**ORIGINAL RESEARCH ARTICLE**

# Determinants of Modern Contraceptive Uptake among Nigerian Women: Evidence from the National Demographic and Health Survey

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## Abstract

Family planning is a key strategy in the control of fertility among women. This study sought to determine various factors that influence modern family planning use in Nigeria. The study used data from Nigeria Demographic and Health Survey (NDHS) 2013. Analysis was carried out using Stata version 12.1. Multivariate logistic regression was used to determine association between various factors and use of modern family planning methods. A total of 119,386 women aged 15-49 years participated in the study. The mean age of respondents was 35.9 ± 8.1 years. Overall, contraceptive prevalence rate of modern methods was 10.3%. The highest proportion of use was 26.7% in the South West, while the lowest was 2.7% in the North West. Predictors of modern family planning use were higher education (OR=4.49, 95% CI: 4.10-4.92), richest wealth quintile (OR=3.71 CI: 3.29-4.19), being from South West (OR=3.42, 95% CI: 3.15-3.70), age 25-49 years (OR=1.55, 95% CI: 1.42-1.69) and urban residence (OR=1.08, 95% CI: 1.03-1.13) (p<0.001). The highest predictors of modern contraceptive use were education and wealth index. These indices were poorest in North Western Nigeria. Measures should be taken to improve female literacy and employment as these will most likely improve uptake of modern contraceptives among women in Nigeria. *(Afr J Reprod Health 2017; 21[3]: 89-95).*

**Keywords:** Modern contraceptive use, determinants, NDHS, Nigeria

## Résumé

La planification familiale est une stratégie clé dans le contrôle de la fécondité chez les femmes. Cette étude a cherché à déterminer les différents facteurs qui influencent l'utilisation de la planification familiale moderne au Nigeria. L'étude a utilisé des données de l'Enquête sur la démographie et la santé au Nigeria (EDSN) de 2013. L'analyse a été effectuée à l'aide de la version Stata 12.1. La régression logistique multivariée a été utilisée pour déterminer l'association entre les divers facteurs et l'utilisation des méthodes modernes de la planification familiale. Au total, 119 386 femmes âgées de 15 à 49 ans ont participé à l'étude. L'âge moyen des répondants était de 35,9 ± 8,1 ans. En général, le taux de prévalence contraceptive des méthodes modernes était de 10,3%. La proportion la plus élevée d'utilisation était de 26,7% dans le sud-ouest, tandis que la plus faible était de 2,7% dans le nord-ouest. Les indices de l'utilisation moderne de la planification familiale étaient une éducation supérieure (OR = 4,49, IC à 95%: 4,10-4,92), le quintile de plus grande richesse (OR = 3,71 IC: 3,29 à 4,19), étant du sud-ouest (OR = 3,42, IC 95% 3,15-3,70), âgés de 25 à 49 ans (OR = 1,55,95% IC: 1,42-1,69) et résidence urbaine (OR = 1,08,95% CI: 1,03-1,13) (p <0,001). Les indices les plus élevés de la contraception moderne étaient l'indice de l'éducation et de la richesse. Ces indices étaient les plus pauvres du nord-ouest du Nigeria. Des mesures devraient être prises pour améliorer l'alphabétisation et l'emploi des femmes, car celles-ci amélioreront probablement l'adoption des contraceptifs modernes chez les femmes au Nigeria. *(Afr J Reprod Health 2017; 21[3]: 89-95).*

