

## Original Article

# Prevalence and determinants of contraceptive use in rural Northeastern Nigeria: Results of a mixed qualitative and quantitative assessment

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## ABSTRACT

**Background:** Family planning is an effective intervention for promoting maternal health, but its acceptability and utilization are impeded by many factors in Northern Nigeria. This study aims to assess the prevalence and identify determinants of contraceptive use in a rural setting.

**Methods:** A mixed method cross-sectional descriptive study was conducted in Gumau, a rural community of Bauchi State, Northeastern Nigeria. Quantitative data were collected using an interviewer-administered questionnaire while the qualitative data were collected using focus group discussions with selected women and their husbands, and key informant interviews with family planning service providers.

**Results:** Family planning commodities were regularly available in the community and the prevalence of current contraceptive use was 26%. The main determinants included age <35 years (odds ratio [OR] = 3.0; confidence interval [CI] = 1.0–8.9;  $P = 0.028$ ), Christian religious affiliation (OR = 2.4; CI = 1.1–4.9;  $P = 0.025$ ), and spousal support (OR = 55.1; CI = 16.0–189.8;  $P = 0.000$ ). The qualitative data also reinforced the crucial role of sociocultural factors, especially men in decision-making and contraceptive uptake.

**Conclusion:** Sociodemographic factors, especially spousal support is a key determinant of contraceptive use that should be considered in the design of acceptable family planning intervention.

**Key words:** Contraceptive use, determinants, mixed methods, Nigeria

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## INTRODUCTION

Nigeria accounts for 14% of global burden of maternal mortality with the extremely poor Northeastern region having an estimated maternal mortality ratio (MMR) of 1549 deaths per 100,000 live births, which is more than 5 times the global average.<sup>[1,2]</sup> Family planning has been widely acknowledged to intensify maternal death reduction, which is recommended by the World Health Organization as one of the six essential health interventions needed to achieve safe

motherhood.<sup>[3]</sup> Accordingly, it has been demonstrated that by reducing high-parity births, family planning lowers a county's MMR by an estimated 450 points during the transition from low to high levels of contraceptive use.<sup>[4]</sup>

Unfortunately, there are barriers to access and effective utilization of family planning services even where it

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exist in the community, and these determining factors include logistic, social, behavioral, and medical issues.<sup>[3]</sup> Thus, the development of an effective and efficient family planning service requires intervention strategies to be designed in tandem with community-specific determinants of contraceptive usage.

Over the years, many family planning intervention approaches have been implemented in Northern Nigeria, but contraceptive use has not considerably improved.<sup>[2,5-8]</sup> Various studies have been conducted in this area of Nigeria to explore and understand the barriers to uptake, but few have comprehensively examined community-specific determinants of contraceptive use from the demand and supply perspective.<sup>[8-11]</sup> In this study, we aim to assess the prevalence and identify determinants of contraceptive use in a rural community of Northeastern Nigeria by employing mixed quantitative and qualitative methods.

## METHODS

### Study design and context

A mixed method cross-sectional descriptive study was conducted between April and June 2008 in Gumau town, a rural settlement in Toro Local Government Area (LGA) of Bauchi state, Northeastern Nigeria. Despite its rural nature, it is linked with a good road network and modern telecommunication service. Arable and pastoral agriculture as well as trading are the main occupations of the population. Modern health services are available in two government-owned primary health care (PHC) facilities, three private clinics, and six patent medicine stores. Specifically, family planning could be accessed in five of these outlets.

