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Unmet contraceptive need among married Nigerian women: an examination of trends and drivers☆

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Abstract

Objective: The aim of this study is to examine trends in and drivers of unmet need for contraceptives among married Nigerian women between 2003 and 2013.

Methods: This analysis utilized combined data from the 2003, 2008 and 2013 cross-sectional Nigerian Demographic Health Surveys, resulting in a sample size of 54,873 currently married women. Multinomial logistic regression examined associations between trends in unmet need for spacing and limiting, and the demographic, socioeconomic, and reproductive profiles of the respondents.

Results: Women in 2008 were 30% more likely to have an unmet need for spacing, relative to women in 2013. Despite these significant declines in unmet need to space fertility between 2008 and 2013, the adjusted results show that between 2003 and 2013, there was no significant change in the trends in unmet need to space fertility. Unmet need to limit fertility was significantly higher in 2003, adjusted, and 2008 relative to 2013. Younger, low-parity, Muslim women were significantly less likely than older, high-parity, non-Muslim women to have an unmet need to limit fertility. Women residing in the northeast and northwest of the country were significantly less likely than women residing in the south of the country to have an unmet need to limit fertility. Women whose most recent child had died were significantly less likely to have an unmet need to space and limit fertility.

Conclusions: These data suggest that interventions to increase the knowledge of modern contraceptives, to reduce child mortality, and to improve women's decision-making power would all serve to increase demand for contraceptives, even in areas with high-fertility preferences.

Implications: Nigeria has set a goal of a 36% contraceptive prevalence rate by 2018. With a current contraceptive prevalence rate of 15% reaching the additional 16% of women, who have articulated a demand for contraception, will almost reach that goal.

Contraceptive use directly reduces maternal risk; implementing interventions to increase demand for contraception and meeting articulated demands for contraception would not only support women's (and men's) ability to realize their reproductive rights but also, ultimately, may reduce the burden of maternal deaths in Nigeria.

Keywords: Unmet need for contraception; Nigeria; Maternal health; Fertility preferences; Maternal mortality

1. Introduction

Increasing contraceptive demand, access, and uptake are key interventions to improve maternal health outcomes and ultimately reduce maternal deaths. Ahmed et al. estimated that family planning use averted almost 272,000 maternal deaths, globally, in 2010 [1]. The authors also estimate that meeting the identified unmet need for family planning would result in an additional 29% reduction in global maternal deaths [1]. Clearly, there is evidence that when family planning needs are met, there is a resulting decline in maternal mortality.

In Nigeria, between 1990 and 2013, the maternal mortality ratio (MMR) declined by 52%, from an MMR of 1100 deaths/100,000 live births to an estimated MMR of 560 [2]. Although there have been declines in maternal deaths over time, too many women in Nigeria still die from pregnancy related causes, and recent MMR estimates from the 2013 demographic and health survey suggest that there has been a stagnation in the decline—with no statistical difference in the directly estimated MMR's between 2008 (MMR: 545; 95% CI: 475–615) and 2013 (MMR: 576; 95% CI: 500–652) [3].

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Forty thousand women in Nigeria died due to maternal causes in 2013, accounting for 14% of the global maternal death burden. This is disproportionate, as Nigeria constitutes only 2% of the global population [2,4]. In this high-burden context, contraceptives have served to save mothers' lives; in 2010, contraceptive use reduced the burden of maternal deaths in Nigeria by 26% [1]. Increasing contraceptive use would help Nigeria reach Millennium Development Goals 4 and 5, and allow women and men to achieve their full reproductive and sexual rights. One factor that would facilitate efforts to increase the use of contraception among Nigerian women is a deeper understanding of which Nigerian women would choose contraception, if there were affordable and acceptable methods available.

