

Trend and Determinants of Unmet Need for Family Planning Services among Currently Married Women and Sexually Active Unmarried Women Aged 15-49 in Nigeria (2003—2013)

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Abstract

This study examines trend and determinants of unmet need for family planning (FP) among currently married women and sexually active unmarried women of reproductive age 15-49 in Nigeria over a period of 10 years (2003-2013). Data from three consecutive Nigeria Demographic and Health Surveys (2003, 2008 and 2013) were analyzed. The results show that the unmet need for FP declined between 2008 and 2013 to a level less comparable with the situation in 2003. The significant determinants of unmet need for FP included age, marital status, education, religion, current work status, decision-making on spending personal earnings, gender of household heads, household wealth status, number of living children (including current pregnancy), rural-urban residence, home visit by FP workers and recent exposure to FP messages via mass media. It is therefore necessary that FP programmers continue to develop specific responses that address the barriers to contraceptive use.

Keywords: Unmet Needs, Family Planning, Women, Nigeria, Trend & Determinants

Résumé

Cette étude a examiné les déterminants de besoins de planification familiale (PF) parmi les femmes mariées et les femmes célibataires sexuellement actives (15-49 ans) au Nigeria entre 2003 et 2013. L'analyse des résultats montrent que les besoins en matière de PF ont diminué entre 2008 et 2013 par rapport à 2003. Les déterminants les plus importants sont l'âge, l'état matrimonial, l'éducation, la religion, le statut de travail actuel, la prise de décision dépenser les revenus personnels, le sexe du chef du foyer, l'état de la richesse des ménages, nombre des enfants vivant, résidence rurale - urbaine, visite à domicile par les travailleurs de PF et l'exposition aux messages de PF via les médias de masse. En conclusion, programmeurs PF continuent à élaborer des réponses spécifiques qui répondent aux barrière de contraception.

Mots clés: besoins, planification de la famille, déterminants

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Introduction

Achievement of desired number and healthy timing of births has important benefits for women, families, and societies (Darroch and Singh, 2013), especially in the area of health, population growth and development (Pallikadavath and Stones, 2006). Meeting unmet need for FP has immense potential for costs saving in most countries in education and maternal health and in averting maternal death during childbirth by reducing the number of pregnancies and induced abortions (Moreland and Talbird, 2006). Also, simply meeting unmet need for FP could go a long way towards lowering fertility (UNFPA, 2013). Recent evidence shows that serving all women in developing countries who currently have an unmet need for modern methods would prevent an additional 54 million unintended pregnancies, including 21 million unplanned births, 26 million abortions (of which 16 million would be unsafe) and seven million miscarriages; this would also prevent 79,000 maternal deaths and 1.1 million infant deaths (Singh and Darroch, 2012). Slowing population growth by addressing unmet need for contraception as part of reproductive health programmes that respect and protect human rights would also help ease pressures on biodiversity while empowering women and their families (Population and Sustainability Network [PSN], 2012). In spite of these huge health and economic benefits, contraceptive use remains low in countries with high fertility, most of which are located in sub-Saharan Africa (SSA)—where contraceptive prevalence averages at 22% and social norms still favour large families. Ironically, many of these countries have policies to lower fertility (UN Department of Economic and Social Affairs, 2007).

Globally, the number of women wanting to avoid pregnancy and therefore needing effective contraception increased substantially, from 716 million (54%) of 1321 million in 2003, to 827 million (57%) of 1448 million in 2008, and to 867 million (57%) of 1520 million in 2012. Most of this increase (108 million) was attributable to population growth (Darroch and Singh, 2013). At present, over 200 million women particularly in the developing world are said to have desire to delay or prevent pregnancy, but are not using effective or modern method of contraception (Bongaarts et al., 2012, UNFPA, 2013). Unmet need in sub-Saharan Africa is high, with nearly three of every 10 sub-Saharan women—over 30 million women in total—having unmet need for modern contraception. In West Africa, average unmet need for modern contraception is 34%, and in East and Southern Africa it is 31%. Nineteen of the 31 sub-Saharan African countries, including Senegal, Ethiopia, Malawi, Uganda and Zambia, have levels of unmet need for modern contraception between 30% and 40%, and six countries—Congo, Gabon, Ghana,

Comoros, Togo and Rwanda—have levels that exceed 40%. In contrast to other regions, which have seen levels of unmet need for modern contraception fall, there has been little or no reduction in this unmet need during the past decade in sub-Saharan Africa.

Given the fact that FP funding has until very recently been limited and in SSA, focused on a few highly populous countries including Nigeria, Ethiopia, and Tanzania (The William and Flora Hewlett Foundation and Redstone Strategy Group LLC, 2008) and understanding how levels of unmet need change over time can help countries set service priorities right (Cleland et al., 2006, UNFPA and PATH, 2008); it is necessary to understand the distribution of unmet needs of FP among women in a country like Nigeria which has a currently estimated population of about 177 million people, about 2.5% population growth rate and a total fertility rate (TFR) of 5.5 children born per woman (The Central Intelligence Agency, 2013). The country's TFR which was 5.9 according to the 1991 Census, declined slightly to 5.7 in 2003 and 2008, and further to 5.5 in 2013; while at the same time, contraceptive prevalence among currently married women in the country increased from 6.0% in 1990 to 12.6% in 2003, 14.6% in 2008 and finally to 15.1% in 2013 (National Population Commission (NPC) [Nigeria] and ICF International, 2014). A recent survey in Nigeria still shows that 16.1% (Spacing—11.9% and Limiting—4.2%) of currently married women and 12.7% (Spacing—9.7% and Limiting—3.1%) of all women have unmet need for FP (National Population Commission (NPC) [Nigeria] and ICF International, 2014). The population groups currently known to be at high risk of unmet need for FP in Nigeria include women in the North Central zone, unmarried women, women with a primary education or no education, and women in the middle and fourth wealth quintiles (National Population Commission (NPC) [Nigeria] and ICF International, 2014).

This study was therefore conducted to examine the trend and determinants of unmet need for FP among currently married women and sexually active unmarried women of reproductive age 15-49 in Nigeria over a period of 10 years (2003-2013).

Literature review and Theoretical framework

This study was based on the theoretical postulation that unmet need for FP among women of reproductive age is a function of demographic and socio-economic factors, place of residence, knowledge of FP methods, fertility-related factors and exposure to FP-related interventions.

Demographic and Socio-economic Factors

Many studies have identified quite a number of demographic and socio-economic factors as significant

determinants of unmet need for FP among women. These include age (Hailemariam and Haddis, 2011, Ojaka, 2008, Gardella, 2006), marital status (Westoff, 2006), educational status (Acacio-Claro and Borja, 2010, Ali and Okud, 2013, Arshad and Masood, 2010, Ojaka, 2008, Westoff, 2006, Westoff, 2012), religion (Al-Jawadi and Al-Bakry, 2010, Mills et al., 2010, Westoff, 2012), occupation (Ali and Okud, 2013, Ojaka, 2008), inequalities and household wealth (Health Policy Initiative Task Order I Constella Futures, 2007, Mills et al., 2010, Ojaka, 2008, Westoff, 2012), household headship (male or female), women's autonomy, etc. Findings on age as determinant of unmet need among women are equivocal; in some studies (United Nations, 2011, Ojaka, 2008), unmet need was found to be more prevalent among younger women including adolescent women, while in others (Klijzing, 2000, Gardella, 2006, Hameed et al., 2011), it was more prevalent among older adult women. Marital status could also determine unmet need for FP among women. A study revealed that in Hungary, unmet need was higher among those in marital unions than among those in less formal relationships (Klijzing, 2000). Opposition from husbands or partners (Khan Shane et al., 2008, Westoff, 2012) could also make currently married/cohabiting women more likely to have higher unmet need for FP than the never married women. However, the relationship between unmet need for FP and marital status is also not clear in the literature. Unmarried women are often excluded in the statistics, because it is difficult to collect reliable information (Casterline and Sinding, 2000, Westoff, 2006). There are several problems in measuring the unmet need for FP of unmarried women, which range from the uncertain quality of the reports on sexual activity and on its timing, especially among unmarried teenagers, to the assumption that unmarried women who report sexual activity but no contraceptive use are necessarily averse to the idea of becoming pregnant, an assumption that seems reasonable for most but certainly not for all such women (Westoff, 2006) and the great barriers to services faced by unmarried young people (Bernstein and Edouard, 2007). It is believed that available statistics on unmet need for FP might understate the true demand for FP among unmarried women (Kols, 2008) perhaps because of women who are not sexually active. Confining estimates to sexually active women also runs the risk of overestimation of unmet need because these women are not all trying to avoid pregnancy (Westoff, 2006). However, global evidence emerging from studies shows that there have been declines in unmet need among unmarried sexually active women (Westoff, 2012, Westoff, 2006).