### Study population and sample size

The study population consisted of resident women of childbearing age (15–49 years) and their husbands. Others were the heads of health facilities (private and public) and patent medicine vendors/chemists providing family planning service in the study community. A minimum sample of 151 was obtained, but 200 women consented and were eventually included in the study. The sample size was calculated on the basis of contraceptive awareness prevalence from a previous study (89.0%), taking the sampling error to be 5.0% with a level of confidence of 95.0%.<sup>[12]</sup>

### Study instruments

Both quantitative and qualitative instruments of data collection were used in this study. These consisted of a

semi-structured interviewer-administered questionnaire used to obtain information on sociodemographic characteristics, knowledge, and utilization of contraceptive. The qualitative data collection tools included a key informant interview (KII) guide for family planning/contraceptive service providers, and the focus group discussion (FGD) guides to derive information on utilization from women of childbearing age and their husbands. The KII guide probed for information on the availability and preferred contraceptives and factors that affected their use. The FGD explored the knowledge, source of knowledge, utilization, and source of contraceptive devices as well as factors in the community that affect access and utilization of contraceptive devices.

### Data collection

Ethical approval and permission to conduct the research were sought and obtained at the institutional (Jos University Teaching Hospital, Jos, Nigeria) and community levels. Four trained research assistants (public health specialty resident doctors) were responsible for data collection. The selection of households was carried out by systematic sampling technique after conducting a household census that provided a sampling frame. The final selection of study participants was done at the household level. In each selected household, an eligible woman that gave informed consent was selected. In the households with more than one eligible woman, only one participant was selected by balloting that was done in the presence of all of them.

At each selected household, permission was obtained from the household head, and written informed consent obtained from the index female before the commencement of the interview. Three FGDs for younger women of childbearing age (15–30 years), older women of childbearing age (31–49 years), and husbands of women of childbearing age, respectively were conducted. Before commencement of the FGDs, verbal consent was obtained, and the procedure explained to the participants, especially the use of the tape recorder. Three KIIs were conducted in the contraceptive service delivery points; PHC center, private clinic, and patent medicine vendor.

### Data analysis

The data were processed and analyzed using the SPSS version 22.0 statistical software (IBM SPSS Statistics for Mac, Armonk, NY: IBM Corp.). Continuous data were summarized as mean  $\pm$  standard deviation and categorical

variables expressed in proportions. The contraceptive prevalence rate was calculated as the percentage of women who were using contraceptive. Bivariate analysis was conducted to identify determinants of contraceptive use. Odds ratio (OR) and 95% confidence interval (CI) were used to estimate the strength of association between independent (sociodemographic) variables and the dependent (current contraceptive use) variable. The qualitative data obtained from the KII and FGDs were transcribed and thematic analysis conducted.

## RESULTS

### Sociodemographic characteristics of participants

Two hundred eligible women responded to the questionnaire survey. Table 1 outlines the sociodemographic characteristics of the participants. Their mean age was 27.3 years; 4% of them were aged <15 years, and the modal age group was 25–34 years (52%). Almost half (47.5%) of the participants were Hausas, and 15.5% were Fulanis. Other ethnic groups represented included Sanga (8.5%), Gusawa (7.0%), and Jarawa (3.0%). Their religious affiliation was Islam (78.5%) and Christianity (21.5%). Ninety-four percent of them were married; 53.5% and 46.5% in polygamous and monogamous marriages, respectively. Most (72.0%) of the married participants had been married only once in their lifetime while 20.5%, 6.0%, and 1.0% were in their second, third, or fourth marriages, respectively. The mean age at first marriage of the participants was 16.59 years with a range of 12–29 years. The mean parity and number of living children were 4 and 3, respectively while the mean interval between pregnancies for 43.5% of participants was 2 years.

### Utilization of contraceptives

The prevalence and pattern of contraceptive utilization are detailed in Table 1. It shows that 42% of the participants had ever used contraceptives in the past, and the proportion of current users was 26%. Among the current users, only 35.5% of husbands were aware of their spouse's contraceptive usage. The injectable contraceptive was used by 64.6% while oral pills and implant were used by 14.6% and 20.8%, respectively. The reason for contraceptive use was based on multiple responses for 67.7% of those that had ever used it. The main reasons stated were child spacing (77.4%), medical reasons (19.4%), and completion of family size (3.2%). Twenty-eight women had previously