Unadjusted data from the Nigerian Demographic and Health Surveys show the percentage of currently married women with an unmet need for contraception increased between 2003 and 2008, and declined between 2008 and 2013 (Fig. 1) [3,5]. This indicates that, over time, fewer married women in Nigeria have an unmet need for contraceptives to space or limit childbearing. This has occurred in a context where there have been minimal changes in modern contraceptive use among currently married women (7.8% in 2003, 9.7% in 2008, and 9.7% in 2013) and minimal declines in the number of married women who are not using any method of contraception at all (87.4% in 2003, 85.4% in 2008, and 84.9% in 2013) (Fig. 2) [3,5]. Providing women who want contraceptives with access to them is a key intervention to improve maternal outcomes. This analysis is aimed at identifying what the characteristics of these women are and identifying factors that may be driving these trends in the demand for contraceptives.

2. Methods

This analysis utilized combined data from the 2003, 2008, and 2013 Nigerian Demographic Health Surveys, resulting in a sample size of 54,873 currently married women. The outcome of interest, unmet need for both spacing and limiting childbirth, utilized the revised definition of unmet need, developed by Bradley et al. [6]. The outcome variable was dummy coded, so that all associative findings can be interpreted as an unmet need for contraception to space childbearing versus no unmet need, and an unmet need to limit childbearing versus no unmet need.

This analysis incorporated explanatory variables derived from public health literature on maternal health, fertility preferences, and women's autonomy. Beyond the standard socioeconomic variables (age, parity, urban/rural and region of residence, wealth quintiles, and educational level), we included other key determinants of contraceptive demand. For example, there has been literature linking higher-fertility preferences among Muslim populations in Nigeria [7], and there is quite robust literature linking child mortality to high-fertility preferences and shorter birth intervals [8,9].

In addition, we endeavored to examine women's status as a predictor of unmet need for contraception [10]. Three variables were used to proxy this: employment status [11], decision-making power [12], and attitudes toward intimate partner violence [13]. Finally, the associations between the knowledge of modern contraception and increased demand for contraception were examined. All variables were reference coded, and odds ratios are interpretable relative to the reference group. Table 1 presents an overview of how these variables were defined and operationalized in these analyses.

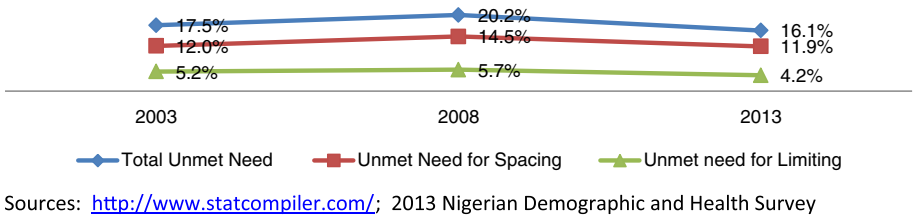
Multinomial regression was used calculate individual and adjusted odds ratios of independent variables on unmet need to space and to limit childbearing. Analyses were conducted using SAS version 9.3 (SAS Institute Inc., Cary, NC, USA), and all analyses were adjusted for survey design, sampling errors, and uneven weights using the SAS survey procedures [14].

This study was granted exempt status from the Harvard School of Public Health Institutional Review Board.

3. Results

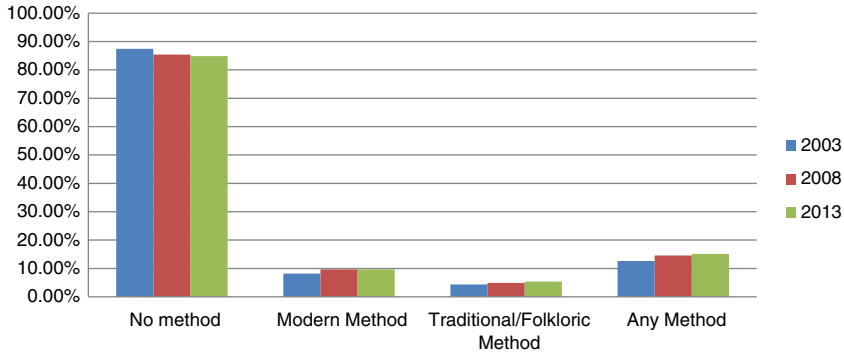
Table 2 presents the weighted distribution of each of the predictor variables. The study population was 67% rural, with approximately 52% of women reporting four or more births and 8% reporting that their most recent child had died. Forty-nine percent of the population had no education, and 65% of them had been employed in the year preceding the survey. The majority of women (61%) reported that they played no part in decisions regarding their health, and 45% felt that intimate partner violence was justifiable under certain conditions.