**Mots-clés**: Utilisation anticonceptionnelle moderne, déterminants, NDHS, Nigeria

## Introduction

Family planning refers to a conscious effort by a couple to limit or space the number of children they have through the use of contraceptive methods. Fertility rate remains high in Nigeria with an average of 5.5 children per woman[1]. Family planning is a key strategy in preventing deaths of women, neonates, infants and children[2]. Promotion of family planning in countries with high birth rates has been reported to have the potential of reducing poverty and hunger while

also averting 32% of all maternal deaths and about 10% of child mortality[3]. Modern family planning methods are more effective and associated with lower failure rates compared to the traditional methods. They include female sterilisation, male sterilisation, the pill, the intrauterine device (IUD), injectables, implants, male condoms, female condoms, the diaphragm, foam/jelly, the lactational amenorrhoea method (LAM), and emergency contraception[1]. Traditional methods include the rhythm (periodic abstinence) and withdrawal methods. Other methods include folk methods such as strings and herbs[1]. The use of modern family planning methods facilitates both spacing and limiting of pregnancies in women of reproductive age[4].Low utilization has been documented to lead to high maternal mortality ratio[5]. Poor uptake of contraception in sub-Saharan Africa is due to the existence of a variety of factors[6].

One of the factors identified to affect uptake of modern contraceptives among women of child bearing age is their educational level[7, 8, 9]. A study reported that women with primary, secondary and post-secondary levels of education were 8-10%, 14-17% and 16-20% more likely to use family planning methods respectively than those with no education[9].

In addition, an individual's financial capacity often affects the utilization of modern contraceptives[10]. Several studies have recorded higher contraceptive use among women with the richest wealth quintile compared to the poorest[6, 9, 11-13]. The use of modern contraceptives has been reported to be higher among the highly empowered and the upper class women compared to the poorly empowered and lower class women[14]. Strategies to improve contraceptive uptake should therefore focus more on the latter group of women.

In Nigeria, the husband/ partner's support affects women's contraceptive use[15, 16, and 17]. This is because Nigeria is a patriarchal society[18]. Studies have shown that women who discussed contraceptive use with partners were more likely to use family planning than those who did not[16, 19]. Also, those whose husbands are literate were more likely to use family planning than those with illiterate husbands[20].

Several studies have reported higher uptake of modern contraceptives in the urban and southern parts of Nigeria compared to uptake by women in the rural and northern parts of Nigeria[11, 21]. Several socio demographic factors which may be prevalent in those locations could possibly explain the differences and not the locations themselves.

The high fertility rate reported in Nigeria, coupled with the poor uptake of contraception over the years makes it important to seek possible explanations to the observed pattern. This study therefore sought to assess various factors, both individually and collectively in order to possibly determine their influences on modern family planning use in Nigeria.

## Methods

This study was carried out using data from Nigeria, a country with a population of 140,431,790 according to 2006 Population and Housing Census[22]. Presently, Nigeria is made up of 36 States and a Federal Capital Territory, grouped into six geopolitical zones: North Central, North East, North West, South East, South South, and South West. Primary data was collected by the National Population Commission (NPC), Nigeria with financial and technical support from Inner City Fund (ICF) International Rockville, Maryland, USA[1]. The 2013 survey was the fifth in the series of Demographic and Health Surveys conducted so far in Nigeria; previous surveys were conducted in 1990, 1999, 2003, and 2008. The sample for the 2013 NDHS was nationally representative and covered the entire population residing in non-institutional dwelling units in the country. The sample was designed to provide population and health indicator estimates at the national, zonal, and State levels. The 2013 NDHS sample was selected using a stratified three-stage cluster design. Details of the data collection procedure are contained in the 2013 survey report[1]. The study population was women aged 15-49 years resident in both urban and rural parts of the six zones in Nigeria. The present study used secondary data from the Nigeria Demographic and Health Survey (NDHS) 2013 which was extracted from the database.

The focus for this study was on the subset of data on family planning, with particular focus

**Table 1:** Educational Level and Place of Residence Should be shifted up to align with the Figures on the Corresponding Rows

