what is observed for models 2 and 3, there are some obvious changes observed in the pattern of relationship between contraceptive use, women's characteristics, partners' characteristics and the regions. In model 4, the significant relationship between women's age at marriage and contraceptive use disappeared for women aged 18-24 at marriage. Similarly, the significant relationship between employment status and contraceptive use disappeared.   The relationship between partners' age and

contraceptive use also disappeared. While the relationship between partners' level of education attained and women's contraceptive use remained significant, the relationship lost its significance among women from the South east region. In general, women's decision-making autonomy remained significant predictor of contraceptive use among married women across the four models.

Table 5: Binary logistic regression for Contraceptive Use, women's decision making autonomy, and other characteristics.

VARIABLES		Model 1 OR (CI)	Model 2 OR (CI)	Model 3 OR (CI)	Model 4 OR (CI)
Contraceptive Use					
Level of autonomy	Low	RC	RC	RC	
	High	4.324 (4.021 – 4.650)***	1.697 (1.562 – 1.843)***	1.801 (1.660 – 1.954)***	1.506 (1.385 – 1.639)***
Age	15-24		RC		
	25-34		1.547 (1.371 – 1.745)***		1.545 (1.341 – 1.780)***
	35+		2.073 (1.833 – 2.343)***		2.308 (1.950 – 2.733)***
Age at marriage	<18		RC		
	18-24		1.186 (1.088 – 1.293)***		1.027 (0.940 – 1.122)
	25+		0.836 (0.742 – 0.943)**		0.698 (0.617 – 0.790)***
Level of education	None		RC		
	Primary		2.840 (2.472 – 3.263)***		2.064 (1.775 – 2.399)***
	Secondary/Higher		3.537 (3.065 – 4.082)***		2.628 (2.247 – 3.074)***
Religion	Christianity		RC		
	Islam		0.541 (0.493 – 0.593)***		0.657 (0.592 – 0.728)***
	Traditional/Others		0.563 (0.387 – 0.818)**		0.601 (0.413 – 0.874)**
Employment status	Not working		RC		
	Working		1.185 (1.072 –		1.046 (0.944 – 1.159)

		1.309)**		
Place of Residence	Urban	RC		
	Rural	0.710 (0.653 – 0.772)***		0.763 (0.698 – 0.833)***
Wealth Status	Poor	RC		
	Middle	2.022 (1.765 – 2.317)***		1.651 (1.435 – 1.900)***
	Rich	2.960 (2.590 – 3.383)***		2.236 (1.942 – 2.576)***
Partners' age	<30		RC	
	30-39		1.347 (1.175 – 1.545)***	1.022 (0.872 – 1.198)
	40-49		1.766 (1.541 – 2.024)***	1.052 (0.881 – 1.256)
	50+		1.558 (1.349 – 1.800)***	0.812 (0.668 – 0.986)**
Partners' education	None		RC	
	Primary		3.028 (2.609 – 3.515)***	1.575 (1.334 – 1.861)***
	Secondary/Higher		4.203 (3.659 – 4.828)***	1.558 (1.321 – 1.836)***
Region	North Central		RC	
	North East		0.283 (0.239 – 0.334)***	0.400 (0.336 – 0.475)***
	North West		0.299 (0.256 – 0.349)***	0.444 (0.377 – 0.523)***
	South East		1.484 (1.311 – 1.679)***	0.978 (0.856 – 1.118)
	South South		1.157 (1.032 – 1.297)**	0.822 (0.726 – 0.930)**
	South West		1.945 (1.749 – 2.162)***	1.316 (1.174 – 1.474)***

IRR – Incident Rate Ratio   RC – Reference Category   CI – Confidence Interval   *** p<0.001, ** p<0.05
Source: Authours' computation; NDHS 2013.

Discussion

This study examined decision-making autonomy and fertility behaviour among currently married women in Nigeria; by determining the extent to which they have autonomy in decision-making; the background characteristics influencing their level of autonomy and the influence of women's decision-making autonomy on their fertility behaviour. Findings from this study showed that most women generally have lower autonomy as clearly shown in figure 1. This is likely to have stemmed from the low level of formal education among women (table 2). Although this finding corroborates earlier studies conducted in Nigeria by Bamiwuye et al. (2013) and Banjo (2014); studies from Ghana showed that most women were autonomous in decision-making about issues relating to various domains of their lives (Duah&Adisah-Atta, 2017; Fuseini&Kalule-Sabiti, 2015). Level of autonomy by region showed that most women from the north western region of the country rated low on the scale of autonomy (figure 2). This finding also corroborates findings from an earlier study conducted in the country by Lamidi (2016) who found that women from states in that region rated very low on the scale of decision-making autonomy as a result of low level of educational attainment in that region as well as the practice of Sharia laws. However, this finding differ from that of Fuseini and Kalule-Sabiti (2015) who found in Ghana that women from the norther region, even though they had lower level of educational attainment and were economically disadvantaged, were more autonomous in some domains of decision-making than the more educated and egalitarian women from the southern region.