**Table 1: Sociodemographic and gynecological characteristics of participants**

Variable (n=200)	Frequency (%)
Age (years)	
<25	89 (44.5)
25–34	71 (35.5)
35–44	30 (15.0)
>45	10 (5.0)
Mean age±SD	28.50±7.820
Religious affiliation	
Christianity	43 (21.5)
Islam	157 (78.5)
Ethnic group	
Hausa	94 (47.5)
Fulani	34 (17.2)
Sanga	18 (9.1)
Gusawa	14 (7.0)
Lemoro	9 (4.5)
Jarawa	5 (2.5)
Others	24 (12.1)
Highest educational level	
None	34 (17.0)
Qur'anic	58 (29.0)
Primary	68 (34.0)
Secondary	33 (16.5)
Tertiary	7 (3.5)
Marital status	
Single	2 (1.0)
Married	188 (94.0)
Divorced	2 (1.0)
Widow	8 (4.0)
Type of marital relationship; n=188	
Monogamous	87 (46.5)
Polygamous	101 (53.5)
Order of marriage; n=198	
First marriage	142 (71.7)
≥Second marriage	56 (28.3)
Gravidity; mean (range)	5 (0–14)
Primigravida	14 (7.0)
Multigravida	175 (87.5)
Parity; mean (range)	4 (0–13)
Nulliparous	11 (5.5)
Primiparous	17 (8.5)
Multiparous	172 (86.0)
Number of living children; mean (range)	3 (0–9)
Birth interval; mean±SD	2.17±0.957
Aware of modern contraceptives	
Yes	188 (96.0)
No	12 (4.0)
Ever used contraceptives	
Yes	84 (42.0)
No	116 (58.0)
Currently using contraception	
Yes	44 (22.0)
No	156 (78.0)
Husband's awareness of contraceptive usage, n=44	
Yes	41 (93.2)
No	3 (6.8)
Husband's support of contraceptive usage, n=44	
Yes	41 (93.2)
No	3 (6.8)

SD: Standard deviation

discontinued contraceptive usage and half (14) of them were due to multiple factors. The specific reasons

mentioned included experiencing of side effects (8; 28.6%), contraceptive failure (1; 3.6%), irregular use (1; 3.6%), and uncomfortable with contraceptive method (4; 14.2%).

### Determinants of contraceptives utilization

The determinants of contraceptive utilization were assessed by quantitative [Table 2] and qualitative [Tables 3-5] methods. Quantitatively, the main factors influencing contraceptive use were husband's support (OR = 55.1; CI = 16.00–189.76;  $P = 0.000$ ), women aged <35 years (OR = 3.00; CI = 1.01–8.95; 0.028), Christian religious affiliation (OR = 2.37; CI = 1.12–4.99;  $P = 0.025$ ), previous contraceptive use (OR = 120.6; CI = 16.09–904.14;  $P = 0.000$ ), and awareness of contraceptive side effects (OR = 3.88; CI = 1.83–8.24;  $P = 0.000$ ).

The qualitative perspective on determinants of contraceptive use was extracted from FGDs with eligible women and their spouses. Both female and male participants expressed high awareness of contraceptives.

The major sources of information comprised of radio, friends, and women who were educated at the maternity clinic. The women recognized that shyness and societal demand for female reserve contribute to nondisclosure of utilization. However, a lone respondent believed, “it has no benefit, which is why she doesn't use it.” Even though societal censorship constitutes a barrier to contraceptive use, many of the female discussants admitted ever using contraceptive. “The women commonly access family planning service from private sources (patent medicine stores/chemists) and only a few obtained it from the government maternity clinic.” “The preference for private providers was due to privacy when seeking family planning service.” Important reasons specified for contraceptive use by the female discussants included child spacing and maternal rest, which they believed would help maintenance of health and beauty. In addition, the women mentioned that people needed to restrict their family size as a result of the harsh economic condition. Nevertheless, “daily

