Influence of Household Wealth Status on Uptake of Short-Acting and Long-Acting Contraceptives among in-Union Women in Nigeria, 2003-2018

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ABSTRACT

Uptake of short-acting and long-acting contraceptives among in-union women stagnated in Nigeria in the last two decades. Little information is available about how household wealth status has influenced this stagnation. Hence, this study analysed the 2003, 2008, 2013 and 2018 Nigeria Demographic and Health Survey (NDHS) data to address this gap. The analysis involved descriptive and logistic regression techniques at bivariate and multivariate levels. The results suggest the uptake of short-acting and long-acting contraceptives did not improve between 2003 and 2018. Long-acting contraceptive uptake was much lower during the period. Both bivariate and multivariate statistical analyses indicated that household wealth status significantly and positively predicted uptake of short-acting and long-acting contraceptives in Nigeria ($p<0.05$). Women in wealthier households had higher odds of reporting short-acting and long-acting contraceptives than their counterparts in households with lower wealth status. Therefore, to realise sustainable improvement in family planning uptake in Nigeria, it is imperative for the government at all levels to adopt an integrative family planning policy. This type of policy is predicated upon the symbiotic relationship between social development to enhance economic and social development to leapfrog poor households into better wealth statuses and promote both family planning and social development.

Keywords: Wealth Status, In-Union, Short-acting, Long-acting, Contraception

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Introduction

Contraceptive uptake among in-union women has not made much progress in Nigeria, especially concerning the uptake of modern methods. Although uptake of modern family planning methods is generally low among women of reproductive age across Nigeria, it is worryingly low among in-union women (Idowu, Deji, Ogunlaja, and Olajide 2015; Wusu 2016). In-union women here is conceptualised as women of reproductive age (15-49) who are currently in an active marital relationship or in a sexual relationship as cohabiting partners. The consequences of poor contraceptive behaviour among in-union women are high fertility and rapid population growth in the face of a bleak economic climate. The rapid population growth is inexcusable in the deteriorating economic situation and quality of life (Otolorin 2019; Wusu, Oguntola-Laguda, and Aina 2019). As a result, studies have delved into the predictors of contraceptive uptake in the country. However, studies that disaggregated contraceptives to short-acting and long-acting among in-union women in Nigeria are limited and little is known about the influence of wealth status in each category. Of course, contraception behaviour of in-union women is crucial in Nigeria because marriage is still nearly universal and sex in marriage is unquestionable (Wusu and Isiugo-Abanihe 2008; Wusu and Adedokun 2018). Thus, in-union women are at higher risk of unwanted pregnancy and childbirth given prevailing poor contraception behaviour in the country. Hence, this study set the objective to examine the influence of household wealth status of in-union women on the short-acting and long-acting contraceptive behaviour in Nigeria between 2003 and 2018.

Household wealth status wields a significant positive influence on contraceptive uptake in various settings (Agadjanian, Hayford, Luz, and Yao 2015; Babalola and Oyenubi 2018). Studies in Afghanistan, Pakistan and sub-Saharan Africa suggest that women who belong to households characterised by higher wealth quintiles have a higher likelihood to report current use of contraceptives

than those in households in lower wealth quintiles (Ali, Azmat, Hamza, Rahman, and Hameed 2019; Azmat et al. 2015; Rasooly, Ali, Brown, and Normal 2015). Furthermore, household wealth status was declared as the strongest determinant of current uptake of modern contraceptives in Nigeria, suggesting that women in higher wealth status households indicated higher odds for use than their counterparts in households with lower wealth status (Johnson 2017).

In a similar vein, women in poor or poorer household wealth categories are more likely to have greater contraception need compared to their counterparts in wealthier households (Ezeh, Kodzi, and Emina 2010). Therefore, household wealth status and unmet need for family planning are likely to be negatively related. Studies in various parts of sub-Saharan Africa have reported that women in higher household wealth quintiles are less likely to report unmet need for family planning compared to their counterparts in households in lower wealth quintiles (Guure et al. 2019; Nyauchi and Omedi 2014; Wusu et al. 2019). In other words, women in higher wealth quintiles who did not want to have another pregnancy or child are more likely to report using contraceptives. As a result, if family planning programme incorporates a reduction in the financial barrier, there is the probability for the poor or those from households in lower wealth quintile to report more use of family planning (Masiano, Green, Dahman, and Kimmel 2019). Hence, the poor are likely one of the groups with higher risks of not using contraceptives, and appropriate policy aimed at addressing their need is required (Shrestha, Ali, Mahaini, and Gholbzouri 2019).

