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# Abstract

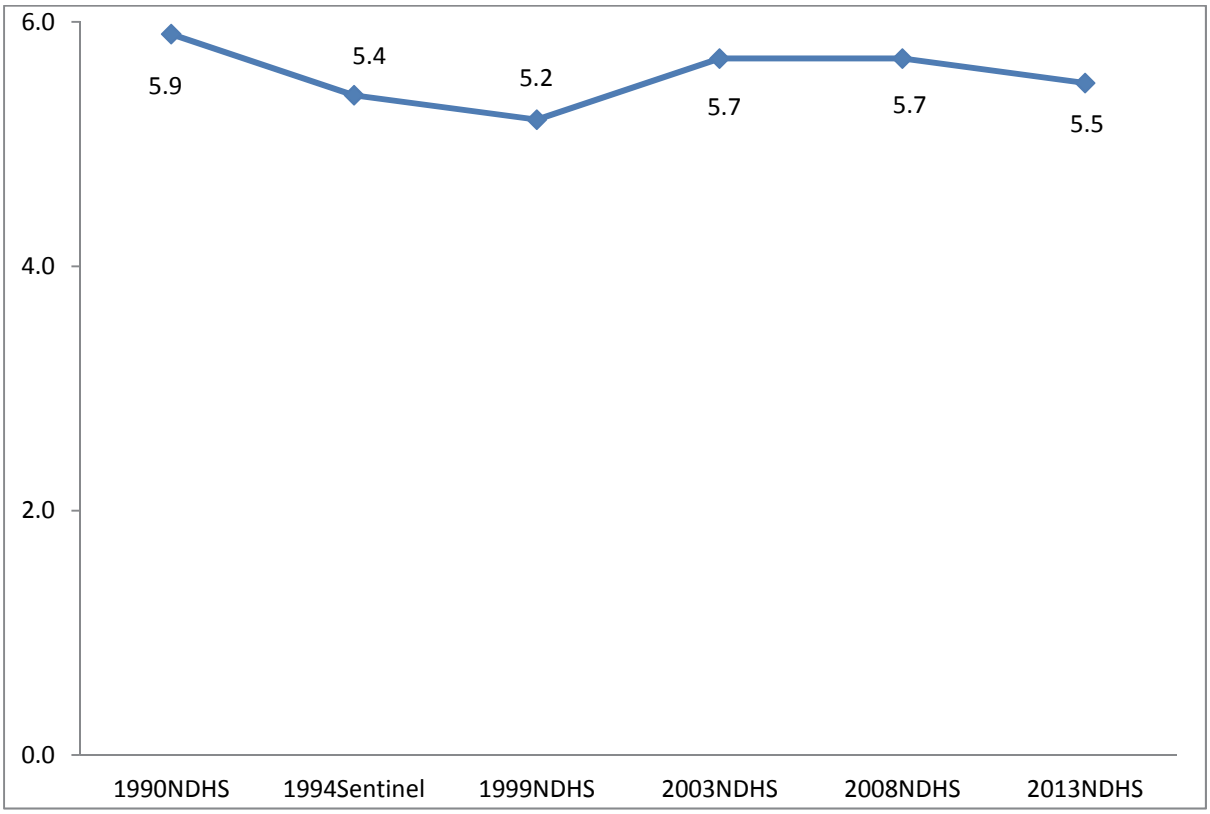
Lowering fertility levels and improving maternal and child health in sub-Saharan Africa has been a policy objective for decades. Most efforts have focused on women, with little or no involvement of men. The type of marriage, however, has rarely been considered as a possible factor that could influence contraceptive use, and therefore could have an effect on fertility and reproductive health. This study thus assesses contraceptive use by sexually active men among three marriage types—singles, polygamous, and monogamous. The study was based on data on sexually active men age 15-49 sampled in the 2013 Nigeria Demographic and Health Survey (NDHS). The study showed that, overall, 30% of the sampled population were currently using contraception, with condom use as the dominant method (66%). The level of contraceptive use was significantly higher among sexually active single men, at 68%, compared with 19% among monogamous married men and 9% among polygamous men. Other factors influencing contraceptive use among sexually active men included wealth status, educational attainment, ethnicity, region, religion, and age. The study concluded that in view of the wide variation in contraceptive use by marriage type in Nigeria, efforts to increase contraceptive prevalence should give more consideration to policies and programs that promote consistent use of contraceptives particularly among married men.

# 1. Introduction

Generally, studies of the relationships among contraceptive use, fertility desires, and marital union have shown that male participation is paramount for a successful outcome for reproductive health programs, especially family planning. Prevention of high-risk, mistimed, and unwanted pregnancies and childbirth in order to improve maternal and child health, to reduce maternal deaths, and to regulate population growth are the bedrocks of family planning (Canning and Schultz 2012). Although Nigeria, as evident from the country's various population policies, has embraced family planning as a method of controlling the high rate of population growth, the impact on fertility has not been impressive or encouraging (Federal Office of Statistics 2000; Okezie, Ogbe, and Okezie 2010).

Lowering fertility levels and improving maternal and child health in sub-Saharan Africa has been an objective for a number of decades (NPC/UNICEF 2001; Alkema, Kantorova, Menozzi, and Biddlecom 2013). Despite the decline in fertility in developing countries, ongoing evidence in Nigeria suggests either a slow or stalled fertility instead, and consequential high rates of population growth (Shapiro and Gebreselassie 2007; Bongaarts 2008; Moultrie et al. 2008). Nigeria's total fertility rate (TFR) ranged from 6.6 in 1965 to 7.0 in 1975 (Feyisetan and Bankole 2002) and was 5.5 for the three years preceding the 2013 Nigeria Demographic and Health Survey (NDHS) (NPopC and ICF International 2014). Figure 1 shows the trend in TFR in Nigeria from 1990 to 2013. Fertility declined between 1990 and 1999 and then increased between 1999 and 2003, remaining stable until 2008. While fertility declined somewhat between 2008 and 2013, it remains at a very high level.

**Figure 1: Trends in Total Fertility Rates in Nigeria (1990-2013)**




The majority of efforts and discussions on reproductive health, and particularly on fertility, contraceptive use, and family planning have centered on women for many years (Becker 1996; Oyediran, Ishola, and Feyisetan 2002). Unfortunately, these efforts have not been able to achieve the lower fertility levels that they sought. One of the reasons is resistance from male spouses (Shattuck et al. 2011). Men, until recently, have been seen as not relevant in matters of reproductive health (Collumbien and Hawkes 2000; Akindele and Adebimpe 2013) and are not seen as partners in family planning (Ijadunola et al. 2010). Because only women were considered relevant to the issue of contraceptive use, the responsibilities, designs, and strategies of family planning programs thereby focused on women (Dewi 2009), despite the importance and relevance of men in other family matters.