With respect to educational status, findings from previous studies have shown that educational level

plays an important role in shaping unmet need for FP (Hailemariam and Haddis, 2011, Acacio-Claro and Borja, 2010, Ali and Okud, 2013, Ojaka, 2008). While in Eastern Sudan, higher education among women and their husbands was found to have significant association with having unmet need for FP (Ali and Okud, 2013); in Ethiopia on the contrary, women with unmet need for both spacing and limiting were found more likely to have lower levels of education (Hailemariam and Haddis, 2011). Evidence from Philippines also shows that educational status could modify the association between attitude and unmet need for FP even after controlling for the effects of age, the number of living children, knowledge and access to family planning services; as no association was found between attitude and unmet need among women with higher education, unlike among those with low education (Acacio-Claro and Borja, 2010). Generally in SSA, most of the declines in unmet need are among women with some education, particularly beyond the primary school level (Westoff, 2006).

Religion also significantly shapes unmet need for FP among women. Studies (Mills et al., 2010, Al-Jawadi and Al-Bakry, 2010, Westoff, 2012) have identified religious beliefs among the main reasons offered by women with unmet need for not using modern contraception (Westoff, 2012). Looking at occupation, findings from studies in Ethiopia (Hailemariam and Haddis, 2011), Kenya (Ojaka, 2008) and Eastern Sudan (Ali and Okud, 2013) show that unmet need decreases with women's employment. For instance, housewives in Eastern Sudan (Ali and Okud, 2013) and women with no work other than household chores in Ethiopia (Hailemariam and Haddis, 2011) were significantly more likely to have unmet needs. The effect of inequality, poverty and wealth on unmet need is also widely discussed in the literature. There is evidence that in a given country, the poor may tend to experience higher levels of unmet need for family planning as their desire to limit or space births increases, while wealthier groups experience diminishing unmet need due to their rising FP use (Health Policy Initiative Task Order I Constella Futures, 2007). In some countries such as Benin, Chad, Mali, and Nigeria, women in the wealthiest quintile have higher unmet need than the women in lower quintiles, whereas in other countries such as Bolivia, Ghana, Togo, and Zimbabwe, the patterns are reversed (Mills et al., 2010). According Mills et al., the reasons for these patterns are essentially the same as for differences among countries at different stages of fertility decline because countries in which unmet need increases with increasing wealth tend to be in the earlier stages of declining desired family size, which declines first in urban areas, among more educated women, and among wealthier households. As family

planning programs and other providers are at first not able to meet the increased demand for contraceptives or address concerns about health and side effects, unmet need increases in the wealthier quintiles, while it remains low in the poorest quintiles where demand for family planning remains low.

Household headship may also influence unmet need for FP among women. Expectedly, in female-headed households, women could talk more easily with female head of a household about their reproductive health challenges and female household heads could better understand female health problems, and thus encourage women to visit health facilities (Adhikari and Podhisita, 2010). In fact, a study in Sri Lanka found that women in female-headed households used health services more frequently than did those in male-headed ones (Wickrama, 1990). Also, women's autonomy in decision making or control over household resources (ability to keep money aside) has been described as having a significant positive effect on women's demand for and utilization of health products and services such as contraceptives, prenatal and perinatal care services among others (Maitra, 2004, Adhikari and Podhisita, 2010, Dyson and Moore, 1983).

Place of Residence

The two widely used indicators in the literature for place of residence are region of residence and urban-rural residence. A number of studies (Hailemariam and Haddis, 2011, Khan Shane et al., 2008, Arshad and Masood, 2010) have linked these two indicators with differentials in unmet need for FP. For example, two of these studies found both unmet need for spacing and limiting to be higher in rural areas (Arshad and Masood, 2010, Hailemariam and Haddis, 2011); and another in Uganda, found the levels of unmet need to be much higher among women living in the Northern region than in the South.

Knowledge of FP methods

Intuitively, knowledge of FP methods would readily come to mind as a determinant of unmet need for FP. Evidence from literature also corroborates this line of thought (Hailemariam and Haddis, 2011, Prata, 2009). A cross-sectional study conducted in Mosul City, North of Iraq identified lack of knowledge as one of the most important reasons for unmet need (Al-Jawadi and Al-Bakry, 2010). It was similarly found in Ethiopia that women with unmet need for both spacing and limiting were more likely to have lower knowledge level on family planning methods (Hailemariam and Haddis, 2011).

Exposure to FP-related interventions

Exposure to FP related interventions includes contact with FP providers, exposure to FP information through media, peer groups, school, or community leaders, health insurance scheme, etc. (Hailemariam and Haddis, 2011, Ojaka, 2008, National Population

Commission [NPC] and ICF Macro, 2009, Dutta Arin and Charles Hongoro, 2013) Conclusions ensuing from a few studies in SSA however differ on if exposure to FP-related interventions triggers unmet need or not. For example, a study in Ethiopia revealed that women with unmet need for both spacing and limiting were more likely to have never been visited by a family planning worker (Hailemariam and Haddis, 2011), while in Kenya, contact with health services was significantly linked to unmet need for FP with the implication that contact with health services generates demand for FP but often does not meet this demand (Ojaka, 2008). Interestingly, a cross-country study found that media messages promoting FP seem less important except in West and Middle Africa and in poorer countries elsewhere (Westoff, 2012).

An author (Prata, 2009) suggested four critical steps that should be taken to increase access to FP in resource-poor settings. Of these steps, three [(i) to ensure that contraception is genuinely affordable to the poorest families; (ii) to ensure supply of contraceptives by making family planning a permanent line item in healthcare systems' budgets and (iii) to take immediate action to remove barriers hindering access to FP methods] are core components of health insurance schemes. Health insurance can be a good mechanism for pooling resources in advance for covering the costs, and potentially a financially sustainable way of covering a large number of people, especially when the costs also involve less frequent and more expensive health services, such as those requiring hospitalization (Dutta Arin and Charles Hongoro, 2013). In Nigeria, one of the benefits of health insurance (i.e. the National Health Insurance Scheme) is preventive care, which includes family planning (Adesina, 2009).

Fertility-Related Factors

A number of studies have also shown that changes in unmet need can be influenced by a variety of factors related to fertility preferences (Sharan et al., 2011) and parity (Hailemariam and Haddis, 2011, Igwegbe et al., 2009, Khan Shane et al., 2008, Ojaka, 2008). Looking at studies from both Uganda and Kenya, total unmet need was unequivocally found to be higher among women with a higher number of living children (Khan Shane et al., 2008, Ojaka, 2008).