Moreover, few studies have indicated that women from households in rich wealth quintiles were more likely to report using long-acting methods than those in poor wealth quintiles. In contrast, those in poor wealth quintiles reported more of short-acting contraceptives. For instance, Ugaz and colleagues in their

study in developing countries reported that women in wealthier households were more likely to report the use of long-acting and permanent methods. In comparison, those in poor or poorer households would more likely report the use of short-acting and less permanent methods (Ugaz, Chatterji, Gribble, and Banke 2016). A similar study conducted earlier in sub-Saharan Africa suggested the same pattern of association between wealth differentials and uptake of short-acting and long-acting contraceptives –(Creanga, Gillespie, Karklins, and Tsui 2011).

The influence of household wealth status on short-acting and long-acting contraception has not been adequately explored in Nigeria. Also, the focus on in-union women who are central to childbearing and the rapidly growing population requires further exploration. These gaps necessitated the focus of this study on the influence of household wealth status on uptake of short-acting and long-acting contraceptives.

Materials and Methods

This study analysed four NDHS (2003, 2008, 2013 and 2018 surveys) data sets, which are freely available online at *Measuredhs.com*. The DHS uses a nationally representative sample to collect demographic and health data. So, the four data sets analysed emanated from nationally representative samples. Details of the sampling procedure are available in the NDHS published reports (National Population Commission [Nigeria] and ORC Macro 2004; National Population Commission [Nigeria] and ICF Macro 2009; National Population Commission [Nigeria] and ICF International 2014; 2019). Also, since this study analysed the NDHS data, it considered the ethical clearance obtained by the *Measuredhs* before the survey adequate. In addition, the author obtained permission from the NCF International to analyse the data sets analysed.

The study goal was to examine the association between wealth

status and uptake of short-acting and long-acting contraceptives among in-union women in the last 18 years. Given the focus of the study, the analysis extracted records of women 15-49 years old, who were in a union, not pregnant, sexually active within the four weeks preceding each survey from the NDHS women recode files of selected cases. Thus, the study analysed data from samples of 2,167 (2003 survey), 9633 (2008 survey), 11,507 (2013 survey) and 40,325 (2018 survey) women.

The DHS administers a standardised questionnaire to collect data on demographic and health indicators. The NDHS followed the same procedure. The indicator wealth index (var. 190) was the key explanatory variable for this study. It has five categories, namely poorest, poor, middle, richer and richest quintiles. The DHS computed the wealth index from items possessed in selected households. The second indicator was the dependent variable (var. 312: current use of contraceptives) was classified into short-acting and long-acting contraceptives. Creanga and colleagues, as well as Nyauchi and colleague, used a similar classification –(Creanga et al. 2011; Nyauchi and Omedi 2014).

On the one hand, short-acting contraceptives include the pill, injections, diaphragm, male and female condoms, emergency contraceptives, and all traditional methods. On the other hand, the long-acting methods include IUD, female and male sterilisations and Norplant. Other indicators were the confounding factors involved in the analysis. The light of the literature and rigorous model building procedure guided the selection. Those selected include age of respondents, age at marriage/cohabitation, the highest level of education, number of living children, occupation, place of residence, and religion.

Analysis of the NDHS data used SPSS software version 20 and all levels of analysis focused on the trend in the last 20 years. The univariate level of analysis described all the variables involved in

the analysis using descriptive statistical tools. The bivariate level of analysis employed the chi-square technique to examine the association between wealth status and the short-acting and long-acting family planning methods. Logistic regression analysis examined the association between wealth status and two classifications of current contraceptive use. The logistic regression technique was used to build models for the four surveys. In developing the models, a dummy of short-acting and long-acting was created (thus, use of any short-acting = 1 and none-use = 0; use of any long-acting = 1 and none-use =0). Multivariate logistic models adjusted for the confounding factors highlighted in the previous paragraph.