Fig. 1 shows the weighted trends in unmet need between 2003 and 2013. These unadjusted results show an overall



Sources: http://www.statcompiler.com/; 2013 Nigerian Demographic and Health Survey

Fig. 1. Trends in unmet need for contraception among married Nigerian women: 2003, 2008, and 2013.



Sources: http://www.statcompiler.com/; 2013 Nigerian Demographic and Health Survey

Fig. 2. Trends in contraceptive use among married Nigerian Women: 2003, 2008, and 2013.

increase in the prevalence of unmet need between 2003 and 2008, and a decline in unmet need between 2008 and 2013. The bulk of these trends are attributable to changes in unmet need for spacing, rather than unmet need for limiting.

In the unadjusted results, each of the explanatory variables was, independently, a significant predictor of unmet need among Nigerian women (Table 3). Women in 2008 were significantly more likely to have an unmet need to space childbearing and limit fertility relative to women in 2013. There was no significant change between 2003 and 2013 in the odds of women having an unmet need to space fertility, but women in 2003 were 29% more likely to have an unmet need to limit fertility, than women in 2013. Women who had lost their most recent child were significantly less likely to have an unmet need for spacing. Muslim women and those with lower educational levels, residing in the north central states, were more likely than non-Muslim women with higher educational levels, residing in the southern states, to have an unmet need to space childbearing. The unadjusted results also show that urban, employed women with knowledge of modern contraception were significantly more likely to have an unmet need to limit fertility than rural, unemployed women without any knowledge of modern contraceptives.

Table 4 presents the adjusted results of the predictors of unmet need. Each variable can be interpreted, controlling for all other predictor variables. Among the 54,873 currently married women in the combined dataset, data on all variables for the multiple regression analysis were available for 53,532 (98%).

3.1. Trends in unmet need to space fertility

Women in 2008 were 30% more likely to have an unmet need for spacing, relative to women in 2013. Despite these significant declines to space between 2008 and 2013, the adjusted results show that between 2003 and 2013, there was no significant change in the trends in unmet need to space fertility.

Lower-parity women were significantly less likely to have an unmet need for spacing than higher-parity women, and women who had experienced a recent child death were significantly less likely to have an unmet need for spacing, when compared with women who had not lost a child. Urban women were significantly less likely to have an unmet need to space childbearing, relative to rural women. Women who were involved in decisions on their own health were significantly less likely to have an unmet need to space childbearing.

3.2. Trends in unmet need to limit fertility

Unmet need to limit fertility was significantly higher in 2003 and 2008 relative to 2013. Younger, low-parity Muslim women were significantly less likely than older, high-parity, non-Muslim women to have an unmet need to limit fertility. Women residing in the northeast and northwest of the country were significantly less likely than women residing in the south of the country to have an unmet need to limit fertility. Women whose most recent child had died were significantly less likely to have an unmet need to limit fertility.

Women who had knowledge of modern contraception were 67% more likely to have an unmet need to limit childbearing, relative to women who had no knowledge of modern contraceptive methods.

4. Discussion

There are two symbiotic drivers of contraceptive uptake: supply and demand. Although generating demand is critical in the uptake of contraception, it cannot happen in a context where the system cannot ensure a consistent supply of affordable and acceptable methods. This analysis has shown that there is an existing demand for contraceptives to space and limit fertility among currently married women that is not being met. Studies have shown that Muslim women in northern Nigeria have a preference for large families [7]. Despite the strong preference for large families, the data show that the demand for contraception (to space) exists, even in this population. This suggests that campaigns and the provision of services that frame contraception as a method to space births and improve the health of the mother and child, rather than as a way to limit childbearing, may be more culturally acceptable.