Data and Methods

Study Design and Data

This study was based on secondary analysis of the data from three consecutive Nigeria Demographic and Health Surveys (NDHS) conducted in 2003, 2008 and 2013. The Nigeria Demographic Health Surveys are nationally representative surveys of women aged 15-49 and men aged 15-59. The data are intended to

furnish programme managers and policymakers with detailed public health information.

The study population comprised currently married women and sexually active unmarried women (i.e. unmarried women who have had sexual intercourse within 30 days preceding the survey) aged 15-49 who were fecund, pregnant or amenorrhoeic. The three survey datasets primarily contain individual sampling weights for women, which were obtained by further correction for women's individual nonresponse based on household sampling weights (National Population Commission (NPC) [Nigeria] and ICF International, 2014). The datasets were pooled and thus comprised 4448 respondents from the 2003 NDHS, 20936 respondents from the 2008 NDHS and 23825 respondents for the 2013 NDHS.

Key Variables

There were three dependent variables in this study, namely unmet need for spacing, unmet need for limiting and total unmet need for FP. In the NDHS (National Population Commission (NPC) [Nigeria] and ORC Macro, 2003, National Population Commission [Nigeria], 2000, National Population Commission [NPC] and ICF Macro, 2009), women who indicate that they either want no more children (limiters), or want to wait for two or more years before having another child (spacers), but are not using contraception, are categorized as having an unmet need for FP. Pregnant women are considered to have unmet need for spacing or limiting if their pregnancy was mistimed or unwanted, respectively. Similarly, amenorrhoeic women are classified as having unmet need if their last birth was mistimed or unwanted. Women with unmet need for FP and those who are currently using contraception together constitute the total demand for FP. This information is important not only to determine the total demand for FP but to measure the percentage of that demand satisfied.

The independent variables were: age, marital status, educational status, religion, current work status, decision-making on spending of personal earnings, gender of household headship, household wealth index, number of living children (including current pregnancy), rural-urban place of residence,

north-south region, knowledge of a modern FP method, visit to health facilities in the last 12 months, visit from FP workers in the last 12 months, been told of FP at health facilities in the last 12 months, and been exposed to FP messages via mass media in the last few months. The selection of the independent variables was informed by their documented significant association with unmet need for FP in the literature and their availability in the dataset.

Statistical analysis

The data were first summarized with percentages. Thereafter, bivariate analysis was conducted using chi-square test to assess the association between the dependent variables and the independent variables within and across the three survey years. All the independent variables including the survey years were further subjected to multivariate analysis using enter method to identify the significant determinants of unmet need for FP while controlling for the extraneous influence of the survey years using a pooled dataset. Log-binomial regression model was used for the multivariate analysis to obtain the prevalence ratio (PR) with 95% Confidence Intervals (CI). All analyses were conducted on weighted (individual sampling weights for women) data. Stata/SE 11.0 for Windows (StataCorp LP, 2009) was used for the analyses.

Results

General description of the study population

Table 1 presents information about the study population. Generally across the three survey years, over 60% of the study population were aged 25-49 years; majority (>90%) were currently married, more than half had had any formal education and at least 50% were Muslims. Also, about two-third of the study population were currently working and not less than one-third admitted having autonomy to take decision on spending personal earnings. Majority (>80%) of the women resided in male-headed households and about two-fifth resided in poor households. Over 50% of the women had three or more living children. Also, about two-third of the respondents were rural dwellers and more than half resided in the Northern regions of Nigeria.

Table I. Respondents' distribution according to some demographic and socio-economic characteristics

| Variables | Year 2003 % | Year 2008 % | Year 2013 % |
|--|----------------------------|----------------------------|----------------------------|
| Age | | | |
| 15-19 | 13.1 | 10.6 | 10.3 |
| 20-24 | 21.5 | 19.5 | 19.3 |
| 25-49 | 65.4 | 69.9 | 70.4 |
| Marital status | | | |
| Never in union | 5.9 | 6.4 | 5.4 |
| Currently in union/cohabiting | 93.0 | 92.8 | 93.9 |
| Formerly in union/cohabiting | 1.1 | 0.8 | 0.7 |
| Educational status | | | |
| No education | 46.8 | 41.6 | 43.7 |
| Primary | 22.2 | 21.3 | 18.7 |
| Secondary | 25.4 | 28.8 | 29.2 |
| Higher | 5.5 | 8.3 | 8.4 |
| Religion | | | |
| Catholic Christians | 11.2 | 9.4 | 9.3 |
| Non catholic Christians | 30.6 | 37.8 | 32.1 |
| Muslims | 56.8 | 50.7 | 57.1 |
| Traditional & others | 1.3 | 2.1 | 1.5 |
| Currently working | | | |
| No | 37.3 | 34.5 | 31.8 |
| Yes | 62.4 | 64.9 | 67.7 |
| No response | 0.3 | 0.6 | 0.5 |
| Decision-making on spending personal earnings | | | |
| Not autonomous | 15.5 | 17.3 | 18.2 |
| Autonomous | 39.8 | 35.3 | 42.8 |
| No response | 44.7 | 47.4 | 39.0 |
| Type of household | | | |
| Male-headed | 90.0 | 88.1 | 89.2 |
| Female-headed | 10.0 | 11.9 | 10.8 |
| Household wealth status | | | |
| Poor | 39.6 | 41.5 | 41.7 |
| Average | 20.1 | 18.0 | 18.1 |
| Rich | 40.3 | 40.5 | 40.2 |
| Number of living children (including current pregnancy) | | | |
| 0-1 | 30.3 | 27.5 | 26.4 |
| 2 | 16.5 | 16.7 | 16.2 |
| ≥3 | 53.2 | 55.8 | 57.4 |
| Residence | | | |
| Urban | 32.0 | 33.2 | 38.1 |
| Rural | 68.0 | 66.8 | 61.9 |
| Region | | | |
| Northern | 65.6 | 56.0 | 63.8 |
| Southern | 34.4 | 44.0 | 36.2 |
| Number of women | 4448 | 20936 | 23825 |

% weighted estimate

According to Table 2, the proportions of women with knowledge of modern FP method in each year were quite high (>70%). In 2003, about 40% of the women visited health facilities in the last 12 months,

while in 2008 and 2013, the proportions reduced to 27% and 30% respectively. Few (6%) of the women were visited by FP workers in 2003 and 2008 respectively; however, 2013, the proportion increased

to 11%. Also in 2003, 2008 and 2013, about one in 10 admitted to have been told of FP at health facilities in the last 12 months. Exposure to FP interventions via the three mass media was relatively low; more than 50% of the women never had exposure to FP messages via mass media in the last few months.

The level of unmet need for spacing among the women in 2003 was 16.3%; however, it increased to

18.9% in 2008, but declined to 14.6% in 2013. Unmet need for limiting among the women was 6% in 2003 and remained the same till 2008; the estimate however declined to 4.5% in 2013. The total unmet need for FP among the women, which increased from 22.3% in 2003 to 24.9% in 2008, declined to 19.1% in 2013 (Table 2).