Results

The trend of household wealth status and current use of short-acting and long-acting contraceptives are described here. In contrast, the patterns of the confounding characteristics are limited to the table. Table 1 shows that the proportion of women who indicated middle household wealth quintile increased between 2003 and 2018. This increase was sustained in 2008 through 2018 in slightly higher magnitude, in 2008. However, the proportion that indicated richer household wealth status declined between 2003 and 2008 but recorded a relatively marginal increase in 2008 and 2018. Also, the percentage of the wealthiest households declined significantly between 2003 and 2008. It picked up in 2013 and fell sharply again in 2018 survey. The poorest wealth group depicted an undulating proportion pattern. It increased in 2008, declined in 2013 but soared in 2018. Similarly, there was a slight increase in the proportion of poorer households from nearly two in ten women in 2013 to about three in ten in 2018

Concerning current contraception, use of short-acting methods was relatively higher across the four surveys. On the one hand, uptake of short-acting practices hovered around one user in every ten in-union women between 2003 and 2018. On the other hand,

long-acting contraceptive use was abysmally low between 2003 and 2018 in Nigeria. It declined from 0.5 per cent in 2003 to 0.4 per cent in 2008 and rose to 0.7 per cent in 2013. The proportion of women who reported using long-acting contraceptives did not record a whole digit until 2018 when it became 3.4 per cent.

Table1: Percentage distribution of sexually active in-union women by selected characteristics in Nigeria, NDHS 2003-2018

Characteristics	Survey Year			
	2003 n=2,16	2008 n=9,63	2013 n=11,507	2018 N=40,325
Wealth status				
Poorest	22.6	29.3	26.2	29.8
Poorer	21.8	23.8	23.8	25.0
Middle	20.4	17.0	17.3	19.0
Richer	18.0	15.4	16.0	16.3
Richest	17.3	14.5	17.7	10.9
Current contraceptive use				
None	87.4	88.1	87.1	85.7
Short-acting	12.1	11.5	12.1	11.0
Long-acting	0.5	0.4	0.7	3.4
Highest education				
None	58.1	56.5	53.7	59.5
Primary	18.3	18.7	16.9	13.3
Secondary +	23.7	24.8	29.3	27.2
Employment				
Unemployed	38.1	34.1	32.8	0
Employed	61.9	65.9	67.2	100
Religion				
Catholic Christia	8.7	6.0	6.2	5.2
Other Christians	20.8	92.4	92.9	94.4
Islam	70.5	1.6	0.9	0.5
Region				
North Central	12.6	14.9	12.4	13.2
North East	23.6	25.0	22.8	27.9
North West	42.3	35.4	40.5	41.1
South East	7.0	5.4	5.9	6.1
South South	7.0	8.7	8.7	5.4
South West	7.6	10.6	9.7	6.2
Place of residence				
Urban	33.6	26.5	31.3	29.1
Rural	66.4	73.5	68.7	70.9
Median age	28.0	28.0	28.0	31.0
Median averag age at marriag	15.0	16.0	16.0	16.0
Median numbe of living childre	2.0	2.0	3.0	4.0

Table 2 shows the bivariate association between wealth status and current use of short-acting and long-acting contraceptives. The table suggests that wealth status was significantly associated with short-acting and long-acting contraceptives ($p<0.001$). The association was also positive and consistent across the four surveys. Women from poorest and poorer households reported the least of short-acting and long-acting contraceptives. In contrast, their counterparts in the richer and richest households reported the highest level of short-acting and long-acting contraceptive use. The data indicated that there was a consistent increase in the proportion of in-union women who reported use of short-acting and long-acting contraceptives among women in poorest through richest households. That is, women in poorest households reported the least uptake of the two categories of contraceptives, and it increased consistently in the samples from poorer through richest household wealth quintiles.