| Socio demographic characteristics | Current use of FP | | | | Total (%) N=119,386 | p-value |
|---|---|---|---|---|---|---|
| | No method N=101,030 N (%) | Folkloric N=888 N (%) | Traditional N=5,136 N (%) | Modern N=12,332 N (%) | | |
| **Age (years)** | | | | | | |
| **15-24** | 8633(90.6) | 59 (0.6) | 230 (2.4) | 609 (6.4) | 9,531(100) | 0.00* |
| **24-49** | 92,397 (84.1) | 829 (0.7) | 4,906 (4.5) | 11,723 (10.7) | 109,855 (100) | |
| **Educational level** | | | | | | |
| No education | 58,626 (96.4) | 278 (0.5) | 430 (0.7) | 1,444 (2.4) | 60,778 (100) | 0.00* |
| Primary | 22,157 (79.3) | 368 (1.3) | 1,360 (4.9) | 4,060 (14.5) | 27,945 (100) | |
| Secondary | 16,542 (67.8) | 211 (0.9) | 2,470 (10.1) | 5,165 (21.2) | 24,388 (100) | |
| Higher | 3,705 (59.0) | 31 (0.5) | 876 (14.0) | 1,663,(26.5) | 6,275) (100) | |
| **Place of residence** | | | | | | |
| Urban | 28,581(73.7) | 380(1.0) | 3,231(8.3) | 6594(17.0) | 38,786(100) | 0.00* |
| Rural | 72,449 (89.9) | 508 (0.6) | 1905 (2.4) | 5,738 (7.1) | 80,600 (100) | |
| **Region** | | | | | | |
| North Central | 12,817 (79.4) | 174 (1.1) | 423 (2.6) | 2,729 (16.9) | 16,143 (100) | 0.00* |
| North East | 23,040 (95.3) | 64 (0.3) | 75 (0.3) | 1,001 (4.1) | 24,180 (100) | |
| North West | 37,508 (96.8) | 112 (0.3) | 108 (0.3) | 1,029 (2.7) | 38,757 (100) | |
| South East | 7,831 (69.8) | 56 (0.5) | 1,963 (17.5) | 1,369 (12.2) | 11,219 (100) | |
| South South | 11,087 (74.6) | 251 (1.7) | 1,115 (7.5) | 2,404 (16.2) | 14,857 (100) | |
| South West | 8,747 (61.5) | 231 (1.6) | 1,452 (10.2) | 3,800 (26.7) | 14,230 (100) | |
| **Wealth index** | | | | | | |
| Poorest | 27,928 (97.6) | 142 (0.5) | 85 (0.3) | 445 (1.6) | 28,600 (100) | 0.00* |
| Poorer | 25,677 (93.9) | 73 (0.3) | 363 (1.3) | 1,229 (4.5) | 27,342 (100) | |
| Middle | 20,609 (83.8) | 230 (0.9) | 997 (4.1) | 2,758 (11.2) | 24,594 (100) | |
| Richer | 16,691 (75.3) | 253 (1.1) | 1,647 (7.4) | 3,567 (16.2) | 22,158 (100) | |
| Richest | 10,125 (60.7) | 190 (1.1) | 2,044 (12.2) | 4,333 (26.0) | 16,692 (100) | |

on modern family planning methods. Possible correlates of use of modern family planning were considered. Such factors included educational level of respondents and their spouses, wealth index, place of residence, age and region of the country. Analysis was carried out using Stata version 12.1. Bivariate analysis and Multivariate logistic regression were used to determine relationship between various factors and use of modern family planning methods. Level of significance was set at 0.05.

Approval was sought and obtained from the data originator who had in turn obtained informed consent from the study participants.

## Results

A total of 119,386 women aged 15-49 years participated in the study. The mean age of respondents was 35.9 ±8.1 years. Overall, the contraceptive prevalence rate for modern method of family planning was 10.3%. The use of modern contraceptive was higher among those aged 25-49 years, 11,723 (10.7%) compared to those aged 15-24 years, 609 (6.4%). Modern contraceptive use increased with educational level among the respondents from 2.4% among those with no education to 26.5% among those with higher education ($p<0.001$). A higher proportion of those residing in urban regions, (17%) used modern contraceptives compared to rural (7.1%) regions. The lowest rate of use was 2.7% in the North West region of Nigeria, while the highest was 26.7% in the South West region.

Modern contraceptive use progressively increased with the respondents' wealth index, being least among the poorest women (1.6%) and highest among the richest (26.0%). (Table 1) A total of 92.9% of the respondents were currently married or living with partner.