Table 2. Respondents' knowledge of FP and exposure to FP interventions in the last 12 months

| Variables | Year 2003 | Year 2008 | Year 2013 |
|---|------------------|------------------|------------------|
| | % | % | % |
| Knowledge of modern FP method | | | |
| No knowledge | 18.5 | 28.0 | 13.8 |
| Knowledge of folkloric/traditional | 2.2 | 1.4 | 1.4 |
| Knowledge of modern FP methods | 79.2 | 70.6 | 84.8 |
| Visited health facilities in the last 12 months | | | |
| No | 59.9 | 72.7 | 69.9 |
| Yes | 40.0 | 26.8 | 29.6 |
| No response | 0.1 | 0.6 | 0.5 |
| Visited by FP worker in the last 12 months | | | |
| No | 94.0 | 93.6 | 88.3 |
| Yes | 5.9 | 5.8 | 11.1 |
| No response | 0.1 | 0.6 | 0.5 |
| Told of FP at health facilities in the last 12 months | | | |
| No | 29.0 | 15.9 | 16.4 |
| Yes | 10.9 | 10.3 | 12.8 |
| No response | 60.1 | 73.8 | 70.8 |
| Exposed to FP messages via mass media in the last few months | | | |
| No | 55.9 | 57.6 | 64.4 |
| Yes | 44.1 | 42.4 | 35.6 |
| Unmet need for spacing | | | |
| No | 83.7 | 81.1 | 85.4 |
| Yes | 16.3 | 18.9 | 14.6 |
| Unmet need for limiting | | | |
| No | 94.0 | 94.0 | 95.5 |
| Yes | 6.0 | 6.0 | 4.5 |
| Total unmet need for FP | | | |
| No | 77.7 | 75.1 | 80.9 |
| Yes | 22.3 | 24.9 | 19.1 |
| Number of women | 4448 | 20936 | 23825 |

% weighted estimate

Factors associated with unmet need for spacing

In Table 3, the chi-square test identified respondents' age, marital status, educational status, current work status, decision-making on personal spending personal earning and number of living children (including pregnancy) as factors having significant association ($p < 0.05$) with unmet need for spacing consistently in each of the three survey years.

Unmet need for spacing also changed significantly ($p < 0.05$) across the years for almost all sub-groups of respondents with exception of those who were Catholic Christians.

However, the multivariate model in Table 4 clearly shows that the estimate of unmet need for spacing in 2008 was higher than the estimate in 2003; while unmet need for spacing in 2013 was lower than the

estimate in 2003. After controlling for the influence of the survey years, the model shows that women aged 25-49 were less likely to have unmet need for spacing compared to those aged 15-19; and those currently married and formerly married were less likely to have unmet need for spacing than those never married. Furthermore, those currently working were less likely to have unmet need for spacing than those not currently working; those in Southern Nigeria were also less likely to have unmet need for spacing than those in the Northern region; those with knowledge of FP (Folkloric/traditional or modern methods) were less likely to have unmet need for spacing than those with no knowledge of FP; those visited by FP worker(s) in the last 12 months were also less likely to have unmet need for spacing than those not visited; and those exposed to FP messages via mass media in the last few months were less likely to have unmet need for spacing than those not exposed.

At the same time, the model also shows that those with primary and secondary education respectively were more likely to have unmet need for spacing than those with no formal education; those who had autonomy to take decision on spending personal earnings were more likely to have unmet need for spacing than those with no autonomy; those from average and rich households respectively were more likely to have unmet need for spacing than those from poor households; those having two or more children were more likely to have unmet need for spacing than those with one or no child; and the rural dwellers were more likely to have unmet need for spacing than the urban dwellers.

Factors associated with unmet need for limiting

The chi-square test in Table 3 also identified age, marital status, educational status, religion, current work status, decision-making on spending personal earning, number of living children (including pregnancy), region and knowledge of modern FP as factors having consistently significant association with unmet need for limiting in each of the years under review. Unmet need for limiting also changed significantly across the years in some subgroups of the study population, with exception of women who were formerly married/cohabiting; women with primary school education; women with no autonomous decision-making on spending personal earning; women in female headed households; women with two living children (including pregnancy); women with knowledge of folkloric/traditional FP methods only; and women who were never told of FP at health facilities.

Looking at the multivariate model in Table 4, unlike 2008 estimate, the estimate of unmet need for limiting in 2013 was lower than it was in 2003. After controlling for the influence of the survey years, the model shows that women aged 20-24 were less likely

to have unmet need for limiting compared to those aged 15-19; those with secondary and higher education respectively were less likely to have unmet need for limiting than those with no formal education; all those who were non-Catholic Christians were less likely to have unmet need for limiting than the Catholic Christians; and those who were told of FP at health facilities were less likely to have unmet need for limiting than those who were never told.

The multivariate model likewise shows that those currently working among the women were more likely to have unmet need for limiting than those not currently working; those residing in female-headed households were also more likely to have unmet need for limiting than those in male-headed households; those from average and rich households were more likely to have unmet need for limiting than those from poor households; those having two or more children were more likely to have unmet need for spacing than those with one or no child; those in Southern Nigeria were also more likely to have unmet need for limiting than those in the Northern region; and those with knowledge of modern FP were more likely to have unmet need for limiting than those with no knowledge of FP.

Factors associated with total unmet need for FP

Quite a few independent variables consistently showed significant associations with total unmet need for FP in each of the three years under review. The identified variables by chi-square test included respondents' age, educational status and number of living children (including pregnancies). In almost all the subgroups of the study population, total unmet need for FP changed significantly ($p < 0.05$) across the years except among women who were formerly married/cohabiting; and women with traditional religion or religion other than Christianity and Islam.

However in the multivariate model contained in Table 4, total unmet need for FP among the women in 2008 was slightly higher than the estimate in 2003, but lower than the estimate in 2013. After controlling for influence of the survey years, the model for total unmet need for FP shows that both women of ages 20-24 and 25-49 respectively were less likely to have unmet need for FP than those aged 15-19; both currently married/cohabiting women and those formerly married were also less likely to have unmet need for FP than those who were never married; and those with higher education were also less likely to have total unmet need for FP than those with no formal education. In addition, only the Muslims among the women were less likely overall to have unmet need for FP than the Catholic-Christians; those currently working were also less likely to have unmet need for FP for spacing and limiting than those not currently working; those visited by FP worker(s) in the last 12 months were less likely to have unmet need for

FP overall than those not visited; and those exposed to FP messages via mass media in the last few months were less likely to have total unmet need for FP than those not exposed.

On the other hand, those with primary education among the women were more likely on the whole to have unmet need for FP than those with no education; those with autonomy to take decision on spending personal earnings were more likely overall to have

unmet need for FP than those with no autonomy; women from female-headed households were more likely overall to have unmet need for FP (for spacing and limiting) than those from male-headed households; those from average and rich households respectively were more likely than those from poor households; and the rural dwellers among the women were more likely than their counterparts in the urban areas.

Table 3. Prevalence of unmet need for FP disaggregated by the selected characteristics across the years