Table 2: Percentage distribution of sexually active in-union women by wealth status and current use of short-acting and long-acting family planning methods among in-union women Nigeria, NDHS 2003-2018

Survey Year	**2003**		**2008**		**2013**		**2018**	
Wealth status	**Short-acting**	**Long-acting**	**Short-acting**	**Long-acting**	**Short-acting**	**Long-acting**	**Short-acting**	**Long-acting**
	n=263	n=11	n=1104	n=43	n=1396	n=83	n=4418	n=1363
Poorest	6.5(32)	-	2.6(73)	-	1.1(34)	-	4.3(516)	1.1(132)
Poor	6.8(32)	-	4.1(93)	- (1)	3.9(106)	0.2(5)	6.7(674)	1.7(173)
Middle	8.6(38)	0.2(1)	8.9(146)	0.3(5)	11.6(230)	0.6(12)	10.9(837)	3.6(279)
Richer	15.1(59)	0.5(2)	21.6(321)	0.9(14)	22.5(415)	1.1(20)	19.0(1173)	6.4(396)
Richest	27.3(102)	2.1(8)	471(33.8)	1.6(23)	31.9(611)	2.4(46)	27.8(1219)	8.7(389)
χ^2	115.7***	25.3***	1189.2***	75.4***	1404.8***	112.1***	2418.8***	838.3***

****Significant at p<0.001; Note: for clarity the none-use component has been excluded.*

Table 3 presents the unadjusted and adjusted odds ratios of logistic regression examining the association between wealth status and short-acting contraception. First, wealth status significantly predicted short-acting contraceptive use in the unadjusted logistic regression model. The unadjusted odds ratios indicated that women in the richest wealth status had higher odds of reporting short-acting contraceptives relative to those in poorest, poorer, middle and richer wealth categories ($p<0.001$). In other words,

women in households with poorest, poorer, middle and richer wealth statuses were all less likely to report uptake of short-acting contraceptives compared with those in households with richest wealth status. In the adjusted logistic regression on short-acting contraception, except for the 2003 survey, wealth status remained a significant predictor of short-acting contraceptives after adjusting for the confounding factors. Similar to the unadjusted model, women who indicated the richest household wealth status had the highest odds of reporting use of short-acting contraceptive relative women in all other household wealth categories.

A general pattern of both unadjusted and adjusted odds ratios was that the magnitude of the odds of reporting short-acting contraceptives use increased consistently from women in

Table 3: Unadjusted and adjusted odds ratios of logistic regression on the association between wealth status and current use of *short-acting* family planning methods among sexually active in-union women in Nigeria, NDHS 2003-2018

Characteristics	**Odds Ratios**							
	Unadj.	**Adjust.**	**Unadj.**	**Adjust.**	**Unadj.**	**Adjust.**	**Unadj.**	**Adjust.**
Survey year	**2003**		**2008**		**2013**		**2018**	
Wealth status								
Poorest	0.19***	0.68	0.05***	0.30***	0.02***	0.24***	0.12***	0.32***
Poor	0.19***	0.70	0.08***	0.32***	0.09***	0.43***	0.19***	0.47***
Middle	0.25***	0.79	0.19**	0.46***	0.28***	0.65***	0.32***	0.54***
Richer	0.47***	0.92	0.54***	0.78**	0.62***	0.88	0.61***	0.77***
Richest (r)	-	-	-	-	-	-	-	-
Model χ^2	102.6***	368.9***	1085.7***	1865.7***	1442.9***	2426.2***	2195.2***	3797.3***

*Note: The confounding variables adjusted for in the adjusted models include age, age at marriage, employment, number of living children, highest education, place of residence, region, and religion; **significant at 0.01; ***significant at p<0.001 .*

households with poorest through richest wealth categories in all surveys. In other words, the highest odds of reporting short-acting contraceptives was among women in households with the richest household wealth status and the least odds was among their counterparts in households with poorest wealth status. Thus, the logistic regression odds ratios testing the association between household wealth and use of short-acting contraceptives indicated a significant and positive association between the two variables.

Table 4 shows the unadjusted and adjusted odds ratios of the

logistic regression test of association between household wealth status and current use of long-acting contraceptives in the study samples. Similar to short-acting contraceptives, wealth status significantly predicted the current use of long-acting contraceptives in the unadjusted models in all the four surveys. In contrast, the significance was not sustained in the 2003 and 2008 surveys when there was an adjustment for the confounding factors. In the 2013 and 2018 surveys, wealth status remained a significant predictor of the current use of long-acting contraceptives. In both unadjusted and adjusted models, women in poorest, poorer, middle and richer households were less likely to report long-acting contraceptive use compared to their counterparts in richest household wealth in all surveys. The relationship between household wealth status and long-acting contraceptive uptake was positive in the surveys. In this case, women in richest wealth quintile indicated highest odds for reporting long-acting contraception, and poorest recorded the least odds. Although women in all other wealth quintiles were less likely to report the use of long-acting contraception relative those of the reference category, the odds for reporting the uptake declined systematically from the more affluent class until the least in the poorest wealth quintile.