**Table 2: Factors influencing contraceptives utilization: results of bivariate analysis**

Variables	Current utilization of contraception (n=44)				
	Yes (%)	No (%)	OR (crude)	95% CI	P
Age (years)					
<35	40 (25.0)	120 (75.0)	3.00	1.01-8.95	0.028
>35	4 (10.0)	36 (90.0)			
Religious affiliation					
Christianity	15 (34.9)	28 (65.1)	2.37	1.12-4.99	0.025
Islam	29 (18.5)	128 (81.5)			
Type of marital relationship					
Monogamous	21 (23.6)	68 (76.4)	1.18	0.60-2.31	0.732
Polygamous	23 (21.3)	85 (78.7)			
Order of marriage					
≥Second marriage	17 (30.4)	39 (69.6)	0.63	0.32-1.25	0.085
First marriage	26 (18.4)	115 (81.6)			
At least one living male child					
Yes	37 (22.7)	126 (77.3)	1.259	0.511-3.09	0.669
No	7 (18.9)	30 (81.1)			
Level of education					
Minimum of primary education	28 (25.9)	80 (74.1)	1.66	0.83-3.314	0.172
No primary education	16 (17.4)	76 (82.6)			
Husband's level of education					
Minimum of primary education	37 (24.2)	116 (75.8)	1.82	0.75-4.41	0.228
No primary education	7 (14.9)	40 (85.1)			
Husband's support of contraceptive use					
Supportive	41 (56.9)	31 (43.1)	55.1	16.00-189.76	0.000
Unsupportive	3 (2.3)	125 (97.7)			
Previous contraceptive use					
Yes	43 (51.2)	41 (48.8)	120.6	16.09-904.14	0.000
No	1 (0.9)	115 (99.1)			
Aware of contraceptive benefits					
Yes	44 (26.0)	125 (74.0)	0.74	0.68-0.81	
No	0 (0)	31 (100)			
Aware of contraceptive side effects					
Yes	33 (32.7)	68 (67.3)	3.88	1.83-8.24	0.000
No	11 (11.1)	88 (88.9)			

OR: Odds ratio, CI: Confidence interval

**Table 3: Summary of focus group discussion with women of reproductive age**

Item/topic	Response
Awareness of contraception	Awareness is high, but shyness and societal demand for female reserve make women not to acknowledge being aware
Contraceptive utilization	Contraceptive methods used include oral and injectable
Benefits of contraceptives	Maternal rest and child spacing. But a lone opinion believed "it has no benefit, which is why she doesn't use it"
Side effects	Most participants are aware of side effects of contraceptive. Some of the side effects mentioned are real while others are imagined. These included secondary infertility, uterus not functioning well and when gravid may not hold a baby well or cause intrauterine fetal malnourishment. Other side effects mentioned included excessive menstrual flow and prolonged menstrual bleeding. A participant mentioned that these side effects come about because "many women are not aware of the proper way to use contraceptive devices"
Sources of contraceptives	The government owned maternity clinic is the main medium of family planning information. The women mostly source contraceptives from the patent medicine store (chemists) and only a few actually obtain contraceptives from maternity clinic or dispensaries. The preference for the chemists is due to privacy when seeking family planning service
Hindrance to contraceptive use	Societal censorship and pressure for secrecy on contraceptive use constitute barrier to demand. Oral contraceptive requires daily ingestion thus constituting a challenge for uptake and compliance. In addition, "some husbands don't permit the women to use contraceptives. Hence, many women use it without disclosure"

**Table 4: Summary of focus group discussion with husbands of women of reproductive age**

Item/topic	Response
Awareness of contraception	Most participants are aware of contraception. Source of knowledge varies from radio, friends and spouses who in turn get educated in the hospital
Availability of contraception in the community	Most agree that contraception is accessible in the community, and the available types included condom, oral and injectable forms
Benefits of contraceptives	Benefits proffered include child spacing, limiting number of children and maternal rest in order of importance
Awareness of side effects of contraceptive utilization	Infertility was mentioned as a side effect
Contraceptive utilization in the community	The commonly used contraceptives in the community included oral, injectable and condoms
Reasons for contraceptive utilization	Utilized mostly by people who are aware and reinforced by the harsh economic conditions that necessitate restriction of family size. Other reasons given included child spacing and maternal rest that helps women to maintain their health and beauty
Sources of contraceptives	Maternity clinic and private (patent medicine vendor/clinic) outlets as sources of contraceptive commodity. "Most of the participants are not aware of the cost", but they mentioned oral contraceptive costing N150 per unit while the injectable cost as high as N1300
Hindrance to contraceptive use	The men admitted that they generally hinder their spouses from contraceptive use. Important factors influencing this decision include lack of knowledge about contraceptives. Some potential users "don't want to be seen in public seeking the commodity because of the disgrace attached to its utilization in the community". Other reasons cited were the prohibitive cost for the common man and the religions injunction that encourages human multiplication