| | Unmet need for Spacing | | | | Unmet need for Limiting | | | | Total unmet need | | | |
|--|------------------------|-----------------|-----------------|-----------------|-------------------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | Year | Year | Year | | Year | Year | Year | | Year | Year | Year | |
| | 2003 | 2008 | 2013 | | 2003 | 2008 | 2013 | | 2003 | 2008 | 2013 | |
| Age (years) | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> =0.021 | <i>p</i> =0.001 | <i>p</i> <0.001 | |
| 15-19 | 21.2 | 23.7 | 17.3 | <i>p</i> <0.001 | 0.5 | 0.5 | 0.0 | <i>p</i> =0.011 | 21.7 | 24.2 | 17.4 | <i>p</i> <0.001 |
| 20-24 | 18.7 | 22.2 | 16.2 | <i>p</i> <0.001 | 0.5 | 0.6 | 0.2 | <i>p</i> =0.015 | 19.2 | 22.9 | 16.5 | <i>p</i> <0.001 |
| 25-49 | 14.5 | 17.3 | 13.8 | <i>p</i> <0.001 | 8.9 | 8.4 | 6.3 | <i>p</i> <0.001 | 23.4 | 25.6 | 20.0 | <i>p</i> <0.001 |
| Marital status | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> =0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> =0.125 | |
| Never in union | 40.2 | 29.8 | 20.2 | <i>p</i> <0.001 | 0.7 | 0.7 | 0.1 | <i>p</i> =0.040 | 41.0 | 30.4 | 20.3 | <i>p</i> <0.001 |
| Currently in union/cohabiting | 14.6 | 18.2 | 14.3 | <i>p</i> <0.001 | 6.3 | 6.3 | 4.7 | <i>p</i> <0.001 | 21.0 | 24.5 | 19.0 | <i>p</i> <0.001 |
| Formerly in union/cohabiting | 27.5 | 12.0 | 14.4 | <i>p</i> =0.026 | 5.9 | 14.6 | 9.4 | <i>p</i> =0.147 | 34.6 | 26.1 | 23.9 | <i>p</i> =0.301 |
| Educational status | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | |
| No education | 14.3 | 19.9 | 15.0 | <i>p</i> <0.001 | 5.3 | 5.0 | 3.4 | <i>p</i> <0.001 | 19.5 | 24.9 | 18.4 | <i>p</i> <0.001 |
| Primary | 17.7 | 18.3 | 15.1 | <i>p</i> <0.001 | 8.7 | 9.2 | 8.0 | <i>p</i> =0.111 | 26.5 | 27.5 | 23.1 | <i>p</i> <0.001 |
| Secondary | 20.1 | 20.1 | 15.1 | <i>p</i> <0.001 | 4.7 | 5.4 | 4.2 | <i>p</i> =0.006 | 24.9 | 25.5 | 19.3 | <i>p</i> <0.001 |
| Higher | 9.0 | 11.9 | 9.4 | <i>p</i> =0.025 | 7.4 | 5.0 | 3.3 | <i>p</i> =0.001 | 16.4 | 16.9 | 12.6 | <i>p</i> =0.001 |
| Religion | <i>p</i> =0.005 | <i>p</i> <0.001 | <i>p</i> =0.346 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> =0.055 | <i>p</i> <0.001 | |
| Catholic Christians | 17.5 | 15.9 | 14.0 | <i>p</i> =0.078 | 10.0 | 9.3 | 6.4 | <i>p</i> <0.001 | 27.5 | 25.2 | 20.4 | <i>p</i> <0.001 |
| Non catholic Christians | 18.1 | 18.3 | 14.2 | <i>p</i> <0.001 | 9.0 | 7.7 | 6.8 | <i>p</i> =0.006 | 27.1 | 25.9 | 21.0 | <i>p</i> <0.001 |
| Muslims | 15.3 | 20.0 | 15.0 | <i>p</i> <0.001 | 3.3 | 4.2 | 2.8 | <i>p</i> <0.001 | 18.7 | 24.2 | 17.7 | <i>p</i> <0.001 |
| Traditional & others | 3.4 | 18.4 | 14.0 | <i>p</i> =0.007 | 15.3 | 7.0 | 6.1 | <i>p</i> =0.042 | 20.0 | 25.3 | 20.1 | <i>p</i> =0.189 |
| Currently working | <i>p</i> =0.039 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> =0.164 | <i>p</i> =0.474 | <i>p</i> <0.001 | |
| No | 17.9 | 21.7 | 15.9 | <i>p</i> <0.001 | 2.8 | 3.7 | 2.1 | <i>p</i> <0.001 | 20.8 | 25.4 | 18.0 | <i>p</i> <0.001 |
| Yes | 15.2 | 17.4 | 13.9 | <i>p</i> <0.001 | 7.9 | 7.2 | 5.6 | <i>p</i> <0.001 | 23.2 | 24.7 | 19.5 | <i>p</i> <0.001 |
| No response | 25.0 | 19.3 | 29.5 | <i>p</i> =0.173 | 0.0 | 4.4 | 2.7 | <i>p</i> =0.594 | 25.0 | 23.7 | 31.9 | <i>p</i> =0.351 |
| Decision-making on spending personal earnings | <i>p</i> =0.013 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> <0.001 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> =0.836 | <i>p</i> =0.001 | <i>p</i> =0.392 | |
| Not autonomous | 14.0 | 15.6 | 12.3 | <i>p</i> <0.001 | 7.6 | 7.0 | 6.7 | <i>p</i> =0.592 | 21.7 | 22.6 | 19.0 | <i>p</i> <0.001 |

| | | | | | | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Autonomous | 15.2 | 18.5 | 14.2 | $p < 0.001$ | 7.5 | 6.7 | 5.2 | $p < 0.001$ | 22.7 | 25.2 | 19.4 | $p < 0.001$ |
| No response | 18.0 | 20.4 | 16.1 | $p < 0.001$ | 4.1 | 5.2 | 2.6 | $p < 0.001$ | 22.1 | 25.6 | 18.7 | $p < 0.001$ |
| Type of household | $p = 0.063$ | $p = 0.005$ | $p = 0.068$ | | $p = 0.055$ | $p < 0.001$ | $p < 0.001$ | | $p = 0.753$ | $p < 0.001$ | $p < 0.001$ | |
| Male-headed | 15.9 | 18.6 | 14.5 | $p < 0.001$ | 5.8 | 5.8 | 4.2 | $p < 0.001$ | 21.7 | 24.5 | 17.0 | $p < 0.001$ |
| Female-headed | 19.3 | 21.0 | 15.8 | $p < 0.001$ | 8.0 | 7.6 | 6.4 | $p = 0.155$ | 27.3 | 28.6 | 20.3 | $p < 0.001$ |
| Household wealth status | $p = 0.198$ | $p < 0.001$ | $p < 0.001$ | | $p = 0.074$ | $p < 0.001$ | $p < 0.001$ | | $p = 0.243$ | $p < 0.001$ | $p < 0.001$ | |
| Poor | 15.6 | 19.5 | 15.1 | $p < 0.001$ | 5.5 | 4.9 | 3.3 | $p < 0.001$ | 21.0 | 24.4 | 18.4 | $p < 0.001$ |
| Average | 18.2 | 20.6 | 17.8 | $p = 0.005$ | 5.2 | 7.5 | 5.7 | $p = 0.002$ | 23.3 | 28.0 | 23.6 | $p < 0.001$ |
| Rich | 16.0 | 17.6 | 12.7 | $p < 0.001$ | 7.0 | 6.5 | 5.1 | $p < 0.001$ | 23.0 | 24.1 | 17.8 | $p < 0.001$ |
| Number of living children (including current pregnancy) | $p < 0.001$ | $p < 0.001$ | $p = 0.001$ | | $p < 0.001$ | $p < 0.001$ | $p < 0.001$ | | $p < 0.001$ | $p < 0.001$ | $p < 0.001$ | |
| 0-1 | 19.8 | 21.1 | 15.0 | $p < 0.001$ | 0.3 | 0.6 | 0.0 | $p < 0.001$ | 20.1 | 21.6 | 15.0 | $p < 0.001$ |
| 2 | 13.8 | 19.4 | 16.4 | $p < 0.001$ | 1.0 | 1.1 | 0.7 | $p = 0.109$ | 14.8 | 20.5 | 17.1 | $p < 0.001$ |
| ≥3 | 15.0 | 17.7 | 13.9 | $p < 0.001$ | 10.8 | 10.2 | 7.6 | $p < 0.001$ | 25.8 | 27.9 | 21.5 | $p < 0.001$ |
| Residence | $p = 0.609$ | $p < 0.001$ | $p < 0.001$ | | $p = 0.787$ | $p = 0.394$ | $p = 0.161$ | | $p = 0.753$ | $p < 0.001$ | $p < 0.001$ | |
| Urban | 15.9 | 16.7 | 12.3 | $p < 0.001$ | 6.1 | 6.2 | 4.7 | $p < 0.001$ | 22.0 | 22.9 | 17.0 | $p < 0.001$ |
| Rural | 16.5 | 20.0 | 16.0 | $p < 0.001$ | 5.9 | 5.9 | 4.3 | $p < 0.001$ | 22.4 | 26.0 | 20.3 | $p < 0.001$ |
| Region | $p = 0.561$ | $p = 0.001$ | $p < 0.001$ | | $p < 0.001$ | $p < 0.001$ | $p < 0.001$ | | $p < 0.001$ | $p = 0.066$ | $p = 0.506$ | |
| Northern | 16.0 | 19.7 | 15.8 | $p < 0.001$ | 4.3 | 4.7 | 3.4 | $p < 0.001$ | 20.3 | 24.5 | 19.2 | $p < 0.001$ |
| Southern | 16.7 | 17.9 | 12.5 | $p < 0.001$ | 9.3 | 7.7 | 6.3 | $p < 0.001$ | 26.1 | 25.6 | 18.8 | $p < 0.001$ |
| Knowledge of modern FP method | $p = 0.478$ | $p < 0.001$ | $p < 0.001$ | | $p = 0.017$ | $p < 0.001$ | $p < 0.001$ | | $p = 0.037$ | $p = 0.464$ | $p = 0.001$ | |
| No knowledge | 14.9 | 21.1 | 18.3 | $p < 0.001$ | 4.1 | 3.3 | 2.0 | $p < 0.001$ | 19.0 | 24.4 | 20.3 | $p < 0.001$ |
| Knowledge of folkloric/traditional | 17.5 | 21.1 | 8.5 | $p < 0.001$ | 3.9 | 5.2 | 3.8 | $p = 0.670$ | 22.1 | 26.0 | 12.3 | $p < 0.001$ |
| Knowledge of modern methods | 16.6 | 18.0 | 14.1 | $p < 0.001$ | 6.5 | 7.1 | 4.9 | $p < 0.001$ | 23.0 | 25.1 | 19.0 | $p < 0.001$ |
| Visited by FP worker in the last 12 months | $p = 0.077$ | $p = 0.021$ | $p < 0.001$ | | $p = 0.084$ | $p = 0.013$ | $p = 0.926$ | | $p = 0.600$ | $p = 0.513$ | $p < 0.001$ | |
| No | 16.5 | 19.1 | 15.0 | $p < 0.001$ | 5.9 | 5.9 | 4.5 | $p < 0.001$ | 22.4 | 25.0 | 19.5 | $p < 0.001$ |
| Yes | 12.5 | 16.4 | 11.2 | $p < 0.001$ | 8.4 | 7.7 | 4.5 | $p < 0.001$ | 20.9 | 24.1 | 15.7 | $p < 0.001$ |