Table 4: Unadjusted and adjusted odds ratios of logistic regression on the association between wealth status and current use of *long-acting* family planning methods among sexually active in-union women in Nigeria, NDHS 2003-2018

Characteristics	**Odds Ratios**							
	Unadj.	**Adjust.**	**Unadj.**	**Adjust.**	**Unadj.**	**Adjust.**	**Unadj.**	**Adjust.**
Survey year	**2003**		**2008**		**2013**		**2018**	
Wealth status								
Poorest	-	-	-	-	-	0.21**	0.12***	0.42***
Poor	-	-	0.03***	0.14	0.07***	0.44*	0.18***	0.46***
Middle	0.10*	0.33	0.18***	0.56	0.25***	0.57	0.39***	0.64***
Richer	0.24	0.47	0.57	1.01	0.45**	0.97	0.72***	0.84*
Richest (r)	-	-	-	-	-	-	-	-
Model χ^2	21.6***	45.3***	73.0****	107.3***	109.6***	169.9***	773.6***	1489.5***

Note: The confounding variables adjusted for in the adjusted models include age, age at marriage, employment, number of living children, highest education, place of residence, region, and religion;
**significant at 0.05; **significant at 0.01; ***significant at p<0.001.*

Discussion

This study has employed a trend analysis approach to examine the association between household wealth status and uptake of short-acting and long-acting contraceptives. The objective was to assess the role household wealth played in the use of the two categories of contraceptives in Nigeria in the last 20 years. The analysis demonstrated that household wealth condition nearly stagnated in Nigeria during the period. The groups of married women in poorest and poorer households soared while the richest category declined significantly. Thus, the result suggests that household wealth condition in Nigeria in the last 18 years either stagnated or deteriorated, thereby increasing the proportion of women of reproductive age in economically disadvantaged households. This household condition situation exhibited here is not a coincidence thus 43 per cent of the country's over 200 million population were reported to live in extreme poverty (under the US $1.9 per day) in 2016 (World Bank 2019). The descriptive findings imply that social development retrogressed in most part of the 20 years of unbroken civil rule in Nigeria and because improved social development will enhance household wealth condition.

Similarly, the current uptake of short-acting and long-acting contraceptives have not performed better in the country. Short-acting contraceptive uptake among in-union women has stagnated for 18 years. Similarly, uptake of long-acting methods has been persistently deficient. Until 2018, the national sample of married women could not boost of long-acting prevalence rate of one in ten. The stagnant proportion of in-union women who reported short-acting and long-acting contraceptives is consistent with the general pattern of contraceptive prevalence in Nigeria that has not made any significant progress since the 1990s (Bongaarts and Hardee 2019; Otolorin, 2019). Nevertheless, the analysis also suggests that the short-acting methods enjoyed the highest uptake relative the long-acting methods in the study sample. A plausible explanation is that the popular reason for contraceptive use in

Nigeria is birth spacing. As a result, the use of short-acting methods is relatively common, and the most recent national survey results on pattern of contraception among women of reproductive age also supports this observation (National Population Commission [Nigeria] and ICF International 2019).

What is the role of household wealth status in the generally low uptake of short-acting and long-acting contraceptives? The bivariate analysis indicates that there is a significant and positive association between household wealth status and short-acting as well as long-acting contraceptives in the sample population. This result suggests that uptake of short-acting and long-acting contraceptives improved with rising household wealth status. The unadjusted and adjusted logistic models also supported the observed positive association in the bivariate analysis. The implication is that increasing level of social development in Nigeria is likely to promote uptake of both short-acting and long-acting contraceptives. This finding is consistent with the report of previous studies in Nigeria and in similar settings (Agadjanian et al. 2015; Azmat et al. 2015; Johnson 2017; Rasooly et al. 2015).