Table 1
Independent variables used in the analysis

Variable	Definitions and reference groups (ref)
Year	2003; 2008; 2013 (ref)
Age	15–24; 25–34; 35+ (ref)
Total number of live births	0; 1; 2; 3; 4+ (ref)
Urban/rural residence	Urban; rural (ref)
Religion	Muslim; Christian/Catholic/Other (ref)
Region of residence	North central; northeast; northwest; southern regions (ref)
Level of education	None, primary, secondary, secondary+ (ref)
Wealth quintile	DHS wealth quintiles 1, poorest; 2; 3; 4; 5, richest (ref)
Employment status	Was employed during the 12months preceding the survey; Unemployed in the 12months preceding the survey (ref)
Attitudes toward intimate physical partner violence	Intimate partner violence is justified if a wife goes out without telling her husband; wife neglects her children; wife argues with her husband; a wife refused to have sex with her husband or she burns food versus intimate partner violence is not permissible under any of the above circumstances (ref)
Experience with child mortality	Women whose most recent child had died; women who had not given birth or had not had their most recent child die were coded (ref)
Women involved in health care decisions	Respondent is involved in decisions regarding her health, either alone, with a spouse, or with another person; respondent is not involved in decisions regarding her health (ref)
Knowledge of modern contraception[a]	Yes; no knowledge or knowledge of traditional/other methods only (ref)
Outcome variable[b]	Revised definition of unmet need for contraception among married women in Nigeria: unmet need for spacing childbirth; unmet need for limiting fertility; no unmet need (ref)

[a] Participant states knowledge of any of the following modern methods: female sterilization (tubal ligation, laparectomy, voluntary surgical contraception for women), male sterilization (vasectomy, voluntary surgical contraception for men), the contraceptive pill (oral contraceptives), interuterine contraceptive device, injectables (Depo-Provera), implants (Norplant), female condom, male condom (prophylactic, rubber), diaphragm, contraceptive foam and contraceptive jelly, lactational amenorrhea method, emergency contraception (double dose of contraceptive pill twice in 24 h for 2 days and specific dosage "emergency pills").

[b] Revised definition of unmet need: currently married women who are not currently using contraception to limit or space fertility, who are not pregnant or postpartum amenorrheic, who are not infecund, who want no more children (unmet need for limiting), or who state that she wants her next child in 2 or more years; wants a child and undecided timing; or undecided if she wants child (unmet need for spacing).

There were significant declines in the unmet need to limit fertility, and this parallels slight declines in overall fertility. According to the demographic and health survey data, the national total fertility rate (TFR) remained constant at 5.7 births per woman between 2003 and 2008, and declined slightly to 5.5 in 2013. The TFR has only declined by 0.5 births per women (8%) since the 1990s [3,5]. The findings that Muslim women in the northeast and northwest of the country are less likely to have an unmet need to limit fertility are consistent with the higher fertility levels found in those regions (Fig. 3). However, this analysis also shows that the

Table 2
Weighted distribution of the variables used in the analysis

	Weighted n[a]	%
Year		
2003	3546	9.37
2008	16,355	41.71
2013	27,043	48.91
Maternal age		
15–24	13,065	23.63
25–34	21,429	38.76
≥34	20,792	37.61
Total number of live births		
Zero	4823	8.72
One	7118	12.87
Two	7480	13.53
Three	7354	13.30
Four or more	28,511	51.57
Urban residence		
Rural	36,818	66.59
Urban	18,468	33.41
Religion		
Christian/Catholic/other	25,027	45.38
Muslim	30,118	54.62
Region of residence		
North central	7908	14.30
Northeast	9353	16.92
Northwest	19,053	34.46
Southern regions	18,973	34.32
Education		
None	27,336	49.44
Primary	11,288	20.42
Secondary	12,813	23.18
Secondary plus	3849	6.96
Wealth quintile		
1 (poorest)	12,921	23.37
2	12,017	21.74
3	10,101	18.27
4	9745	17.63
5 (richest)	10,501	18.99
Employed in the 12 months preceding the survey		
Unemployed	19,181	34.74
Employed	36,035	65.26
Attitudes towards intimate partner violence[b]		
Never permissible	29,766	54.95
Sometimes permissible	24,406	45.05
The child of the most recent birth is living		
Yes	51,064	92.36
No	4222	7.64
Woman is involved with decisions on her health[c]		
No	33,719	61.11
Yes	21,457	38.89
Women has knowledge of modern contraception[d]		
No	13,726	24.83
Yes	41,560	75.17

[b] A woman reported that it was permissible for a wife to be beaten by a husband under one of these circumstances: wife goes out without telling her husband, wife neglects her children, wife argues with her husband, a wife refused to have sex with her husband, or she burns food.