Men's support affects the general use and correct use of family planning (Nasir, Tahir, and Zaidi, 2010; Ijadunola et al. 2010). The support and contribution of both spouses in making family decisions, particularly in reproductive health matters, are crucial to achieving a meaningful outcome. Little or no involvement of men in family planning programs has been shown to be one of the reasons for the persistently high population growth in Africa (Ityai, Dover, and Ulinigumugabo 2000). It is therefore of interest to examine those factors that could influence

contraceptive use among sexually active males in the context of the complex and multifaceted array of marriage types in Nigeria.

Family structure has a lot to do with cultural and societal values (Hayase and Liaw 1997; Olomola 2013). In varying degree, polygamy seems to be the norm in most African societies, with some 45% to 55% of women living in polygamous family settings (Kuper 1982; CPS/MS and DNSI 2007; Bove, Vala-Haynes, and Valeggia 2014). Jacoby (1995) stressed that it is common for more than one-third of women in some African countries to be in polygamous family settings.

The effect of family structure has been observed over time. Many reports conclude that the system of plural marriage has diverse negative effects on reproductive health and other family outcomes (Larsen 1995; Amey 2002; Gibson and Mace 2007; Gyimah 2009; Uthman, Lawoko, and Moradi 2010; Olomola 2013). However, other researchers report that polygamous marital unions increase the chances of achieving the desired number of children (Boserup 1970; Adams and Mburugu 1994; Batchelor, Watson, and Wilde 2000). Comparing polygamous and monogamous family structures, polygamy was found to be associated with reduced levels of contraceptive use, despite the fact that the proportion of women who wanted to stop childbearing was higher among polygamous marriages than among monogamous unions.

There is little information on the direct and indirect influence of marriage type on the use of contraceptives among sexually active men. Hence this study. Marriage type is conceptualized in this study as marital status and categorized as singlehood, monogamous, or polygamous. For this study, single men include those who were never married or formerly married.

**Research questions**

1. What is the pattern of contraceptive use among sexually active men in Nigeria?
2. To what extent does marriage type influence contraceptive use among sexually active men?
3. What other factors influence contraceptive use among sexually active men in Nigeria?

**Objectives**

1. Evaluate the pattern of contraceptive use by marriage type among sexually active men in Nigeria.
2. Examine the influence of marriage type on contraceptive use among sexually active men.
3. Determine the factors influencing contraceptive use among sexually active men in Nigeria.

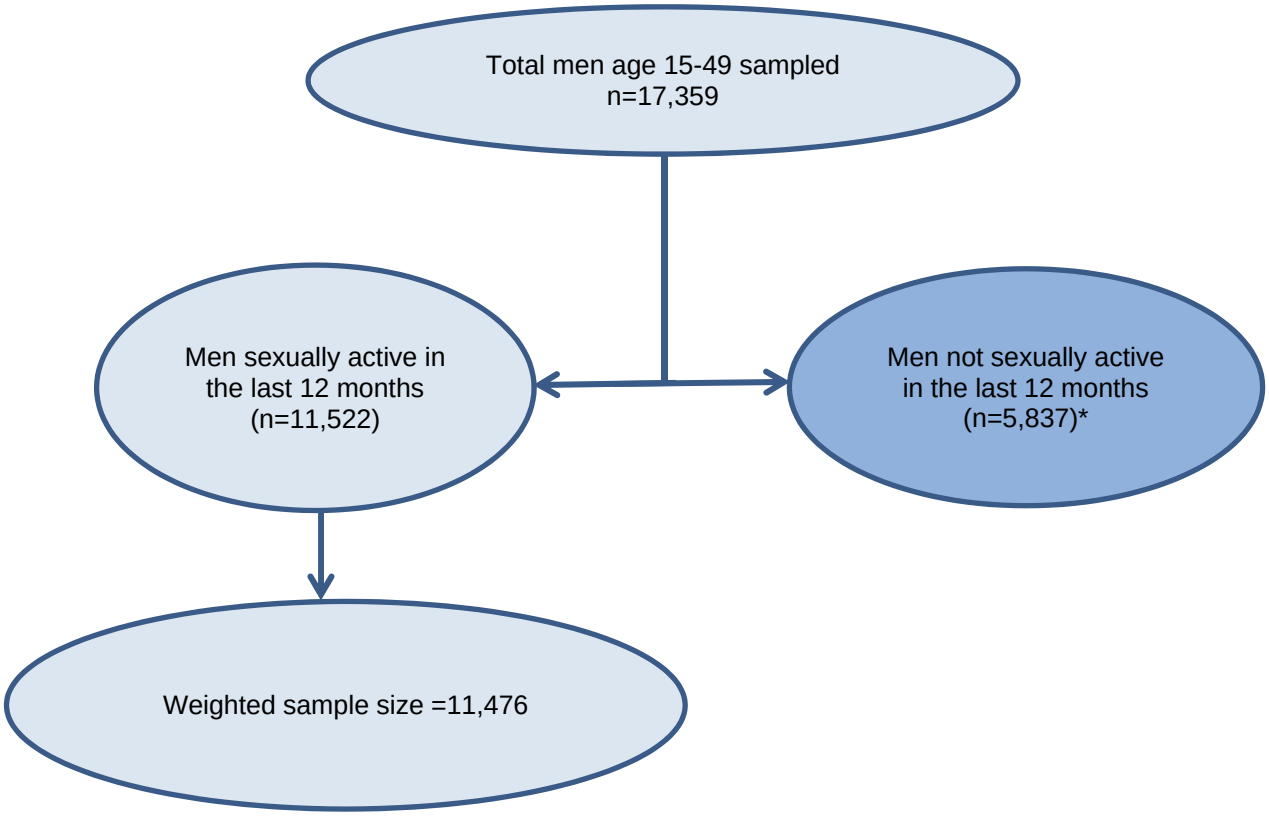
# 2. Data and Methods

## 2.1. Data

The study was carried out using the cross-sectional 2013 Nigeria Demographic and Health Survey (NDHS) dataset. The survey involved the use of a three-stage sampling technique. The whole country was divided into primary sampling units (PSUs), referred to as clusters, which were based on the 2006 enumeration areas (EAs) census frame. In all, a total of 904 were identified (372 and 532 in urban and rural areas respectively). The first stage involved the use of probability-proportionate-to-size (PPS) sampling to select 893 localities independently. In the second stage a complete listing of households was carried out for each cluster. This household listing served as the sampling frame for the selection of households to be interviewed. The third stage involved the random selection of 45 households from each urban and rural cluster using equal probability systematic sampling. A sub-sample of half of the households selected was done, and all men age 15-49 in the households (either permanent residents or visitors who were present on the night before the survey) were eligible to be interviewed (NPopC and ICF International 2014).