Findings from this study showed that women's age, age at first marriage, level of education, employment status, religion, place of residence and household wealth status were significant predictors of women's decision-making autonomy as clearly shown by the bivariate analysis. Despite that this finding corroborates findings from existing studies relating women's demographic and socio-economic characteristics with decision-making autonomy in other developing regions of the world (Acharya et al., 2010; Senarath&Gunawardena, 2009); studies in Nigeria and other West African countries found mixed results (Bamiwuye et al., 2013; Duah&Adisah-Atta, 2017; Fuseini&Kalule-Sabiti, 2015; Lamidi, 2016; Oyediran&Odusola, 2004) . While Lamidi (2016) found no significant relationship between urban residence and household decision-making autonomy, Bamiwuye et al. (2013) and Duah and Adisah-Atta (2017) found that urban women were more autonomous than rural women in decision-making

autonomy in Nigeria and Ghana respectively. Also, while Lamidi (2016) and Oyediran and Odusola (2004) found lower decision-making autonomy among Muslim women in Nigeria; Fuseini and Kalule-Sabiti (2015) found that religion made no significant difference in women's level of decision-making autonomy in Ghana.

Results from the Poisson regression analysis showed that women's decision-making autonomy alone did not influence the number of living children until all other characteristics and partners' age and level of education were controlled for. This is an indication that other background characteristics such as women's age, age at marriage, education and employment status among other characteristics and partners' characteristics have stronger influence on women's fertility level in the country and not women's level of autonomy alone. It also shows like previous studies by Duah and Adisah-Atta (2017) and Oyediran and Odusola (2004) that partner's characteristics such as educational attainment influence women's decision-making autonomy. However, it is surprising that working women have significantly higher fertility than women that were not working as clearly demonstrated in models 2 and 4. This finding simply suggests that there are underlying factors which mediate between employment and fertility in Nigeria, which may also be applicable in other West African countries. Also, fertility appeared lower among women in the rural areas than women in urban areas under models 2 and 4, though the relationship is insignificant in both cases. One would have expected that the reverse be the case. This finding again suggests a 'thin line' exists in the fertility levels of the urban and rural areas in Nigeria, which may also be applicable in other West African countries. Perhaps one could provide better explanation to slow pace of fertility decline in the region.

Findings from the binary logistics regression analysis showed that women's decision-making autonomy influenced contraceptive use significantly across the four models more than it influenced the number of living children from the result of the Poisson regression. Although this finding agrees with the findings of an earlier study by Banjo (2014) in a peri-urban society in south-Western Nigeria; it contradicts that of Hindin (2000) who found that women's educational attainment, employment status and not their decision-making autonomy were associated with contraceptive use among women in Zimbabwe. The result from models 2,3 and 4 is also an indication that although women's autonomy influences contraceptive use strongly, other women's characteristics and partners' characteristics partly

explains the relationship between autonomy and contraceptive use. Although both women's education and partners' education partly explain the relationship between decision-making autonomy and contraceptive use, women's educational attainment have stronger influence on contraceptive use than partners' education. The picture derived from the different region clearly showed the degree to which married women from those regions have a say in household decision-making/taking as earlier demonstrated in the bivariate analysis (table 3 and figure 2), which is likely to affect their decision-making about contraceptive use as earlier found by Banjo (2014). Women from the north western and north eastern region have low odds of contraceptive use compared to women from the Southern region and particularly from the South western region. This also corroborates earlier findings by Lamidi (2016) who found that women from the northern region, particularly women from the sharia states have low decision-making autonomy resulting from low level of educational attainment and the practice of Sharia laws compared to women from the Southern states, particularly from the South western states who are better educated and rate high on the scale of decision-making autonomy.