The use of modern family planning among respondents also increased with spouses'

**Table 2:** Current use of FP among Respondents by Educational Level of Spouses

| Highest Educational level | Current use of FP | | | | Total (%) |
|---|---|---|---|---|---|
| | No method N (%) | Folkloric N (%) | Traditional N (%) | Modern N (%) | |
| **No education** | 48,556 (96.6) | 194 (0.4) | 299 (0.6 ) | 1,216 (2.4) | 50,265 (100) |
| **Primary** | 19,769 (79.8) | 262 (1.1) | 1,597 (6.4) | 3,138 (12.7) | 24,766 (100) |
| **Secondary** | 20,877(74.5) | 308 (1.1) | 2,123 (7.6) | 4,719(16.8) | 28,027 (100) |
| **Higher** | 10,195 (71.2) | 96 (0.7) | 1,053 (7.4) | 2,956 (20.7) | 14,300 (100) |
| **Total** | 99,397 (84.7) | 860 (0.7) | 5,072 (4.3) | 12,029 (10.3) | 117,358 (100) |

p<0.001

**Table 3:** Respondents' Educational Level by Region of the Country

| Region | Highest educational level | | | | Total (%) |
|---|---|---|---|---|---|
| | No education N (%) | Primary N (%) | Secondary N (%) | Higher N (%) | |
| **North Central** | 6,275 (38.9) | 4,972 (30.8) | 3,534 (21.9) | 1,362 (8.4) | 16,143 (100) |
| **North East** | 17,233 (71.3) | 3,991 (16.5) | 2,219 (9.2) | 737 (3.1) | 24,180 (100) |
| **North West** | 32,015 (82.6) | 4,011(10.4) | 2,278(5.9) | 453 (1.2) | 38,757 (100) |
| **South East** | 1,551 (13.8) | 4,340 (38.7) | 4,352 (38.8) | 976 (8.7) | 11,219 (100) |
| **South South** | 1,624 (10.9) | 6,382 (43.0) | 5,761 (38.8) | 1090 (7.3) | 14,857 (100) |
| **South West** | 2,080 (14.6) | 4,249 (29.9) | 6,244 (43.9) | 1,657 (11.6) | 14,230 (100) |
| **Total** | 60,778 (50.9) | 27,945 (23.4) | 24,388 (20.4) | 6,275 (5.3) | 119,386 (100) |

P-value<0.001

**Table 4:** All Percentages on the Row for North East Have Been Adjusted to 1 Decimal Place As Follows:

| Region | Wealth Index | | | | | Total (%) |
|---|---|---|---|---|---|---|
| | Poorest N (%) | Poorer N (%) | Middle N (%) | Richer N (%) | Richest N (%) | |
| **North Central** | 1,420 (8.8) | 3,384 (21.0) | 5,365 (33.2) | 3,397 (21.0) | 2,577(16.0) | 16,143 (100) |
| **North East** | 9,777 (40.4) | 7,260 (30.4) | 3,690 (15.3) | 2,185 (9.0) | 1,268 (5.2) | 24,180 (100) |
| **North West** | 16,156 (41.7) | 11,779 (30.4) | 5,469 (14.1) | 3,602 (9.3) | 1,751 (4.5) | 38,757 (100) |
| **South East** | 780 (7.0) | 1,968 (17.5) | 3,288 (29.3) | 3,122 (27.8) | 2,061 (18.4) | 11,219 (100) |
| **South South** | 111 (0.8) | 1,739 (11.7) | 4,520 (30.4) | 5,174 (34.8) | 3,313 (22.3) | 14,857 (100) |
| **South West** | 356 (2.5) | 1,212 (8.5) | 2,262 (15.9) | 4,678 (32.9) | 5,722 (40.2) | 14,230 (100) |
| **Total** | 28,600 (24.0) | 27,342 (22.9) | 24,594 (20.6) | 22,158 (18.5) | 16,692 (14.0) | 119,386 (100) |

p<0.001

educational level from 2.4% among those whose spouses had no education to 20.7% among those whose spouses had higher education (p<0.001). (Table 2)

Only 7.0% of the respondents from the North West had at least secondary education compared to 55.5% from the South West region (p<0.001) (Table 3).