With the aim of measuring the levels, patterns, and trends of demographic, health and socioeconomic indicators, the NDHS provides current information on the population, health, and socioeconomic situation of the country. The Men's Recode Data File was employed for this study. Since the study is based on the perspective of men, the data file includes all men age 15-49 irrespective of marital status from at least half of the households selected for NDHS. Data from the Woman's Questionnaire can only contain information about women themselves and their sexual partners, while the use of couples' data will leave out sexually active single men. The target population of this study was sexually active men age 15-49 who had sex within the last 12 months before the 2013 NDHS. The total weighted number of respondents sampled for the study was 11,476 men from all 904 clusters of the study area. This sub-sampled population constituted 66% of the total number of men (17,359 weighted) originally interviewed during the 2013 NDHS. Figure 2 below presents a stage-by-stage derivation of the target population used for this study.

**Figure 2: Analysis of sample derivation**




*n=5,837 is made of the total number of respondents who never had sex, never had sex in the last 12 months, and missing responses.

## 2.2. Key Variables and Measurements

The outcome variable is current contraceptive use at last sex, categorized into used and not used. A number of independent and intervening variables were employed in the study, including age, place of residence, region of residence, educational attainment, wealth index, religion, occupational status, number of living children, and children ever born. Other variables studied are media exposure, type of contraceptive method, and desire for more children. The main independent variable is marriage type (categorized as single, monogamous, and polygamous).

The aforementioned variables were categorized in the study as follows: age (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49); place of residence (urban, rural); region of residence (North Central, North East, North West, South East, South South, South West);educational attainment (no education, primary, secondary, higher); wealth status (poorest, poorer, middle, richer, richest); religion (Christian, Islam, traditional/others); occupational status (working, not working); number of living children (0, 1-4, 5+); children ever born (0, 1-2, 3-4, 5+); media exposure (exposed, not

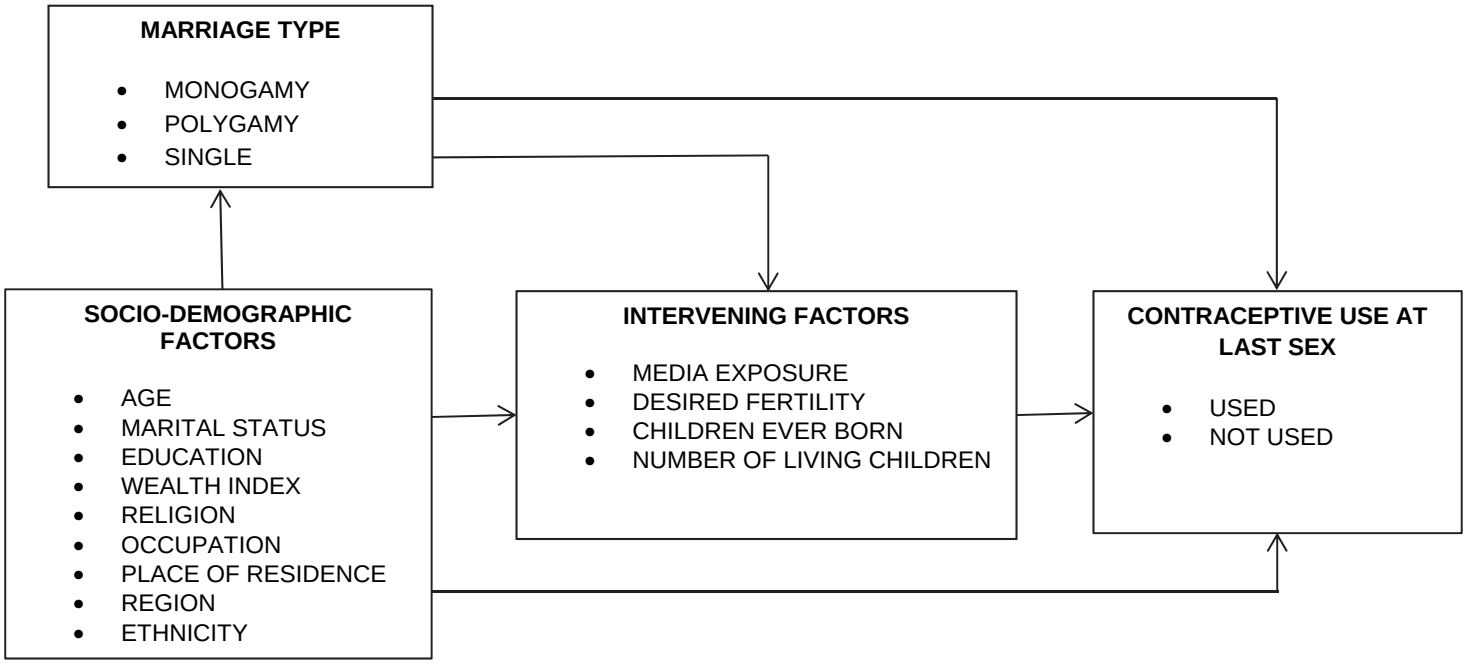
exposed), and recoded from the original measure of exposure to television, newspaper, and radio. Type of contraceptive method(not using, condom, other modern methods, traditional, and folkloric), recoded from the list of methods; fertility desire (want no more, want more within 2 years, want more after 2 years, undecided, want more, unsure timing, have no partner).

### 2.3. Conceptual Framework

The conceptual framework includes both direct influences on contraceptive use (marriage type) and indirect influences (socio-demographic characteristics through family structure, and through family structure mediated by intervening factors). In order to evaluate the pattern of contraceptive use categorized into used and not used, the conceptual framework examines the distribution of type of contraceptive use among current users among sexually active men age 15-49. The framework also presents an examination of contraceptive use as a direct function of marriage type. This will present a distribution of the pattern of contraceptive use among the different categories by marriage type.

Beyond examining the bivariate relationship between marriage type and contraceptive use, the study also examined the odds of using contraceptives among the respondents in the different categories of marriage type. Furthermore, the indirect influence of marriage type on contraceptive use was examined. Finally, the framework presents a link to determine other factors influencing contraceptive use.

**Figure 3: Conceptual framework showing the direct and indirect influence of family structure on contraceptive use among sexually active men age 15-49 in Nigeria**



## 2.4. Statistical Analysis

Three levels of statistical analysis were employed—univariate, bivariate, and multivariate. The descriptive statistical technique was employed at the univariate level to describe the background characteristics of sexually active men age 15-49 and whether they used contraception or did not use contraception at the last sex. This involved the use of frequencies and percentages and, where necessary, a description of the measures of central tendency and dispersion. Men's sample weights and the STATA survey command (SVY) were applied to adjust for stratified sample design and the effect of oversampling or undersampling of some regions or areas.