Conclusion

This study concludes that, women's decision making autonomy is a predictor of fertility behaviour in Nigeria. Although women's decision making autonomy strongly influences their contraceptive use, the influence on the number of living children is not so strong. However, there is an indication that the more married women are able to gain autonomy with respect to household decision-making, the more likely they will be able to take decisions on their contraceptive use, which will lower fertility level in the country and in the sub-region. Increased level of education among women is likely to influence other factors associated with decision-making autonomy, which has implication for lower fertility level in the country and in the West African region generally. However, studies to unravel the socio-cultural factors influencing women decision-making autonomy in the sub-region may be necessary.

Acknowledgements

References

Acharya, D. R., Bell, J. S., Simkhada, P., van Teijlingen, E. R., &Regmi, P. R. (2010). Women's autonomy in household decision-making: a demographic study in Nepal. Reproductive Health, 7, 15-15.doi: 10.1186/1742-4755-7-15

Ameyaw, E. K., Tanle, A., Kissah-Korsah, K., &Amo-Adjei, J. (2016).Women's health decision-making autonomy and skilled birth attendance in Ghana.International journal of reproductive medicine, 2016.

Bamiwuye, S. O., De Wet, N., &Adedini, S. A. (2013).Linkages between autonomy, poverty and contraceptive use in two sub-Saharan African countries. African Population Studies, 27(2), 164.

Banjo, O.O. (2014).Decision making and contraceptive use among women in a peri-urban society in south-west Nigeria.Journal of Demography and Social Statistics, Obafemi Awolowo University, Ile Ife, Nigeria, Maiden edition.

Basu, A. M. (1993). Women's Roles and Gender Gap in Health and Survival. Economic and Political Weekly, 28(43), 2356-2362.

Berhane, Y. (2015). Male involvement in reproductive health [editorial]. Ethiopian Journal of Health Development, 20(3), 135-136.

Bloom, S. S., Wypij, D., & Gupta, M. D. (2001).Dimensions of Women's Autonomy and the Influence on Maternal Health Care Utilization in a North Indian City. Demography,38(1), 67-78.

Bogale, B., Wondafrash, M., Tilahun, T., & Girma, E. (2011). Married women's decision making power on modern contraceptive use in urban and rural southern Ethiopia. BMC public health,11(1), 342.

DeRose, L. F., &Ezeh, A. C. (2010). Decision-making patterns and contraceptive use: evidence from Uganda. Population Research and Policy Review, 29(3), 423-439.

Dharmalingam, A., & Morgan, S. P. (1996). Women's Work, Autonomy, and Birth Control: Evidence From Two South India Villages. Population Studies, 50(2), 187-201. doi: 10.2307/2174910

Duah, H. O., &Adisah-Atta, I. (2017). Determinants of health care decision making autonomy among mothers of children under five years in Ghana: analysis of 2014 Ghana demographic and health survey. Research Journal of Women's Health, 4(1), 5.

Dyson, T., & Moore, M. (1983).On Kinship Structure, Female Autonomy, and Demographic Behavior in

India. Population and Development Review, 9(1), 35-60. doi:10.2307/1972894

Eguavoen, A. N., Odiagbe, S. O., &Obetoh, G. I. (2007).The status of women, sex preference, decision making and fertility control in Ekpoma community of Nigeria. Journal of Social Science, 15(1), 43-49.

Feyisetan, B. J. (2000). Spousal communication and contraceptive use among the Yoruba of Nigeria. Population Research and Policy Review, 19(1), 29-45.

Fotso, J.-C., Ezeh, A. C., &Essendi, H. (2009). Maternal health in resource-poor urban settings:how does women's autonomy influence the utilization of obstetric care services. Reprod Health, 6(9), 1-8.

Fuseini, K., & Kalule-Sabiti, I. (2015). Women's Autonomy in Ghana: Does Religion Matter? Etude de la Population Africaine, 29(2).

Gammage, S., Madu, E., Shehu, D., &Sadiq, O. (1997).Womens role in household decision-making: a case study in Nigeria.

Ghose, B., Feng, D., Tang, S., Yaya, S., He, Z., Udenigwe, O., . . . Feng, Z. (2017). Women's decision-making autonomy and utilisation of maternal healthcare services: results from the Bangladesh Demographic and Health Survey. BMJ open, 7(9), e017142.

Hameed, W., Azmat, S. K., Ali, M., Sheikh, M. I., Abbas, G., Temmerman, M., &Avan, B. I.(2014). Women's Empowerment and Contraceptive Use: The Role of Independent versus Couples' Decision-Making, from a Lower Middle Income Country Perspective. PLoS ONE, 9(8), e104633.doi: 10.1371/journal.pone.0104633

Haque, S. E., Rahman, M., Mostofa, M. G., &Zahan, M. S. (2012). Reproductive health care utilization among young mothers in Bangladesh: does autonomy matter? Women's Health Issues, 22(2), e171-e180.