| | | | | | | | | | | | | |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Visited health facilities in the last 12 months | <i>p</i> =0.205 | <i>p</i> =0.001 | <i>p</i> <0.001 | | <i>p</i> =0.141 | <i>p</i> =0.096 | <i>p</i> =0.497 | | <i>p</i> =0.801 | <i>p</i> <0.001 | <i>p</i> <0.001 | |
| No | 16.8 | 19.5 | 15.3 | <i>p</i> <0.001 | 5.6 | 6.2 | 4.5 | <i>p</i> <0.001 | 22.4 | 25.7 | 19.8 | <i>p</i> <0.001 |
| Yes | 15.4 | 17.3 | 12.9 | <i>p</i> <0.001 | 6.6 | 5.6 | 4.3 | <i>p</i> <0.001 | 22.1 | 22.9 | 17.2 | <i>p</i> <0.001 |
| Told of FP at health | <i>p</i> =0.401 | <i>p</i> =0.001 | <i>p</i> <0.001 | | <i>p</i> =0.015 | <i>p</i> =0.203 | <i>p</i> =0.281 | | <i>p</i> =0.098 | <i>p</i> <0.001 | <i>p</i> <0.001 | |
| No | 15.1 | 17.6 | 13.4 | <i>p</i> <0.001 | 5.7 | 5.5 | 4.6 | <i>p</i> =0.167 | 20.8 | 23.1 | 18.1 | <i>p</i> <0.001 |
| Yes | 16.4 | 16.8 | 12.1 | <i>p</i> <0.001 | 8.9 | 5.7 | 3.9 | <i>p</i> <0.001 | 25.4 | 22.5 | 16.0 | <i>p</i> <0.001 |
| No response | 16.8 | 19.5 | 15.3 | <i>p</i> <0.001 | 5.6 | 6.2 | 4.5 | <i>p</i> <0.001 | 22.4 | 25.7 | 19.9 | <i>p</i> <0.001 |
| Exposed to FP messages via mass media in the last few months | <i>p</i> =0.728 | <i>p</i> <0.001 | <i>p</i> <0.001 | | <i>p</i> =0.200 | <i>p</i> =0.008 | <i>p</i> =0.001 | | <i>p</i> =0.676 | <i>p</i> =0.002 | <i>p</i> <0.001 | |
| No | 16.4 | 20.1 | 15.9 | <i>p</i> <0.001 | 5.6 | 5.6 | 4.1 | <i>p</i> <0.001 | 22.1 | 25.7 | 20.0 | <i>p</i> <0.001 |
| Yes | 16.1 | 17.3 | 12.3 | <i>p</i> <0.001 | 6.5 | 6.5 | 5.0 | <i>p</i> <0.001 | 22.6 | 23.9 | 17.3 | <i>p</i> <0.001 |

Chi-square test

Table 4. Multivariate models for determinants of unmet need for FP among currently married and sexually active unmarried women

| Variables | Unmet need for Spacing | Unmet need for Limiting | Total Unmet need for FP |
|---|------------------------|-------------------------|-------------------------|
| | Adjusted PR (95%CI) | Adjusted PR (95%CI) | Adjusted PR (95%CI) |
| Year | | | |
| 2003 | 1.00 | 1.00 | 1.00 |
| 2008 | 1.16(1.08, 1.25) | 0.89(0.79, 1.01) | 1.09(1.03, 1.15) |
| 2013 | 0.92(0.85, 0.99) | 0.71(0.62, 0.80) | 0.85(0.81, 0.91) |
| Age | | | |
| 15-19 | 1.00 | 1.00 | 1.00 |
| 20-24 | 0.96(0.90, 1.03) | 0.39(0.21, 0.72) | 0.85(0.79, 0.91) |
| 25-49 | 0.86(0.80, 0.93) | 2.03(1.17, 3.55) | 0.85(0.79, 0.92) |
| Marital status | | | |
| Never in union | 1.00 | 1.00 | 1.00 |
| Currently in union/cohabiting | 0.53(0.49, 0.58) | 1.39(0.75, 2.57) | 0.64(0.59, 0.69) |
| Formerly in union/cohabiting | 0.56(0.44, 0.72) | 1.34(0.69, 2.62) | 0.69(0.57, 0.82) |
| Educational status | | | |
| No education | 1.00 | 1.00 | 1.00 |
| Primary | 1.11(1.05, 1.18) | 1.02(0.92, 1.13) | 1.09(1.03, 1.14) |
| Secondary | 1.16(1.08, 1.24) | 0.75(0.66, 0.85) | 1.00(0.94, 1.06) |
| Higher | 0.74(0.66, 0.83) | 0.70(0.58, 0.84) | 0.70(0.64, 0.77) |
| Religion | | | |
| Catholic Christians | 1.00 | 1.00 | 1.00 |
| Non catholic Christians | 1.05(0.97, 1.13) | 0.89(0.80, 0.99) | 1.00(0.94, 1.05) |
| Muslims | 1.03(0.95, 1.12) | 0.44(0.38, 0.50) | 0.82(0.77, 0.88) |
| Traditional & others | 0.96(0.80, 1.14) | 0.74(0.57, 0.95) | 0.88(0.77, 1.01) |
| Currently working | | | |
| No | 1.00 | 1.00 | 1.00 |
| Yes | 0.84(0.79, 0.90) | 1.31(1.15, 1.48) | 0.93(0.89, 0.98) |
| No response | 1.19(0.95, 1.49) | 1.00(0.53, 1.90) | 1.15(0.93, 1.41) |
| Decision-making on spending personal earnings | | | |
| Not autonomous | 1.00 | 1.00 | 1.00 |
| Autonomous | 1.13(1.06, 1.21) | 1.08(0.98, 1.18) | 1.10(1.05, 1.16) |
| No response | 0.98(0.91, 1.06) | 1.17(1.04, 1.32) | 1.02(0.96, 1.09) |
| Type of household | | | |
| Male-headed | 1.00 | 1.00 | 1.00 |
| Female-headed | 1.06(1.00, 1.13) | 1.36(1.22, 1.51) | 1.13(1.07, 1.19) |
| Household wealth status | | | |
| Poor | 1.00 | 1.00 | 1.00 |
| Average | 1.18(1.12, 1.25) | 1.29(1.16, 1.43) | 1.20(1.14, 1.25) |
| Rich | 1.09(1.02, 1.16) | 1.35(1.20, 1.52) | 1.14(1.08, 1.21) |
| Number of living children (including current pregnancy) | | | |
| 0-1 | 1.00 | 1.00 | 1.00 |
| 2 | 1.16(1.09, 1.25) | 2.62(1.71, 4.00) | 1.19(1.11, 1.27) |
| ≥3 | 1.10(1.03, 1.18) | 18.40(12.66, 26.73) | 1.59(1.50, 1.69) |
| Residence | | | |