[a] N=54,873 Proc Surveyfreq was used to adjust for complex survey sample designs, including stratification, clustering, and unequal weighting.

[c] Respondent is involved in decisions regarding her health, either alone, with a spouse or with another person.

[d] Women have knowledge of modern contraception versus knowing none/traditional/other.

Table 3
Unadjusted odds of no unmet need among married women in Nigeria (0) as the reference category, relative to unmet need for spacing (1) and unmet need for limiting (2)[a]

Parameter	Unmet need for spacing			Unmet need for limiting		
	Estimate	95% confidence intervals		Estimate	95% confidence intervals	
Year						
2003	1.00	0.88	1.14	1.29	1.05	1.59
2008	1.31	1.21	1.41	1.38	1.22	1.56
2013 (ref)						
Maternal age						
15–24	2.10	1.92	2.28	0.03	0.02	0.04
25–34	1.99	1.86	2.14	0.28	0.25	0.31
≥34 (ref)						
Total number of live births						
Zero	0.66	0.57	0.76	0.01	0.01	0.03
One	1.24	1.13	1.35	0.02	0.01	0.03
Two	1.18	1.09	1.29	0.08	0.06	0.11
Three	1.25	1.15	1.35	0.22	0.18	0.27
Four or more (ref)						
Urban residence						
Urban	0.84	0.78	0.92	1.17	1.04	1.32
Rural (ref)						
Religion						
Muslim	1.13	1.05	1.22	0.45	0.40	0.51
Christian/Catholic/other (Ref)						
Region of residence						
North central	1.28	1.15	1.43	0.88	0.76	1.02
Northeast	1.14	1.04	1.26	0.50	0.43	0.60
Northwest	1.08	0.99	1.19	0.27	0.23	0.31
Southern regions (ref)						
Education						
None	1.58	1.37	1.83	0.73	0.60	0.88
Primary	1.72	1.48	2.00	1.72	1.43	2.07
Secondary	1.79	1.55	2.07	1.18	0.98	1.42
Secondary plus (ref)						
Wealth quintile						
1 (poorest)	1.26	1.12	1.41	0.54	0.45	0.64
2	1.30	1.17	1.45	0.84	0.71	0.98
3	1.46	1.31	1.64	1.16	0.99	1.36
4	1.48	1.33	1.66	1.36	1.17	1.57
5 (ref)						
Employed in the 12 months preceding the survey						
Employed	0.85	0.79	0.90	2.17	1.94	2.44
Unemployed (ref)						
Attitudes toward intimate partner violence[b]						
Sometimes permissible	1.15	1.08	1.23	1.00	0.90	1.11
Never permissible (ref)						
The child of the most recent birth is living						
No	0.56	0.50	0.64	1.03	0.87	1.21
Yes (ref)						
Woman is involved with decisions on her health[c]						
Yes	0.82	0.76	0.88	1.90	1.72	2.10
No (ref)						
Women has Knowledge of Modern contraception[d]						
Yes	0.91	0.84	0.98	2.31	2.01	2.67
No						

[b] A woman reported that it was permissible for a wife to be beaten by a husband under one of these circumstances: wife goes out without telling her husband, wife neglects her children, wife argues with her husband, a wife refused to have sex with her husband, or she burns food.

[a] N=54,873 Proc Surveyreg was used to adjust for complex survey sample designs, including stratification, clustering, and unequal weighting.

[c] Respondent is involved in decisions regarding her health, either alone, with a spouse, or with another person.

[d] Women have knowledge of modern contraception versus knowing none/traditional/other.