Using inferential statistics involved the use of bivariate and multivariate levels of statistical analysis. The Pearson's Chi-square test was employed at the bivariate level to examine the association between the response variable (contraceptive use) and explanatory variables (socio-demographic characteristics, marriage type structure, and intervening factors). A $p<0.05$ was set to establish significance of any association. All tabulations were weighted using the men's sample weight created in the study.

The multivariate level of analysis employed for this study involved the use of binary logistic regression. This is appropriate for a dichotomous outcome variable. For this study, two paths have been specified for examination, namely the unadjusted model (Model 1) and the adjusted models (Model 2 and Model 3). Model 1 examines the relationship between contraceptive use and marriage type. The model is employed to answer the second research question. Model 2 includes marriage type and the intervening variables, while Model 3 includes socio-demographic, marriage type, and intervening factors. Models 2 and 3 were used to explain if there is any statistically significant variation in the odds of contraceptive use among the different categories of marriage type, as a further analysis toward the realization of the second objective. The odds of using contraceptives were examined along with their statistical significance. Categories were taken to be significant if $p<0.05$. Confidence intervals at 95% were also presented. To answer the third research question, other predictor variables (socio-demographic and intervening) that are statistically associated with the outcome variable (contraceptive use) were examined using binary logistic regression.

Tests for collinearity among the predictor variables were examined using the variance inflation factor (VIF). Significantly correlated predictor variables (VIF>0.5) were retained in the logistic model. Predictor variables such as number of living children, living status (whether with a partner or not), and number of sexual partners were excluded from the analysis. Data were analyzed using STATA 12.

# 3. Results

## 3.1. Description of Respondents

This section of the paper presents the background characteristics of the respondents—the sample of sexually active men age 15-49. As Table 1 shows, about a quarter (26%) of respondents were single men, while monogamists and polygamists constituted 62% and 13% respectively. The age distribution of respondents reflects the general age structure of the country—a youthful population. The mean age of respondents was 33.4 years, with a standard deviation of 8.6 years. Seven of every 10 respondents were under age 40.

More than half (57%) of the respondents were from the Northern part of the country, while 43% were distributed among the three Southern parts of the country. Rural residents were a larger proportion than urban residents (58.5% versus 41.5%). By educational attainment, 42% of the respondents had no formal education or had only a primary education, while 41% had a secondary education and 17% a higher education. The percentage distribution by wealth status follows an ascending pattern—the higher the wealth status, the higher the percentage of respondents in the group. Respondents in the poorest category constituted 16% of the sampled population, while the richest group constituted 26% (Table 1).

**Table 1: Percent distribution of sexually active men age 15-49 by background characteristics, Nigeria 2013 DHS (N=11,476)**

| Background characteristics | Percent | Total |
|---|---|---|
| **Marriage type** | | |
| Singlehood | 25.6 | 2935 |
| Monogamous | 61.8 | 7087 |
| Polygamous | 12.7 | 1454 |
| **Age** | | |
| 15-19 | 3.7 | 425 |
| 20-24 | 12.1 | 1384 |
| 25-29 | 18.4 | 2110 |
| 30-34 | 18.7 | 2149 |
| 35-39 | 18.0 | 2049 |
| 40-44 | 14.8 | 1702 |
| 45-49 | 14.3 | 1642 |
| **Educational attainment** | | |
| No education | 23.3 | 2673 |
| Primary | 18.7 | 2147 |
| Secondary | 40.8 | 4682 |
| Higher | 17.2 | 1974 |
| **Place of residence** | | |
| Urban | 41.5 | 4768 |
| Rural | 58.5 | 6708 |
| **Region of residence** | | |
| North Central | 16.4 | 1884 |
| North East | 14.2 | 1623 |
| North West | 26.5 | 3040 |
| South East | 9.2 | 1058 |
| South South | 16.1 | 1848 |
| South West | 17.6 | 2022 |
| **Wealth status** | | |
| Poorest | 16.3 | 1874 |
| Poorer | 17.4 | 1999 |
| Middle | 18.2 | 2083 |
| Richer | 21.8 | 2500 |
| Richest | 26.3 | 3021 |
| **Religion** | | |
| Christianity | 50.7 | 5794 |
| Islam | 48.0 | 5481 |
| Traditional/others | 1.3 | 144 |
| **Occupational status** | | |
| Working | 93.4 | 10648 |
| Not working | 6.6 | 751 |
| **Ethnicity** | | |
| Hausa/Fulani | 28.8 | 3305 |
| Igbo/Ibo | 13.2 | 1518 |
| Yoruba | 14.6 | 1677 |
| Others | 43.4 | 4976 |
| **Children ever born** | | |
| 0 | 30.0 | 3447 |
| 1-2 | 23.1 | 2653 |
| 3-4 | 19.3 | 2213 |
| 5+ | 27.6 | 3163 |

*(Continues…)*

**Table 1–*Continued***

| Background characteristics | Percent | Total |
|---|---|---|
| **Media exposure (TV, radio, newspapers)** | | |
| No exposure | 31.7 | 3655 |
| Exposed | 68.3 | 7867 |
| **Fertility desire[1]** | | |
| Want no more | 8.9 | 1022 |
| Want more within 2 years | 26.5 | 3040 |
| Want more after 2 years | 30.1 | 3448 |
| Want more unsure timing | 5.4 | 619 |
| Undecided | 3.6 | 412 |
| Have no partner(s) | 25.6 | 2935 |
| **Number of living children** | | |
| 0 | 31.0 | 3561 |
| 1-4 | 46.3 | 5311 |
| 5+ | 22.7 | 2604 |
| **Living status** | | |
| Living with partner | 94.2 | 8021 |
| Not living with partner | 5.8 | 495 |
| **Number of sexual partners (excluding spouse)** | | |
| 0 | 70.3 | 8049 |
| 1 or 2 | 24.4 | 2791 |
| 2+ | 5.4 | 617 |
| **Contraceptive use** | | |
| Not using | 70.0 | 8049 |
| Pill | 1.8 | 210 |
| IUD | 0.3 | 38 |
| Injections | 1.5 | 174 |
| Diaphragm | 0.0 | 04 |
| Condom | 20.0 | 2287 |
| Female sterilization | 0.1 | 06 |
| Male sterilization | 0.0 | 01 |
| Periodic abstinence | 2.5 | 282 |
| Withdrawal | 3.1 | 354 |
| Other | 0.5 | 61 |
| Implants/Norplant | 0.2 | 19 |
| Lactational amenorrhea (LAM) | 0.2 | 17 |
| Female condom | 0.0 | 04 |
| Foam or jelly | 0.0 | 02 |
| Other modern method | 0.1 | 14 |

[1] *missing value excluded*

Half of the respondents identified with the Christian faith, while 48% were of the Islamic faith, and 2% followed traditional or other religions. The great majority (93%) of the respondents were working, while the remaining 7% reported not working at the time of the survey. About 7 in every 10 respondents had exposure to the media.