**Table 5: Summary of key informant interview with heads of government owned and private family planning providers**

Item/topic	Response
Available modern contraceptives in the facility	Oral (lofemenal), injectable (noristerat) and Depo-provera Condom is not acceptable as it was perceived to promote promiscuity, and supplies normally get expired
Demand for contraceptives	About 10 clients per week and all categories of women demand for it. In private facilities, most clients come on their own
Sources of contraceptives	Supply based on requisition to the primary health care department of the local government area. The supply for private providers is based on commercial purchase from whole sellers in Jos, plateau state (65 km)
Stocking of commodity	Always available and never experience stock out
Commonly used contraceptives	Injectable especially Noristerat, which has good compliance because of the 3 monthly dose. But all options are normally presented and explained to client
Cost of contraceptives	Oral - N10-20-month or cycle and injectable - N60/injection
Awareness and utilization of contraceptives in the community	Knowledge is low but all women attending immunization clinic, and antenatal clinic are given health education on family planning. Utilization is low because the clients' uptake decision is influenced by husband's support and socio-cultural factors
Hindrance with contraceptive utilization in the community	Many potential clients complain of cost. The shy women don't like to come to the clinic and prefer the patent medicine store (chemist) because of the perceived privacy. But a special counseling room has been designated for family planning in the clinic so as to ensure privacy. The clinic does not have adequate staff required to go for community outreach and home visits. "Men never come to the clinic for family planning"



ingestion of oral contraceptives and lack of husband's support were major reasons for discontinuation of contraceptives use in the past."

The male discussants proffered that family planning is beneficial for child spacing, limiting number of children, and maternal rest. In practice, they acquiesced that "its utilization was mostly by persons who were aware and reinforced by the "harsh" economic conditions necessitating restriction of family size. However, "the men generally admitted hindering contraceptive utilization by their spouses." The men mostly base their decision on high cost of contraceptives, even though most of the participants were not aware of its actual cost. Some potential users do not want to be seen in public seeking the commodity because of the stigma attached to its utilization in the community. Importantly, "the men referred to religious injunctions that encourage procreation and thus abhorring contraceptive use."

Interviewing government and private family planning service providers provided understanding of the supply factors of contraceptive use in the community. The available modern contraceptive methods included oral (Lo-Femenal), injectable (Noristerat) and Depo-provera. The contraceptive commodity supply is based on requisition to the PHC Department of the LGA (Government providers) and procurement from whole sellers in nearby urban settlement (private providers). Family planning commodities were always available and never experienced stock out. All categories of women demand for it but "men never come or escort their spouses to access family planning." The most common method dispensed is injectable, especially Noristerat, which has good compliance due to its three monthly dose. Condom is not acceptable, and supplies normally get expired. "Clients' decision is affected by husband's lack of support and shy women do not like to come to the government maternity clinic, which has reinforced preference for chemist as a source because of the perceived privacy."

## DISCUSSION

Findings of this study indicated that almost a quarter of women were currently using contraceptive, which is comparatively higher than the Nigeria demographic and health survey (NDHS) contraceptive prevalence rate of 4% reported for contemporary period of the study or later NDHS findings in Northeastern Nigeria.<sup>[8,13]</sup>

This observation has to be contextualized with the fact that our study was sited in only one community among many that constitute the sampling frame for the NDHS in this part of the country. Furthermore, the information we obtained from quantitative and qualitative assessment provided complementary evidence of discreet contraceptive use by women, which is undisclosed mainly due to lack of spousal support and societal censorship.