| | | | |
|---|------------------|------------------|------------------|
| <i>Urban</i> | 1.00 | 1.00 | 1.00 |
| <i>Rural</i> | 1.18(1.12, 1.24) | 1.08(0.99, 1.18) | 1.15(1.10, 1.20) |
| Region | | | |
| <i>Northern</i> | 1.00 | 1.00 | 1.00 |
| <i>Southern</i> | 0.87(0.82, 0.92) | 1.18(1.07, 1.31) | 0.97(0.92, 1.02) |
| Knowledge of modern FP method | | | |
| <i>No knowledge</i> | 1.00 | 1.00 | 1.00 |
| <i>Knowledge of folkloric/traditional</i> | 0.80(0.67, 0.96) | 1.31(0.92, 1.86) | 0.96(0.74, 1.01) |
| <i>Knowledge of modern methods</i> | 0.89(0.85, 0.94) | 1.51(1.32, 1.71) | 0.98(0.94, 1.03) |
| Visited by FP worker in the last 12 months | | | |
| <i>No</i> | 1.00 | 1.00 | 1.00 |
| <i>Yes</i> | 0.89(0.85, 0.94) | 0.92(0.80, 1.06) | 0.90(0.84, 0.97) |
| Visited health facilities in the last 12 months | | | |
| <i>No</i> | 1.00 | 1.00 | 1.00 |
| <i>Yes</i> | 1.13(0.85, 1.50) | 1.38(0.87, 2.19) | 1.16(0.92, 1.46) |
| Told of FP at health facilities | | | |
| <i>No</i> | 1.00 | 1.00 | 1.00 |
| <i>Yes</i> | 1.06(0.98, 1.16) | 0.83(0.72, 0.96) | 0.99(0.92, 1.06) |
| <i>No response</i> | 1.17(0.88, 1.56) | 1.63(1.02, 2.60) | 1.25(0.99, 1.58) |
| Exposed to FP messages via mass media in the last few months | | | |
| <i>No</i> | 1.00 | 1.00 | 1.00 |
| <i>Yes</i> | 0.92(0.88, 0.96) | 0.97(0.89, 1.05) | 0.94(0.90, 0.97) |

Discussion

This study examined trends in prevalence and determinants of unmet need for FP services among currently married women and sexually active unmarried women of reproductive age (15-49) in Nigeria over a decade, 2003-2013. The descriptive analysis of the trends in unmet need for FP (spacing, limiting and total) indicates that on the average, unmet need for FP among this group of women in Nigeria had declined significantly over the 10-year period. The significant increase in unmet need for spacing and total unmet need for FP that occurred between 2003 and 2008, conforms with the global trend where the number of women wanting to avoid pregnancy and therefore needing effective contraception substantially increased from 716 million (54%) of 1321 million in 2003, to 827 million (57%) of 1448 million in 2008, to 867 million (57%) of 1520 million in 2012 (Darroch and Singh, 2013). However, the increase between 2003 and 2008 was short-lived with a significant decline by 2013 to a level lower than the 2003 estimates.

Evidence from existing literature (Darroch and Singh, 2013, Sharan et al., 2011, Mills et al., 2010, Ezeh et al., 2009) suggests that changes in levels of unmet need for FP have a number of implications related to

population growth, fertility transition, demand and supply of FP, and wealth status. As there is an indication that population growth is critical to triggering unmet needs of FP (Darroch and Singh, 2013), the slight increase in unmet need for FP in Nigeria between 2003 and 2008 could have been triggered by the remarkable increase in the country's population from 88.6 million in 1991 to 140.4 million in 2006 with a national growth rate estimate of 3.2%, thus making the country by far the most populous nation in Africa (National Population Commission [NPC] and ICF Macro, 2009). With evidence from some Eastern African countries like Kenya, Uganda, Zimbabwe and Tanzania showing that increases in unmet need for FP was consistently associated with stalls in fertility decline (Ezeh et al., 2009); perhaps in Nigeria, there were stalls in fertility decline between 2003 and 2008, which could be responsible for the slight increase in unmet need for FP within the period in the country.

Unmet need for FP is often considered a precursor of fertility decline, indicating that demand for FP services exists but is not being met (Sharan et al., 2011). Meanwhile, the relationship between fertility transition and trends in unmet need for FP calls for careful interpretation as different levels of unmet need

and total potential demand for FP in Sub-Saharan African countries were found to reflect a non-linear pattern of unmet need over the fertility transition (Mills et al., 2010). Another evidence from some Sub-Saharan African countries like Kenya, Madagascar, Malawi, and Zambia, shows that decline in unmet need for FP could correspond with an increase in FP use, thus suggesting a convergence of demand and supply of FP (Sharan et al., 2011). This assertion might be true for Nigeria, because as unmet need for FP in the country declined from 15.6% in 2008 to 12.7% in 2013, contraceptive prevalence increased simultaneously from 14.6% in 2008 (National Population Commission [NPC] and ICF Macro, 2009) to 16% in 2013 (National Population Commission [NPC] [Nigeria] and ICF International, 2014); thus suggesting a situation of convergence between demand and supply of FP in Nigeria. It is also believed that in a few African countries (including Nigeria) where unmet need was found to increase with increasing wealth, such countries are in the earlier stages of declining desired family size, which declines first in urban areas, among more educated women, and among wealthier households (Mills et al., 2010). This trend would thus increase demand for contraceptives, which the current FP programs and providers would at first not be able to meet, but over time, met need would reduce unmet need to cause the patterns to be reversed (Mills et al., 2010).

In this present study, there are a number of factors identified as determinants of unmet need for spacing, limiting or total unmet need for FP. Prominent among the determinants of unmet need of FP in this study was age (Hailemariam and Haddis, 2011, Ojaka, 2008). In some previous studies (Hameed et al., 2011, Klijzing, 2000), unmet need for FP was found more prevalent among older adult women than adolescent or young adult women, thus conforming to the pattern that unmet need for FP increases with age. However, in this study, older adult women (aged 25-49) and young adult women (20-24) respectively seemed less likely to have total unmet need for FP compared to those aged 15-19; but the older adult women (aged 25-49) were found less likely to have unmet need for spacing but more likely to have unmet need for limiting, while the young adult women (aged 20-24) were less likely to have unmet need for limiting than the adolescent women (aged 15-19). Therefore, these present findings support the claim that young people are among the groups most likely to have unmet need for FP (Ojaka, 2008) because they are sexually active, and would wish to avoid pregnancy, but are not using modern methods of contraception (United Nations, 2011). Although the main reason for FP demand among women in younger age groups is spacing (Jansen, 2005), adolescent women have lower use of contraception, poorer knowledge of family

planning and less access to information and services than adult women (Al-Jawadi and Al-Bakry, 2010, Kennedy et al., 2011). These factors might actually be responsible for why adult women were less likely to have unmet need for FP than adolescent women in Nigeria.