Examining fertility desired, nearly two-thirds (62%) of the sexually active men in Nigeria reported wanting more children, though with variation in timing—27% wanted more children within 2 years of the period of the survey, and 30% wanted more children after 2 years, while 5% were unsure about the timing. As at the time of the survey about a third (30%) of the respondents had no living

children, while more than half (54%) had 1-4 living children. The mean number of living children was about four. The distribution of contraceptive use among the respondents revealed that 7of every 10 (70%) sexually active men did not use contraceptives at last sex, while 30% used at least one of the methods of contraception, as Table 1 shows.

### 3.2. Contraceptive Use at Last Sex

Figure 4 shows that among those who used contraceptives at last sex, the condom was the dominant method, at 66%. Respondents who used traditional methods (withdrawal and abstinence) constituted 18%, and folkloric methods 2%. Respondents who reported the use of other modern contraceptive methods accounted for 14% of total contraceptive use at last sex among the respondents using any contraceptive method. Other modern contraceptive methods include the pill, IUD, injectables, and other methods chosen by women.

**Figure 4: Pattern of contraceptive use at last sex**

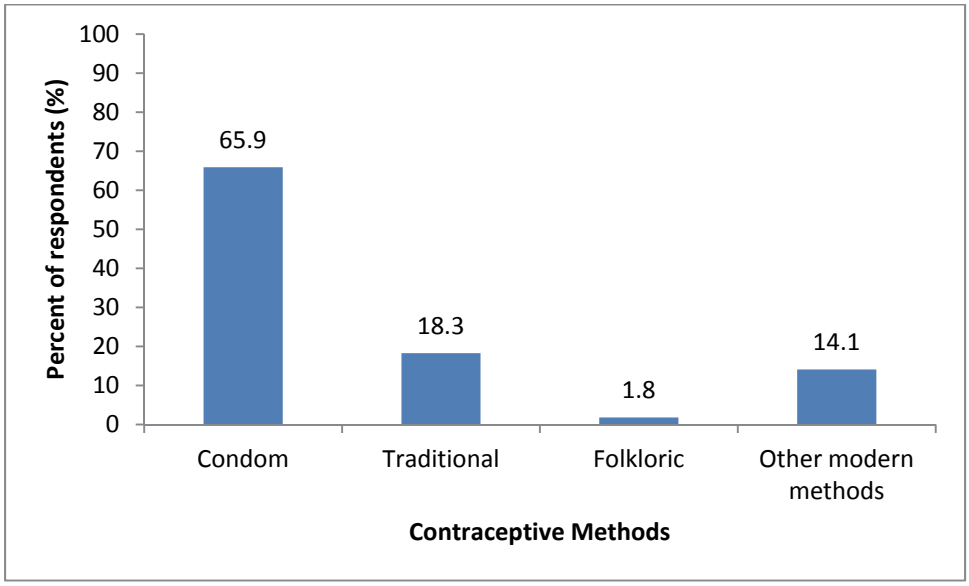
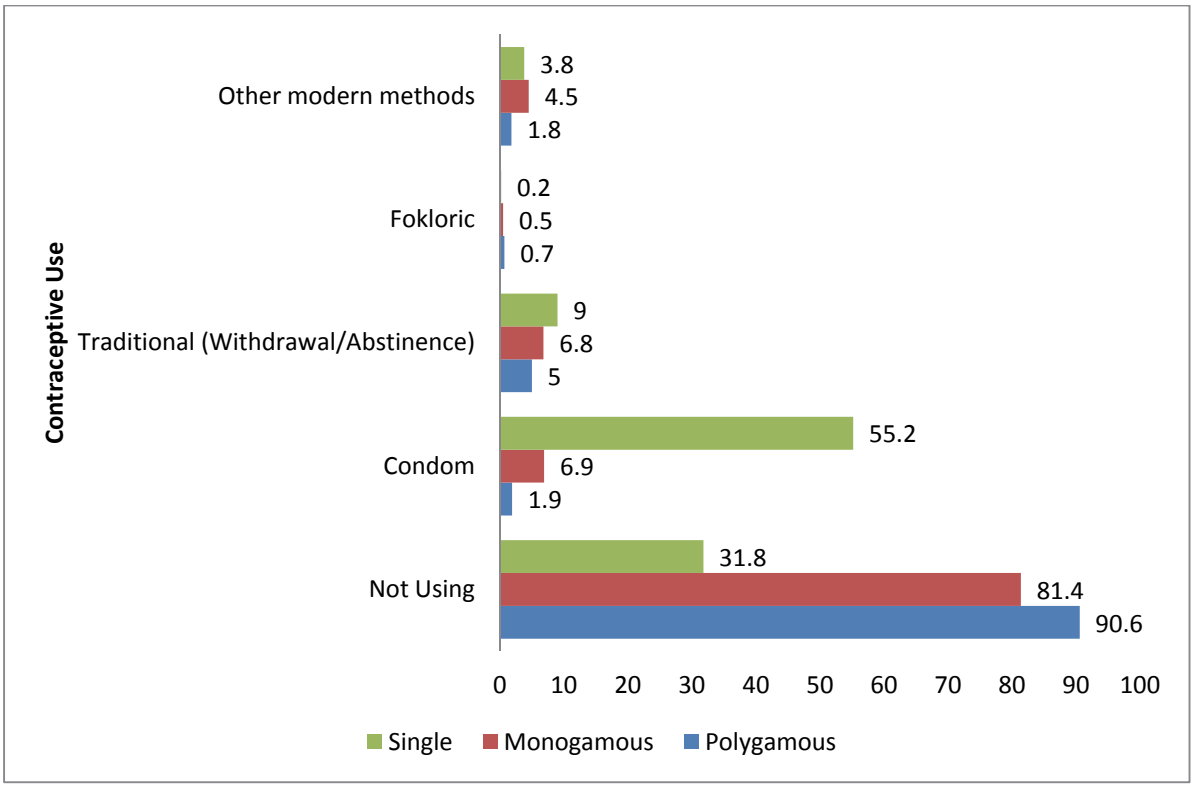



Figure 5 shows the pattern of contraceptive use by marriage type among the sample population. There is a statistically significant relationship ($p<0.05$) between marriage type and contraceptive use. Over half (55%) of unmarried respondents (singles) used condoms. Condom use remains the dominant method of contraception among single persons and monogamists. Polygamists were more likely to use the withdrawal method compared with singles or monogamists. Withdrawal is noted to have the second-highest failure rate (27%), after spermicides (29%) (Understanding Your Risks 2016), and hence the possibility of higher fertility among polygamists. For every 10 polygamists, 9 did not use any method of contraception, while about one-third of singles did not use contraceptives. About 5% of monogamist men reported the use of other modern contraceptive methods.