Sociodemographic factors influencing contraceptive utilization were examined in this study. Generally, we observed that the decision and demand for the uptake or discontinuation of contraceptive use were founded on multiple factors. This study showed that even with availability and accessibility of affordable contraceptives in a community with high knowledge of contraceptive among women. Spousal support featured as a significant decider of its actual utilization, which is an expression of underlining economic privation and patriarchal culture evident in parts of Northern Nigeria, where men play dominant role in decision-making for reproductive and family health.<sup>[10,11]</sup> This finding is braced by results from other parts of the world, which showed that men were dominant decision makers in the reproductive health needs of families.<sup>[14-18]</sup> In addition, intervention studies have validated that the rate of effective contraceptive usage among women improves, especially where family planning service targets both sexes.<sup>[19-21]</sup>

Even though, a paradigm shift is advocated for targeting men in family planning programs. In Nigeria, male involvement has been observed to be minimal partly because the past family planning programs have been mainly directed toward women.<sup>[11]</sup> Moreover, it has been documented that in many societies the reason for much resistance to family planning measures has a social-cultural basis: People do not easily accept rapid change in their customs.<sup>[22]</sup> Fundamentally, respect for tradition and religious taboos are mixed with the fear that a family with only a few offspring might die out entirely, a compelling consideration for an environment where early childhood mortality rates remain high.<sup>[2,22,23]</sup>

Certainly, the provision of an acceptable and effective contraceptive methods can only happen at a local level, taking into greater account of the social conditions, and without offending individual consciences.<sup>[22]</sup> Essentially, birth control programs and services should

be designed to meet the needs of individual communities by recognizing and taking into account of cultural idiosyncrasies to achieve set goals.<sup>[24]</sup> The accumulated evidence robustly favors the enhancement of the integration of men into family planning program design and implementation.

### Strength and limitation of study

This study is limited by its sample size and design of its quantitative component that precludes generalization and causal attribution. However, its major strength was the mixed methods employed to explore the determinants of contraceptive use. The triangulation of quantitative and qualitative data sources ensured that collected information was complementary and consistent. Although, qualitative findings reveal that societal censorship may potentially inhibit disclosure of the current or past contraceptive usage. The challenges to validity of the measurement of contraceptive use included social response and recall bias, for example, some of the respondents might have indicated past usage even when asked about current use. We hope that future studies with bigger sample sizes and covering wider geographical area would investigate this phenomenon by concurrent application of quantitative and qualitative methods.

### CONCLUSION

The findings of this study showed that family planning services are available in the study community via government and private sources. The utilization of contraceptive in this community was principally determined by the woman's age, religious affiliation, spousal support, and knowledge of contraceptive (benefits and side effects). Therefore, we recommend culturally sensitive and acceptable strategies directed at relevant determinants as vital tools of improving the acceptance and utilization of contraceptives in this setting.

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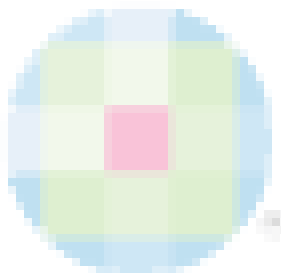
### Conflicts of interest

There are no conflicts of interest.