Table 4
Adjusted odds of predicting no unmet need among married women in Nigeria (0) as the reference category, relative to unmet need for spacing (1) and unmet need for limiting (2)[a]

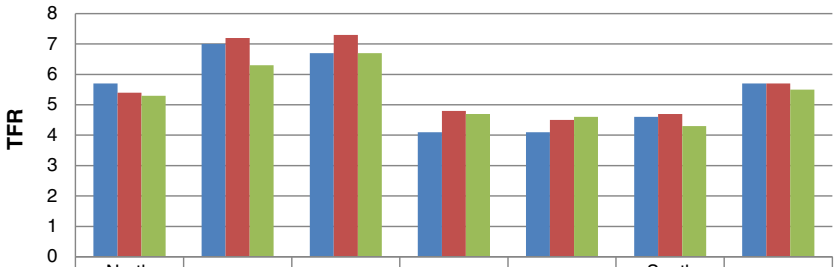
	Unmet need for spacing			Unmet need for limiting		
Parameter	Estimate	95% confidence intervals		Estimate	95% confidence intervals	
Year						
2003	0.98	0.85	1.13	1.32	1.07	1.67
2008	1.30	1.20	1.41	1.35	1.20	1.52
2013 (ref)						
Maternal age						
15–24	2.62	2.36	2.92	0.24	0.16	0.34
25–34	2.05	1.91	2.21	0.44	0.39	0.50
≥34 (ref)						
Total number of live births						
Zero	0.37	0.31	0.43	0.03	0.01	0.07
One	0.75	0.68	0.83	0.03	0.01	0.06
Two	0.77	0.71	0.85	0.11	0.09	0.17
Three	0.90	0.82	0.97	0.27	0.22	0.33
Four or more (ref)						
Urban residence						
Urban	0.89	0.80	0.98	0.94	0.82	1.07
Rural (ref)						
Religion						
Muslim	1.10	1.00	1.20	0.83	0.72	0.96
Christian/Catholic/other (Ref)						
Region of residence						
North central	1.12	1.00	1.26	1.14	0.97	1.34
Northeast	1.01	0.89	1.16	0.76	0.63	0.93
Northwest	0.95	0.83	1.08	0.39	0.31	0.49
Southern regions (ref)						
Education						
None	1.06	0.88	1.26	0.945	0.75	1.19
Primary	1.21	1.03	1.42	1.16	0.94	1.42
Secondary	1.33	1.15	1.545	1.15	0.95	1.41
Secondary plus (ref)						
Wealth quintile						
1 (poorest)	1.02	0.87	1.20	0.91	0.72	1.15
2	1.05	0.90	1.23	1.16	0.94	1.43
3	1.22	1.07	1.39	1.14	0.95	1.38
4	1.29	1.15	1.44	1.27	1.09	1.49
5 (ref)						
Employed in the 12 months preceding the survey						
Employed	0.92	0.86	0.99	0.98	0.87	1.10
Unemployed (ref)						
Attitudes toward intimate partner violence[a]						
Sometimes permissible	1.05	0.98	1.13	1.07	0.96	1.19
Never permissible (ref)						
The child of the most recent birth is living						
No	0.58	0.51	0.66	0.79	0.66	0.94
Yes (ref)						
Woman is involved with decisions on her health[c]						
Yes	0.85	0.79	0.92	1.07	0.96	1.19
No (ref)						
Women has knowledge of modern contraception[d]						
Yes	0.97	0.89	1.07	1.67	1.42	1.96
No						

[b]A woman reported that it was permissible for a wife to be beaten by a husband under one of these circumstances: wife goes out without telling her husband, wife neglects her children, wife argues with her husband, a wife refused to have sex with her husband, or she burns food.

[a] N=53,532 Proc Surveyreg was used to adjust for complex survey sample designs, including stratification, clustering, and unequal weighting. L-R ratio $p<.001$.

[c] Respondent is involved in decisions regarding her health, either alone, with a spouse or with another person.

[d] Women have knowledge of modern contraception versus knowing none/traditional/other.