**Figure 5: Marriage type and contraceptive use at last sex among sexually active men 15-49 in Nigeria, NDHS 2013**




### 3.3. Contraceptive Use at Last Sex by Men's Characteristics

An examination of the contraceptive use by age of respondents revealed a statistically significant association ($p<0.05$) between age and contraceptive use. As age increases, the number of respondents using contraceptives decreases. As Table 2 shows, about one-fifth (19%) of respondents age 45-49 were currently using contraceptives compared with about half (51%) of respondents age 15-19. The level of education had a statistically significant association with contraceptive use. As the level of education increases, the proportion of respondents who are currently using contraceptives increases. Among respondents with no education, only 7% were currently using contraceptives compared with 48% of respondents with tertiary education.

An examination of contraceptive use and wealth status also revealed a statistically significant association. Among respondents in the richest category, 48% were currently using contraceptives compared with 3% in the poorest category. About 70% of respondents in the middle wealth category were not currently using a contraceptive method at the time of the survey. Religious affiliation also had a statistically significant association with contraceptive use. Among respondents who practice Christianity, 44% were currently using contraceptives, while among respondents who belong to the Islamic faith, 16% were currently using contraceptives.

There is a statistically significant association between respondents' occupational status and contraceptive use. Among working respondents 28% were currently using contraception compared with 67% of respondents who were not working at the time of the survey. Region of the country was also found to be statistically significant with contraceptive use among sexually active men age 15-49. South West residents recorded the highest proportion of current contraceptive use, at 47%, while only 10% of respondents in the North East were currently using contraceptives.

Contraceptive use showed a statistically significant association by ethnicity. Less than one-tenth (7%) of Hausa/Fulani respondents were currently using contraceptives. The Yorubas constitute the highest proportion of current users (51%), followed by the Igbos (44%). A statistically significant association exists between media exposure and contraceptive use. Nearly half (45%) of respondents who had media exposure were currently using contraceptives compared with about a quarter (24%) of respondents who were not exposed to media.

There is a statistically significant association between fertility desire and contraceptive use. Respondents who wanted no more children were much more likely to be using contraception compared with those who wanted more children, either within 2 years or after 2 years. Table 2, however, also shows that only about one-third (37%) of respondents who said they wanted no more children were currently using contraceptives. Also, only 17% of men who said they wanted to delay having more children at least 2 years were currently using contraceptives. Thus, a majority of respondents who did not want to have children in the near future, or at all, were not using contraception. This level of unmet need for family planning constitutes a substantial risk factor for unwanted pregnancies, and thus for an increase in fertility beyond the desired level.

**Table 2: Percent distribution of socio-demographic characteristics of sexually active men age 15-49 by contraceptive use at last sex (N=11,476)**

| Background characteristics | Current contraceptive use | Total | p-value |
|---|---|---|---|
| **Marriage type** | | | 0.001 |
| Singlehood | 68.2 | 2935 | |
| Monogamous | 18.6 | 7087 | |
| Polygamous | 9.4 | 1454 | |
| **Age** | | | 0.001 |
| 15-19 | 51.3 | 425 | |
| 20-24 | 52.4 | 1384 | |
| 25-29 | 38.5 | 2110 | |
| 30-34 | 26.4 | 2149 | |
| 35-39 | 22.8 | 2064 | |
| 40-44 | 20.8 | 1702 | |
| 45-49 | 19.0 | 1642 | |
| **Educational level** | | | 0.001 |
| No education | 6.5 | 2673 | |
| Primary | 20.0 | 2147 | |
| Secondary | 40.8 | 4682 | |
| Tertiary | 47.8 | 1974 | |
| **Wealth status** | | | 0.001 |
| Poorest | 3.1 | 1874 | |
| Poorer | 15.5 | 1999 | |
| Middle | 30.1 | 2083 | |
| Richer | 40.2 | 2500 | |
| Richest | 48.4 | 3021 | |
| **Religion** | | | 0.001 |
| Christian | 43.9 | 5794 | |
| Islam | 16.2 | 5481 | |
| Others | 12.7 | 144 | |
| **Occupational status** | | | 0.001 |
| Working | 27.5 | 10648 | |
| Not working | 66.7 | 751 | |
| **Place of residence** | | | 0.001 |
| Urban | 42.8 | 4768 | |
| Rural | 21.1 | 6708 | |
| **Region** | | | 0.001 |
| North Central | 35.2 | 1884 | |
| North East | 9.7 | 1623 | |
| North West | 13.8 | 3040 | |
| South East | 39.3 | 1058 | |
| South South | 45.9 | 1848 | |
| South West | 47.3 | 2022 | |
| **Ethnicity** | | | 0.001 |
| Hausa/Fulani | 7.4 | 3305 | |
| Igbo/Ibo | 44.4 | 1518 | |
| Yoruba | 51.0 | 1677 | |
| Others | 33.8 | 4976 | |
| **Media exposure** | | | 0.001 |
| No | 23.6 | 7934 | |
| Yes | 44.7 | 3542 | |