The regions with the lowest proportion of those in the richest wealth quintile were North West (4.52%) and North East (5.2%), while those with the highest proportions were the South West (40.2%) and South South (34.8%) respectively. (Table 4)

Predictors of modern family planning use were higher education (OR=4.49, 95% CI: 4.10-4.92), richest wealth quintile (OR=3.71 CI: 3.29-4.19), South West region (OR=3.42, 95% CI: 3.15-3.70), being 25-49 years (OR=1.55, 95% CI: 1.42-1.69), and urban residence (OR=1.08, 95% CI: 1.03-1.13). All factors were statistically significant (p<0.001). (Table 5)

## Discussion

This study sought to assess various factors that influence modern family planning use in Nigeria.

Respondents were drawn from the six regions in Nigeria with a mean age of 35.9 ± 8.1 years. Overall, prevalence rate of modern contraceptive

**Table 5:** Multivariate Logistic Regression of Correlates of use Of Modern FP among Respondents

| Variable | Use of modern FP | | Odds ratio | 95% CI | P value | *Total |
|---|---|---|---|---|---|---|
| | % | N=12,332 | | | | |
| **Region** | | | | | | |
| North West | 2.7 | 1,029 | Ref | | | 38,757 |
| North Central | 16.9 | 2,729 | 3.14 | 2.90-3.41 | 0.00 | 16,143 |
| North East | 4.1 | 1,001 | 1.30 | 1.18-1.42 | 0.00 | 24,180 |
| South East | 12.2 | 1,369 | 1.50 | 1.37-1.64 | 0.00 | 11,219 |
| South South | 16.2 | 2,404 | 1.99 | 1.83-2.17 | 0.00 | 14,857 |
| South West | 26.7 | 3,800 | 3.42 | 3.15-3.70 | 0.00 | 14,230 |
| **Educational level** | | | | | | |
| No education | 2.4 | 1,444 | Ref | | | 60,778 |
| Primary | 14.5 | 4,060 | 3.46 | 3.23-3.71 | 0.00 | 27,,945 |
| Secondary | 21.2 | 5,165 | 4.23 | 3.93-4.55 | 0.00 | 24,388 |
| Higher | 26.5 | 1,663 | 4.49 | 4.10-4.92 | 0.00 | 6,275 |
| **Place of residence** | | | | | | |
| Rural | 7.1 | 5,738 | Ref | | | 80,600 |
| Urban | 17.0 | 6,594 | 1.08 | 1.03-1.13 | 0.00 | 38,786 |
| **Age ( years)** | | | | | | |
| 15-24 | 6.4 | 609 | Ref | | | 9,531 |
| 25-49 | 10.7 | 11,723 | 1.55 | 1.42-1.69 | 0.00 | 109,855 |
| **Wealth index** | | | | | | |
| Poorest | 1.6 | 445 | Ref | | | 8,600 |
| Poorer | 4.5 | 1,229 | 1.64 | 1.47-1.85 | 0.00 | 27,342 |
| Middle | 11.2 | 2,758 | 2.59 | 2.32-2.90 | 0.00 | 24,594 |
| Richer | 16.2 | 3,567 | 2.82 | 2.51-3.16 | 0.00 | 22,158 |
| Richest | 26.0 | 4,333 | 3.71 | 3.29-4.19 | 0.00 | 16,692 |

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use was 10.3%. This was higher than 9.4% in a similar study which analyzed data from NDHS 2008[23], but far lower than 65% reported in a study in Ethiopia[20]. About a tenth of women aged 25-49 years used modern contraceptives compared to 6.4% use among the younger age group. Women aged 25-49 years were one and a half times more likely to use modern contraceptives than the younger age group. Similar findings were reported in other studies in India and Jos, Nigeria respectively[24, 25]. A possible reason could be that the former group possibly had women who had either completed child bearing or wanted to space their children compared to the latter group with women who may not have commenced child bearing. Another reason could be that youths were unlikely to access family planning services due to societal beliefs that they are not supposed to have premarital sex[26].