	North Central	North East	North West	South East	South West	South South	Total
2003	5.7	7	6.7	4.1	4.1	4.6	5.7
2008	5.4	7.2	7.3	4.8	4.5	4.7	5.7
2013	5.3	6.3	6.7	4.7	4.6	4.3	5.5

Sources: http://www.statcompiler.com/; 2013 Nigerian Demographic and Health Survey

Fig. 3. Trends in TFR, by region, among women 15–49 in Nigeria: 2003, 2008, and 2013.

simple knowledge of modern contraception clearly increases the demand for contraception to limit fertility. Information and educational campaigns that educate women (and men) about contraceptive options would serve to further drive the demand for contraceptives, even in contexts with high-fertility preferences. Recent findings have also shown that strong programmatic interventions not only reduce unmet need and increase contraceptive use but also increase the proportion of women using modern contraceptives [15].

In addition, the data show that when women are involved with making their own health decisions, they are significantly more likely to demand contraception to space pregnancies. Studies have shown that in many instances, decisions around family size and fertility, in the Nigerian context, fall outside of a woman's domain [12,16]. Interventions aimed to improve women's empowerment, particularly with reference to their own health, have been shown to increase women's uptake of contraception in the urban Nigerian context [17]. Assessing the impact of many ongoing women's empowerment programs on changing fertility preferences is an area of further research. Finally, as other studies have shown [9], this analysis confirms that reductions in child mortality would directly impact the demand for contraception to both space and limit fertility.

Recent trends in the demand for contraception mandate an examination of the supply end of the equation. Historically, external donors have been providing family planning services and commodities, with almost no contribution from the Nigerian government [18]. There has been a consensus reached that the government's population and health policies are key in ensuring contraceptive supplies [19]. The 2012 commitment by the Nigerian Government of US $33.4 million over the next 4 years for contraceptive procurement is a very hopeful sign [18]. The Nigerian government has also been working to build a strong and broad-based political support for full access to and choice of contraceptives. The recent financial and political commitments to family planning in Nigeria provide hope for the expanded provision of family planning services at the population level.

Nigeria has set a goal of a 36% contraceptive prevalence rate by 2018 [18]. With an estimated contraceptive prevalence rate of 14.6% [5] reaching the additional 16% of women, who have articulated a demand for contraception, would almost reach that goal. The data show that, if Nigeria is successful in securing and delivering contraceptive commodities, a large number of Nigerian women will choose to use them. This is a critical window of opportunity; ensuring women who want contraceptives, with access to them, would not only support women's (and men's) ability to realize their reproductive rights but also, ultimately, may reduce the burden of maternal deaths in Nigeria.

5. Limitations

Unmet need for contraception, in its simplest form, is defined as the percentage of women who do not want to become pregnant but are not using contraception. The term, first coined in the 1970s, has been expanded to include the more nuanced issues around type of unmet need: that is, an unmet need for spacing versus limiting fertility, and to incorporate biological issues that may impact fertility preferences, such as fecundity and post-partum amenorrhea. This definition also limits the analyses to currently married women [6]. This has a strong potential bias toward underestimating the true burden of unmet need—particularly in populations were marriage is not a necessary precursor to sexual intercourse, and assumes that all currently married women are sexually active [20]. This is a key limitation. Despite this, using this definition has a key strength—it can be applied consistently to surveys to track trends in unmet need over time and compare estimates across countries.

Many of the indicators used in these analyses were based on self-report. There may be some bias in the reporting, particularly around many of the sensitive issues that were incorporated. Although this is a potential limitation, Cleland et al. note, "to the extent that response bias remains constant, trends in women's reported sexual behaviour may be dependable." (p. ii4) [21]. Despite this limitation, there are some key advantages to utilizing Demographic and Health Surveys (DHS) data, particularly in terms of their national

representativeness, high response rates, consistent and standardized data collection protocols, and interviewer training, that may mitigate the impact of these biases [22].

A final issue that warrants further discussion is whether this increase in demand for contraception, over time, is a result of a decline in the availability of contraception or women discontinuing available methods due to dissatisfaction with the method or cost, among other potential reasons. The unadjusted demographic and health survey data show that between 2003 and 2013, the percentage of married women using a modern method of contraception remained fairly constant; the number of married women not using any method of contraception declined slightly from 87.4% in 2003 to 84.9% in 2013 [3]. This is evidence that the main driver of trends for contraceptive demand is changing fertility preferences. Regardless, future research should explore why these trends in contraceptive use have remained so flat.

Acknowledgments

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