*(Continues…)*

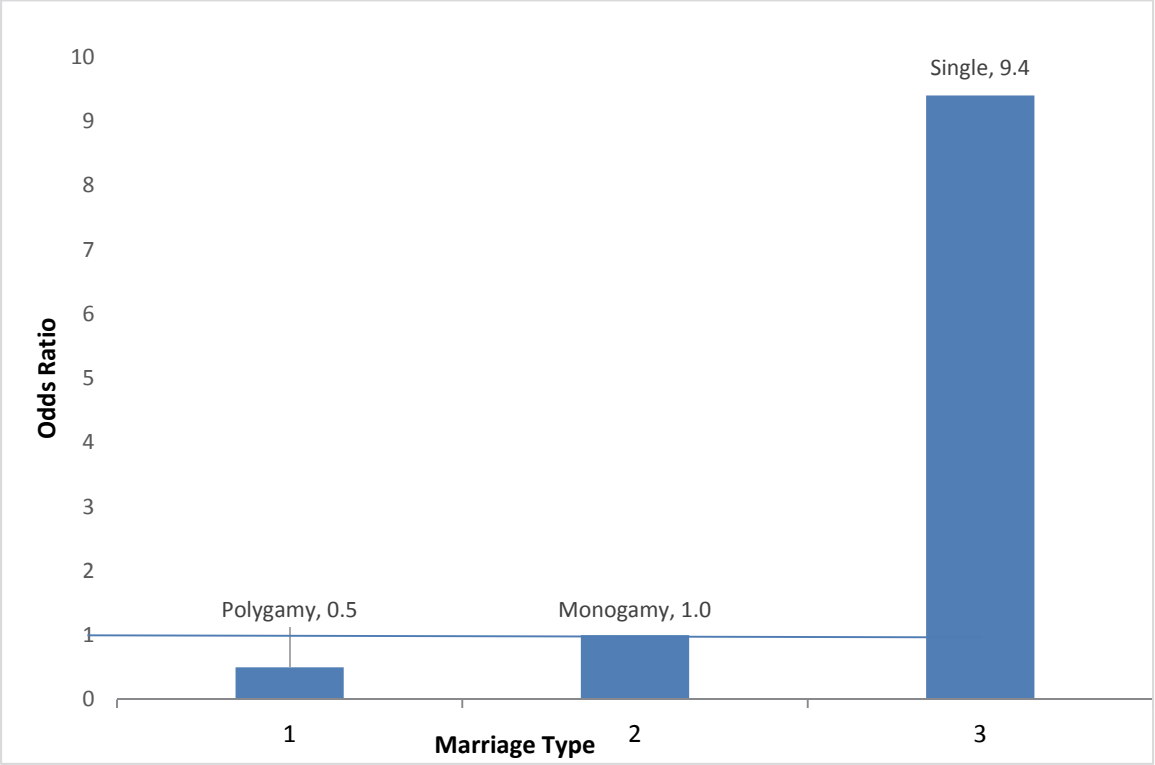
**Table 2–*Continued***

| Background characteristics | Current contraceptive use | Total | p-value |
|---|---|---|---|
| **Number of living children** | | | 0.001 |
| 0 | 53.8 | 1915 | |
| 1-4 | 21.7 | 1150 | |
| 5+ | 15.1 | 393 | |
| **Living status** | | | 0.001 |
| Living with partner | 16.6 | 1328 | |
| Not living with partner | 22.8 | 122 | |
| **Number of sexual partners (excluding spouse)** | | | 0.001 |
| 0 | 15.8 | 1270 | |
| 1 | 63.4 | 1769 | |
| 2+ | 67.1 | 413 | |
| **Children ever born** | | | 0.001 |
| 0 | 55.2 | 1901 | |
| 1-2 | 21.5 | 570 | |
| 3-4 | 22.5 | 498 | |
| 5+ | 15.5 | 490 | |
| **Fertility desire** | | | 0.001 |
| Want no more | 36.9 | 1022 | |
| Want more within 2 years | 9.7 | 3040 | |
| Want more after 2 years | 17.0 | 3448 | |
| Want more unsure timing | 8.4 | 619 | |
| Undecided | 36.1 | 412 | |
| No partner | 68.2 | 2935 | |

## 3.4. Multivariate Analysis

This section presents the results of three logistic models (Table 3). Model 1 shows the unadjusted result of the primary explanatory variable (marriage type) and contraceptive use. The odds ratio for contraceptive use for polygamists was statistically significantly lower (0.5, $p<0.05$) relative to monogamists. The singles, however, had statistically significant higher odds (9.4, $p<0.05$) of using contraceptives relative to monogamists (Figure 6).

**Figure 6: Unadjusted model (Model 1) of contraceptive use on marriage type among sexually active men age 15-49 (N=11,476)**




Model 2 presents the adjusted odds ratios of the selected intervening variables on contraceptive use. In this model the result shows a repeated trend of statistically significant odds ratios between the main explanatory variable (marriage type) and contraceptive use among sexually active men age 15-49, despite the introduction of some selected intervening variables. The odds ratio for contraceptive use by polygamists was still statistically significantly lower (0.5, $p<0.05$) relative to the monogamists. However, the predictive power of contraceptive use for singles declined (from 9.4 to 4.7) relative to monogamists.

**Table 3: Unadjusted and adjusted odds ratios of contraceptive use among sexually active men age 15-49 by selected characteristics in Nigeria (N=11,476)**

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| **Characteristics** | **OR** | **95% CI** | **OR** | **95% CI** | **OR** | **95% CI** |
| **Marriage Type** | | | | | | |
| Monogamous (RC) | | | | | | |
| Singlehood | 9.4** | 8.2 –10.8 | 4.7** | 3.6 – 6.2 | 5.3** | 3.9 – 7.2 |
| Polygamous | 0.5** | 0.3 - 0.6 | 0.5** | 0.4 – 0.7 | 0.7*** | 0.6 – 1.0 |
| **Media exposure (TV, radio, newspapers)** | | | | | | |
| No exposure (RC) | | | - | - | - | - |
| Exposed | | | 2.3** | 2.0 – 2.6 | 1.2*** | 1.0 – 1.3 |
| **Number of sexual partners** | | | | | | |
| 0 (RC) | | | - | - | - | - |
| 1 | | | 3.2** | 2.6 – 4.0 | 2.2** | 1.7 – 2.7 |
| 2+ | | | 3.3** | 2.4 – 4.6 | 2.0** | 1.4 – 2.8 |
| **Children ever born** | | | | | | |
| 0 (RC) | | | - | - | - | - |
| 1-2 | | | 1.3* | 1.0 – 1.6 | 1.2*** | 1.0 – 1.6 |
| 3-4 | | | 1.8** | 1.5 – 2.3 | 1.8** | 1.4 – 2.3 |
| 5+ | | | 1.5** | 1.2 – 1.9 | 2.0** | 1.5 – 2.7 |
| **Age** | | | | | | |
| 15-19 (RC) | | | | | - | |
| 20-24 | | | | | 1.6*** | 1.2 – 2.3 |
| 25-29 | | | | | 1.6* | 1.1 – 2.3 |
| 30-34 | | | | | 1.3 | 0.9 – 1.8 |
| 35-39 | | | | | 1.4* | 1.0 – 2.1 |
| 40-44 | | | | | 1.4 | 0.9 – 2.1 |
| 45-49 | | | | | 1.3 | 0.8 – 2.0 |
| **Education** | | | | | | |
| No(RC) | | | | | - | - |
| Primary | | | | | 1.0 | 0.7 – 1.5 |
| Secondary | | | | | 1.4* | 1.0 – 2.0 |
| Tertiary | | | | | 1.9*** | 1.3 – 2.7 |
| **Wealth status** | | | | | | |
| Poorest (RC) | | | | | - | - |
| Poorer | | | | | 3.4** | 2.2 – 5.5 |
| Middle | | | | | 4.1** | 2.5 – 6.8 |
| Richer | | | | | 4.9** | 3.0 – 7.9 |
| Richest | | | | | 5.2** | 3.2 – 8.7 |
| **Religion** | | | | | | |
| Christian (RC) | | | | | - | - |
| Islam | | | | | 0.9 | 0.7 – 1.1 |
| Others | | | | | 0.3*** | 0.2 – 0.7 |
| **Occupation** | | | | | | |
| Working (RC) | | | | | - | - |
| Not working | | | | | 1.2 | 0.9 – 1.5 |
| **Place of residence** | | | | | | |
| Urban (RC) | | | | | - | - |
| Rural | | | | | 0.7*** | 0.6 - 0.9 |