Concerning place of residence, studies done in Ethiopia and Sokoto, Nigeria respectively have shown that women who live in urban regions are more likely to use modern contraceptives than their rural counterparts[4, 21]. In the present study, though bivariate analysis showed that close to one fifth of respondents in the urban region used modern contraceptives compared to less than a tenth in the rural, multivariate analysis reduced the disparity as the odds of using modern contraceptive was only marginally higher among the women of urban residence when compared with rural residents. This suggests that other factors which promote contraceptive use and are more prevalent in the urban region exist. These include education and wealth quintile.

The odds of using modern contraceptives were observed to progressively increase with level of education, being 4.5 times higher among those with higher education compared to the uneducated. A previous study in Northern Nigeria reported that a significantly higher proportion of women in the urban group (49.7%) had formal education compared to 10.95% from the rural group respondents and that those with formal education

were 4 times more likely to have knowledge of modern contraceptive than those with no formal education[21]. This increased knowledge would probably influence the rate of usage positively. Another study in Nigeria recorded that women with employment and tertiary education were more likely to use contraception compared to the unemployed and the uneducated respectively.[22] This suggests that female education most likely has a positive effect on use of modern contraceptives. The use of modern family planning among respondents was also observed to progressively increase with spouses' educational level. Similar findings were reported in other studies in Ethiopia[19, 20]. This suggests that increased investment into educating both sexes would possibly have a positive impact on uptake of contraceptives. Some rural communities in the South West and South South regions of Nigeria where up to two thirds and more than half of the women respectively had post primary education recorded a contraceptive prevalence rates of 63.3% and 42.3% respectively[27,28] compared to 5% in the rural community in the North West[17]. This clearly suggests that it is not living in the rural region *per se* that leads to low contraceptive prevalence rate but the associated factors. Improving the educational levels of the women in the rural areas has a likelihood of leading to a corresponding increase in contraceptive use among them.

The odds of using modern contraceptives were also observed to progressively increase with wealth quintile, being 3.7 times higher among the richest compared to the poorest. Similar studies in Malawi and Ghana respectively have found a strong association between wealth quintile and modern contraceptive use[11, 29]. A study in Malawi reported a significant difference in prevalence of modern contraceptive use of 82.4% among women of richest wealth quintile compared to 66.8% among the poorest. Women in the richest wealth quintile were more likely to ever use modern contraceptive (OR=2.36; CI=2.07-2.69, $p<0.001$) than the poorest[11]. This suggests that financial constraint probably plays a role in reduced contraceptive usage among poor women. Ensuring availability of modern contraceptive at minimal or no cost could therefore improve usage. Wealth creation for women is also likely to increase their ability to procure and use modern contraceptives. Wealth in turn can also influence a person's status and educational level[30]. The Malawian study reported that none of the respondents in the poorest wealth quintile had higher education[11].

In the present study both education and wealth index were lowest in the North West with less than one tenth of the respondents from that region having at least secondary education compared to over half from the South West. Also, less than 5% from the North West belonged to the richest wealth quintile compared to over 40% from the South West. People that are educated are more likely to be wealthier than the uneducated. Such people would be empowered to sort out their affairs themselves without needing financial support from other sources. Based on these differences in education level and wealth index, it is not surprising that those living in the South West were 3.4 times more likely to use modern contraceptives compared to those in the North West. This is not as a result of their locations but due to more favorable socio demographic indices (educational level and wealth index) among women in the Southern region.

## Conclusion

The use of modern contraceptive was very low in this study. The highest predictors of its use were educational level and wealth index. These indices were poorest in North Western Nigeria. Measures should be taken to improve female literacy and employment as these will most likely lead to improved uptake of modern contraceptives among women.

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