However, there is a point of departure between the analysis conducted in this study and previous studies on the differential influence of poorer and wealthier households on short-acting or long-acting contraceptives. In this study, a higher level of household wealth such as middle, richer and richest was more likely to report both short-acting and long-acting contraceptives than those of lower wealth quintiles (poorer and poorest households). In this regard, this study disagreed with previous studies that suggested women in wealthier households were more likely to report long-acting than short-acting methods contraceptives, but those in poorer households are more likely to report short-acting contraceptives than long-acting methods –(Creanga et al. 2011; Ugaz et al. 2016). The variation in this study and previous findings may not be unconnected with the generally

low contraceptive prevalence in Nigeria and the fact that most users in Nigeria do so for child spacing, which is achievable with the short-acting methods (National Population Commission [Nigeria] and ICF International 2019).

Moreover, household wealth status may lead to an improvement in short-acting and long-acting contraceptives because of apparent reasons. First, higher household wealth quintile is usually associated with a better level of education. Education is key to opportunities and access to valuable information about family planning within the reach of members of educated households (Wusu 2012). So women in wealthier households are more likely to report the use of short-acting and long-acting contraceptives because of their better level of education and easier access to family planning information (Haider and Sharma 2013). Also, women in higher household wealth quintiles are likely to be employed or engaged in economically viable activities, which usually increases the opportunity cost of pregnancy and childbearing (Oppenheimer 1994). Therefore, women in such households are more likely to adopt short-acting and long-acting contraceptives because of the incompatibility of their occupational responsibilities with traditional childbearing practices (Wusu 2012).

It is noteworthy that female education and labour force participation are critical social development indicators. Thus, improved social development underpins accelerated family planning uptake (Ndayizigiye et al. 2017). Therefore, limited level of social development in Nigeria is likely the key determinant of the crawling short-acting and long-acting family planning uptake within the country. It is worthy of note that there exist a symbiotic relationship between social development and family planning. Various studies have suggested that improving social development is a panacea for accelerated uptake of short-acting and long-acting contraceptives (Fahimi 2002; Falkingham, and Padmadas 2018;

Muhoza, Broekhuis, and Hooimeijer 2014; Ndayizigiye et al. 2017). Similarly, wide spread family planning adoption has been established as key to progress on social development scale (Miller 2010; Starbird et al. 2016). Therefore, it is imperative for all players in the family planning landscape in Nigeria to adopt an all-encompassing policy that integrates socio-economic development into population control strategy. The experience in China, Burundi and Rwanda demonstrated that this integrative strategy is effective and it is the best policy option for Nigeria and other sub-Saharan African countries (Muhoza et al. 2014; Ndayizigiye et al. 2017; Qin, Falkingham, and Padmadas 2018; Wusu 2012).

Before the conclusion, the study suffers some limitations. First, generally, cross-sectional studies are not amendable to a cause-and-effect form of interpretation. As a result, the descriptions of the findings have not assumed cause-and-effect test of association. The analysis involved four surveys in mitigating the effect of this challenge. Second, the wealth index was used to proxy income because DHS does not include income as a variable in its survey. Perhaps, income as a variable may have yielded a slightly different result. Third, the limited number of cases concerning long-acting contraceptive uptake may have influenced the outcome of the statistical test of association. The only way to minimise this challenge was to reclassify the independent variable to reduce the number of classes, which was not practicable because of how the variable was created (based on possession of household items). Nevertheless, the interpretation of findings was mindful of this limitation.

Conclusion

Despite the limitations highlighted above, the analysis has yielded some significant findings that could be useful in improving the uptake of family planning in Nigeria. The results suggest that uptake of short-acting and long-acting family planning methods was positively associated with household wealth status between

2003 and 2018 in Nigeria. Women of higher household wealth status had higher odds for reporting uptake of short-acting and long-acting contraceptives compared with those in households with lower wealth status. Therefore, to realise sustainable improvement in family planning uptake in Nigeria, it is imperative for the government at all levels to adopt an integrative family planning policy. In this type of policy, two components are involved. First, the government, at all levels will join forces to pursue a realistic social and economic development strategy that leapfrogs the poor households into a better wealth status. The second component should focus on a well-funded health system that makes family planning education and commodities available and accessible in urban and rural areas. This way, Nigeria can leverage on the symbiotic relationship between social development and family planning uptake to make significant progress in family planning uptake and improve the living standard of all Nigerians.

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