### REFERENCES

1. WHO, UNFPA, The World Bank. Trends in maternal mortality: 1990-2012. Geneva: World Health Organization; 2012.
2. National Population Commission (NPC) [Nigeria] and ICF International. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, Rockville, Maryland, USA: NPC and ICF International; 2014.
3. Lucas AO, Giles HM. Short Textbook of Public Health Medicine for the Tropics. 4<sup>th</sup> ed. London: Arnold Publisher; 2003.
4. Stover J, Ross J. How increased contraceptive use has reduced maternal mortality. *Matern Child Health J* 2010;14:687-95.
5. Federal Ministry of Health (Nigeria), Columbia University Center for Population and Family Health. Community-based distribution (CBD) of low cost family planning and maternal and child health services in rural Nigeria (expansion). New York: Population Council; 1993.
6. National Population Commission (NPC) [Nigeria]. Nigeria Demographic and Health Survey 1999. Calverton, Maryland, USA: National Population Commission (NPC) and ORC Macro; 2000.
7. National Population Commission (NPC) [Nigeria] and ORC Macro. Nigeria Demographic and Health Survey 2003. Calverton, Maryland, USA: National Population Commission (NPC) and ORC Macro; 2004.
8. National Population Commission (NPC) [Nigeria] and ICF. Nigeria Demographic and Health Survey 2008. Abuja, Nigeria, Calverton, Maryland, USA: National Population Commission and ICF Macro; 2009.
9. Aliyu AA, Shehu AU, Sambo MN, Sabitu K. Contraceptive knowledge, attitudes and practice among married women in Samaru community, Zaria, Nigeria. *East Afr J Public Health* 2010;7:342-4.
10. Izugbara C, Ibisomi L, Ezech AC, Mandara M. Gendered interests and poor spousal contraceptive communication in Islamic Northern Nigeria. *J Fam Plann Reprod Health Care* 2010;36:219-24.
11. Duzé MC, Mohammed IZ. Male knowledge, attitudes, and family planning practices in Northern Nigeria. *Afr J Reprod Health* 2006;10:53-65.
12. Ameh N, Sule ST. Contraceptive choices among women in Zaria, Nigeria. *Niger J Clin Pract* 2007;10:205-7.
13. International NPCNaI. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, Rockville, Maryland, USA: NPC and ICF International; 2014.
14. Balaiah D, Naik DD, Parida RC, Ghule M, Hazari KT, Juneja HS. Contraceptive knowledge, attitude and practices of men in rural Maharashtra. *Adv Contracept* 1999;15:217-34.
15. Haider S, Todd C, Ahmadzai M, Rahimi S, Azfar P, Morris JL, et al. Childbearing and contraceptive decision making amongst Afghan men and women: A qualitative analysis. *Health Care Women Int* 2009;30:935-53.
16. Edwards SR. The role of men in contraceptive decision-making: Current knowledge and future implications. *Fam Plann Perspect* 1994;26:77-82.
17. Espirito-Santo DC, Tavares-Neto J. Male views of contraceptive methods in a rural community in Bahia state, Brazil. *Cad Saude Publica* 2004;20:562-9.
18. Withers M, Dworkin SL, Onono M, Oyier B, Cohen CR, Bukusi EA, et al. Men's perspectives on their role in family planning in Nyanza Province, Kenya. *Stud Fam Plann* 2015;46:201-15.
19. Ozgür S, Ihsan Bozkurt A, Özçirpici B. The effects of family planning education provided to different gender groups. *BJOG* 2000;107:1226-32.
20. Tao AR, Onono M, Baum S, Grossman D, Steinfeld R, Cohen CR, et al. Providers' perspectives on male involvement in family planning in the context of a cluster-randomized controlled trial evaluating integrating family planning into HIV care in Nyanza Province, Kenya. *AIDS Care* 2015;27:31-7.
21. Fotso JC, Higgins-Steele A, Mohanty S. Male engagement as a strategy to improve utilization and community-based delivery of maternal,

- newborn and child health services: Evidence from an intervention in Odisha, India. *BMC Health Serv Res* 2015;15 Suppl 1:S5.
22. Rumeau-Rouquette C, Bouvier-Colle M, Ringa V. Women's health. In: Detels R, Holland WW, McEwen J, editors. *Oxford Textbook of Public Health*. 3<sup>rd</sup> ed. Oxford: Oxford University Press; 1997.
23. Avong HN. Perception of and attitudes toward the Nigerian federal population policy, family planning program and family planning in Kaduna state, Nigeria. *Afr J Reprod Health* 2000;4:66-76.
24. Mahram M. Middle East Assessment. Draper Fund Report; 1984. p. 13-5.



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