*(Continues…)*

**Table 3–*Continued***

| | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| **Characteristics** | **OR** | **95% CI** | **OR** | **95% CI** | **OR** | **95% CI** |
| **Region** | | | | | | |
| North Central (RC) | | | | | - | - |
| North East | | | | | 0.4** | 0.3 – 0.6 |
| North West | | | | | 1.2 | 0.9 – 1.8 |
| South East | | | | | 0.5** | 0.4 – 0.7 |
| South South | | | | | 0.8 | 0.7 – 1.1 |
| South West | | | | | 0.8 | 0.6 – 1.1 |
| **Ethnicity** | | | | | | |
| Hausa/Fulani (RC) | | | | | - | - |
| Igbo/Ibo | | | | | 3.2** | 2.0 – 5.1 |
| Yoruba | | | | | 3.7** | 2.3 – 5.8 |
| Others | | | | | 2.3** | 1.5 – 3.5 |
| **Constant** | 0.23 | 0.21 – 0.25* | 0.1 | 0.09 – 0.13 | 0.01** | 0.01 – 0.03 |

RC = reference category; OR = odds ratio; *p<0.01; **p<0.05; ***p<0.10

In Model 3, after controlling for the effects of socioeconomic and demographic characteristics as well as the intervening variables, the result still shows marriage type (the primary independent variable) as a statistically significant predictor of contraceptive use among sexually active men age 15-49 in Nigeria.

# 4. Discussion and Conclusion

## 4.1. Discussion

The study showed that 70% of the respondents (sexually active men age 15-49) did not use any contraception at last sex. Among the 30% of the sample population who used contraception, the condom was the dominant method (66%). This is in line with the findings of Hussain and colleagues (2013) in their study of perception and practice of contraception among male soldiers in Sobi barracks, Ilorin, Nigeria, who found that the condom is the dominant method. Also, Ezeh (1992) reported the dominance of condom use in his study among Ghanaian men.

The study also found that only 4% used another modern method, while 6% percent used either a traditional or folkloric method. There were no significant differences between monogamists and polygamists in the use of contraception. However, the results revealed higher odds for contraceptive use for single sexually active men than for sexually active men practicing either monogamy or polygamy. These findings are consistent with earlier findings and observations by the Alan Guttmacher Institute (1998), Adetunji (2000), and Kabagenyi and colleagues (2014). This finding could be because married men are less likely to feel the need to protect themselves against pregnancy and sexually transmitted infections compared with sexually active single men.

The study also found that age had a statistically significant effect on men's contraceptive use, with higher levels of use at younger and older ages. This finding is in line with a study by Okigbo (2015), who reported that contraceptive use among young men is similar to that of older men. This could be the result of the likelihood of younger men being single, and older men being less likely to want more children than other married men. Respondents' level of education showed a statistically significant positive relationship with contraceptive use. This is similar to findings from other studies (Bawah 2002; Burgard 2004; Guilkey and Jayne 1997; Kradval 2002; Oye-Adeniran et al. 2006; Asekun-Olarinmoye et al. 2013; Kabagenyi et al. 2014).

As observed elsewhere, this study found a strong, statistically significant association between wealth status and use of contraception among sexually active men. The association of wealth status and contraceptive use was direct. This finding is in line with a comparative study by Okigbo (2015) in Nigeria, Kenya, and Senegal and a study by Kabagenyi and colleagues (2014) among sexually active men in Uganda showing that wealth status was a key determinant of men's modern contraceptive use.

Desire for more children was found to be a statistically significant factor influencing contraceptive use among sexually active men. As might be expected, men who wanted no more children had higher odds of contraceptive use than those who desired more children. This finding is supported

by many other studies showing an inverse relationship between desire for more children and use of contraceptives (Caldwell and Caldwell 2000; Mahmood and Ringheim 1999; Stephenson et al. 2007; Uchindi 2001; Yihunie et al. 2013; Bongaarts and Bruce 1995). Similarly, in our study the odds of contraceptive use were higher among sexually active men with more than four children. This finding also is expected, because men with a larger number of children are more likely to want to control their fertility. The studies by Kabagenyiand colleagues (2014) and Okigbo (2015) also found that men who had few children (1–4) had increased odds of using contraception compared with men with no children.

Place of residence was found to be associated with the likelihood of contraceptive use among sexually active men. Rural men had lower odds of contraceptive use compared with urban men. This is also consistent with the studies by Kabagenyi and colleagues (2014) and Okigbo (2015). Access to information, urbanization, and family planning clinics and methods are likely to influence the relationship between place of residence and use of contraceptive.

Furthermore, exposure to mass media was found to be a significant factor in the use of contraception. Men exposed to family planning messages on radio or television, or in newspapers, had higher odds of using contraceptives compared with men with no exposure, a finding supported by Okigbo (2015). Finally, our study found that men from the Yoruba ethnic group had higher odds of contraceptive use than other ethnic groups in Nigeria. This finding is in line with Adeyemi and colleagues (2005), who found that men from the South-Western parts of Nigeria were more likely to use contraception than men from other geo-political zones. The authors observed that the Northern and Eastern parts of Nigeria had a pro-natalist culture that discouraged men from using contraception. Also, differences in the level of education, exposure to mass media, urbanization, and globalization might affect the relationship between ethnicity and contraceptive use among sexually active men in Nigeria.

The study has several limitations. The 2013 DHS dataset employed for the study was obtained from a cross-sectional survey and therefore is limited in establishing causality among the variables. Thus we could not determine causal factors influencing contraceptive use among sexually active men. Efforts were made to examine the statistical significance of association between explanatory variables and contraceptive use, but any interpretation or report in this regard might not represent the correct or actual situation of the country. Also, for certain variables there could be recall bias, which might affect the outcome of the study. The survey also had some limitations as to data quality and accuracy of the level of education of respondents, particularly those with little or no formal education. Also, further checks were performed to reclassify some variables, particularly marriage type. These data lack sufficient information on whether all men who reported being single in the survey had never been married or had been married, before the survey. Finally, because of poor spousal communication, which is prevalent in the African family setting, some respondents

might not have known if their wives were using contraception, and as a result there could be underreporting of contraceptive use.

## 4.2. Conclusion

Although the level of contraceptive use overall is low in Nigeria, this study found wide variation by marriage type in the use of contraceptives among sexually active men. Compared with single sexually active men, married men have much lower odds of contraceptive use, whether or not they practice monogamy or polygamy. Married men are less likely to protect against pregnancy compared with single men, which in turn could lead to higher fertility levels in Nigeria. To further increase use of contraceptives, marriage type should be taken into consideration. Efforts should be made to focus on policies and programs that promote consistent use of contraceptives in Nigeria, particularly among married men.

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