Hindin, M. J. (2000). Women's Autonomy, Women's Status and Fertility-Related Behavior in Zimbabwe. Population Research and Policy Review, 19(3), 255-282. doi:10.2307/40230270

Hogan, D. P., Berhanu, B., &Hailemariam, A. (1999). Household Organization, Women's Autonomy, and Contraceptive Behavior in Southern Ethiopia. Studies in Family Planning, 30(4), 302-314. doi: 10.2307/172288

Isiugo-Abanihe, U. C. (1994).Reproductive motivation and family-size preferences among Nigerian men. Studies in Family Planning, 149-161.

Jejeebhoy, S. J., &Sathar, Z. A. (2001). Women's Autonomy in India and Pakistan: The Influence of Religion and Region. Population and Development

Review, 27(4), 687-712. doi: 10.1111/j.1728-4457.2001.00687.x

Lamidi, E. O. (2016). Multilevel Analysis of State Variations in Women's Participation in Household Decision-Making in Nigeria.Journal of International Women's Studies,17(1), 186-201.

Makinwa-Adebusoye, P. (2001). Socio-Cultural Factors Affecting Fertility in Sub Saharan African Countries Paper presented at the Prospects for Fertility Decline in High Fertility Countries, New York.

Makinwa-Adebusoye, P. (2007). Sociocultural factors affecting fertility in sub-Saharan Africa. United Nations (2007a). Prospects for Fertility Decline in High Fertility Countries, Population Bulletin of the United Nations, Special Issue(46/47), 55-69.

Mandara, M. (2012).Family planning in Nigeria and prospects for the future. International Journal of Gynecology& Obstetrics,117(1),1-4. doi:http://dx.doi.org/10.1016/j.ijgo.2012.01.002

Mosha, I., Ruben, R., &Kakoko, D. (2013). Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: a qualitative study. BMC Public Health,13(523), 1-13.

Moursund, A., &Kravdal, Ø. (2003).Individual and community effects of women's education and autonomy on contraceptive use in India. Population Studies, 57(3), 285-301.

National Population Commission (NPC) [Nigeria] and ICF International. 2014. Abuja, N., and Rockville, Maryland, USA: . (2013). Nigeria Demographic and Health Survey 2013.:NPC and ICF International.

Osamor, P. E., & Grady, C. (2016). Women's autonomy in health care decision-making in developing countries: a synthesis of the literature. International journal of women's health, 8, 191.

Oyediran, K. A., &Odusola, A. F. (2004).Poverty and the dynamics of women's participation in household decision-making in Nigeria.

Rominski, S. D., Gupta, M., Aborigo, R., Adongo, P., Engman, C., Hodgson, A., & Moyer, C. (2014). Female autonomy and reported abortion-seeking in Ghana, West Africa. International Journal of Gynecology& Obstetrics, 126(3), 217-222.

Senarath, U., &Gunawardena, N. S. (2009).Women's autonomy in decision making for health care in South Asia. Asia Pacific Journal of Public Health, 21(2), 137-143.

Simelela, N. (2006). Women's access to modern methods of fertility regulation. International Journal of Gynecology& Obstetrics, 94(3), 292-300.doi:http://dx.doi.org/10.1016/j.ijgo.2006.04.014

Sipsma, H., Ofori-Atta, A., Canavan, M., Udry, C., & Bradley, E. (2014). Empowerment and use of antenatal care among women in Ghana: a cross-sectional study. BMC pregnancy and childbirth, 14(1), 364.

Upadhyay, U. D., Gipson, J. D., Withers, M., Lewis, S., Ciaraldi, E. J., Fraser, A., . . .Prata, N. (2014). Women's empowerment and fertility: A review of the literature. Social science & medicine (1982), 0, 111-120.doi: 10.1016/j.socscimed.2014.06.014

Visaria, L. (1993). Regional variations in female autonomy and fertility and contraception in India.

Wado, Y. D. (2017). Women's autonomy and reproductive health-care-seeking behavior in Ethiopia.Women & health, 1-15.

Woldemicael, G. (2010). Do women with higher autonomy seek more maternal health care? Evidence from Eritrea and Ethiopia.Health Care for Women International, 31(7), 599-620.