With respect to marital status, the present study found currently married women and formerly married women less likely to have unmet need for spacing and total unmet need for FP compared to never married women. This pattern though not quite clear, seems to be contrary to a notion that currently married women might comprise both women who have a greater need for FP for spacing (or delaying) births in the early years of marriage and those whose need has shifted to limiting births because they have achieved their desired number of children (Roudi-Fahimi et al., 2012). A study revealed that in Hungary, unmet need was higher among those in marital unions than among those in less formal relationships (Klijzing, 2000). Opposition from husbands or partners (Khan Shane et al., 2008, Westoff, 2012) could also make currently married/cohabiting women more likely to have higher unmet need for FP than the never married women. On the other hand, literature has shown that available statistics on unmet need for FP might understate the true demand for FP among unmarried women (Kols, 2008). Unmarried women are often excluded in the statistics, because it is difficult to collect reliable information on them (Casterline and Sinding, 2000, Westoff, 2006) as unmarried young people face great barriers to services and may have higher levels of unmet need for FP than married women (Bernstein and Edouard, 2007). It is equally contrary to the notion that formerly married women could most likely be women whose need has shifted to limiting births because they might have had their desired number of children with their former spouses.

There is no gainsaying the fact that educational level plays an important role in shaping unmet need for FP (Hailemariam and Haddis, 2011, Acacio-Claro and Borja, 2010, Ali and Okud, 2013, Ojaka, 2008). In the present study, women with higher education were found less likely to have unmet need for spacing, limiting and total unmet need for FP as similarly observed in Eastern Sudan where higher education among women and their husbands was found to have significant association with having unmet need for FP (Ali and Okud, 2013). While women with unmet need for both spacing and limiting in Ethiopia were found more likely to have lower levels of education (Hailemariam and Haddis, 2011); this present study found that women with primary and secondary education respectively were more likely to have unmet need for spacing. This study therefore supports the fact that generally in SSA, most of the declines in unmet need are among women with some

education, particularly beyond the primary school level (Westoff, 2006).

Also in this study, religion was found to have a significant association most especially with unmet need for limiting as women belonging to other religious affiliations were found less likely to have unmet need for limiting than their Catholic counterparts. Although the reason for this pattern is not clear, perhaps it had to do with the disposition of the Catholic Church to using modern contraception (Westoff, 2012).

Looking at occupation, this present study supports findings from studies in Ethiopia (Hailemariam and Haddis, 2011), Kenya (Ojaka, 2008) and Eastern Sudan (Ali and Okud, 2013) that showed that total unmet need decreases with women's employment. For instance, in the present study, women who were currently working were found less likely to have unmet need for spacing and total unmet need for FP, but more likely to have unmet need for limiting. Previous studies found that housewives in Eastern Sudan (Ali and Okud, 2013), and women with no work other than household chores in Ethiopia (Hailemariam and Haddis, 2011) were significantly more likely to have unmet needs.

In this study, women in the average and rich households respectively were found more likely to have unmet need for spacing, limiting and total unmet need than those in the poor households. These findings, however, contradict the notion that in a given country, the poor may tend to experience higher levels of unmet need for FP as their desire to limit or space births increases, while wealthier groups experience diminishing unmet need due to their rising FP use (Health Policy Initiative Task Order I Constella Futures, 2007). Nigeria has always been among a few countries with women in the wealthiest quintile displaying higher unmet need than the women in lower quintiles, whereas in other countries such as Bolivia, Ghana, Togo, and Zimbabwe, the patterns are reversed (Mills et al., 2010). According to Mills et al., the reasons for these patterns are essentially the same as for differences among countries at different stages of fertility decline because countries in which unmet need increases with increasing wealth tend to be in the earlier stages of declining desired family size, which declines first in urban areas, among more educated women, and among wealthier households. As family planning programs and other providers are at first not able to meet the increased demand for contraceptives or address concerns about health and side effects, unmet need increases in the wealthier quintiles, while it remains low in the poorest quintiles where demand for family planning remains low.

This study also found unmet need for FP to be more prevalent among women with higher number of living children than among women with one or no child

or pregnancy. This confirms findings from previous studies (Hameed et al., 2011, Khan Shane et al., 2008, Igwegbe et al., 2009). The higher likelihood of unmet need for FP among this sub-group of women with higher number of living children (including current pregnancy) therefore suggests more of unmet need for limiting than for spacing births (Klijzing, 2000).

Regional differentials came to fore as women in the South of the country were found less likely to have unmet need for spacing but more likely to have unmet need for limiting than their counterparts in the Northern region of Nigeria.

Interestingly, regarding the evidence suggesting that knowledge of FP is a vital determinant of unmet need for FP (Hailemariam and Haddis, 2011, Prata, 2009), women with knowledge of FP (folkloric/traditional or modern methods) in this study were found less likely to have unmet need for spacing than those with no knowledge of FP; whereas, those with knowledge of modern FP were more likely to have unmet need for limiting than those with no knowledge of FP.

Further, although findings from few studies in SSA may be incongruent relative to whether exposure to FP-related interventions triggers unmet need (Hailemariam and Haddis, 2011, Ojaka, 2008, National Population Commission [NPC] and ICF Macro, 2009, Dutta Arin and Charles Hongoro, 2013), in this study, women visited by FP worker(s) in the last 12 months and those exposed to mass media in the last 12 months were found less likely to have total unmet need for FP than those who did not.

Generally, the public health and economic significance of the foregoing findings largely relate to the size of the women sub-groups (female adolescents; never married women; women not currently working; women in female-headed households; women in rich households; women with high parity; women in rural areas; women who have not been visited by FP workers; and women who are not exposed to FP messages via mass media) found more likely to be affected by the burden of unmet need for FP in Nigeria. According to Nigeria's 2006 Population and Housing Census, women of reproductive age (15-49) accounted for about one-quarter (≈ 35.0 million) of the entire country's population of 140 million; and about 21% (≈ 7.4 million) and 34% (≈ 12.0 million) of the women of reproductive age were female adolescents and never married women respectively. Therefore, the large population of women who are more likely to have unmet need for FP in Nigeria in the context of the attendant consequences of unmet need for FP and the benefits of providing them with FP services warrants a sense of urgency about increasing and improving FP supply to meet their FP demand.

Conclusion

In conclusion, unmet need for FP among currently married women and sexually active unmarried women of reproductive age in Nigeria had declined between 2008 and 2013 to a level less comparable with the situation in 2003. Bearing in mind, the International Conference on Population and Development (ICPD) benchmark of zero unmet need by 2014, the current level of unmet need for FP among women of reproductive age in Nigeria, though less than the average estimate for SSA, is still far below expectation. Meeting this ICPD benchmark of zero unmet need for FP in 2014 might require a country like Nigeria to do a lot more to extend FP services most especially to female adolescents, unmarried women and women with many living children, perhaps by increasing contraceptive services and supplies, and providing high-quality services and large-scale public education interventions to reduce social barriers (Darroch and Singh, 2013). As a matter of fact, it is necessary for FP programmers continue to develop specific responses that address the barriers to contraceptive use (Acacio-Claro and Borja, 2010).

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