ORIGINAL RESEARCH ARTICLE

Fertility Intentions, Contraceptive Awareness and Contraceptive Use among Women in Three Communities in Northern Nigeria

Solomon Avidime[1], Larai Aku-Akai[2], Ado Zakari Mohammed[2], Sunday Adaji[1], Oladapo Shittu[1] Clara Ejembi[2]

[1]Department of Obstetrics and Gynaecology, Ahmadu Bello University Teaching Hospital Zaria, Nigeria; [2]Department of Community Medicine, Ahmadu Bello University Teaching Hospital Zaria, Nigeria.

***For Correspondence:** Solomon Avidime. *E-mail:* avidime01@yahoo.com.

Abstract

This study measured contraceptive knowledge, contraceptive use and fertility intentions among 1408 women of reproductive age in three communities in Kaduna state, Nigeria. Contraceptive knowledge was relatively high, with 64.6% of women having heard of at least one method. Radio and health facilities were the primary sources of information. The pill was most widely known (54.1%), followed by female sterilization (47.5%) and injectables (47.4%). Knowledge did not reflect use, however, as only 3.1% were current users of any method, among which injectables, pills and traditional waist bands were the most popular. Nearly 10% of non-users intended to begin using a method in the coming year, of whom 37.3% wished to use injectables. When asked about their last birth, 87% of women had desired to become pregnant and only 15% felt that their last pregnancy was mistimed. A sensitive and community-friendly approach is needed to reduce risks associated with high fertility while being respectful of community preferences (*Afr. J. Reprod. Health* 2010; 14[3]: 65-70).

Résumé

Intentions de fécondité, de connaissance du contraceptif et de l'emploi des contraceptifs chez les femmes dans trois communautés au nord du Nigéria. Cette étude a examiné la connaissance du contraceptif, l'emploi des contraceptifs et le désir de la fécondité chez 1408 femmes en âge de procréation dans trois communautés dans l'état de Kaduna, Nigéria. Le niveau de connaissance du contraceptif est relativement élevé, 64,6% des femmes ayant déjà entendu parler d'au moins une méthode. Les sources primaires de l'information étaient la radio et les établissements de santé. La pilule a été largement la plus connue (54,1%), suivie de la stérilisation féminine (47,55%) et des injectables (47,4%). Néanmoins, la connaissance n'a pas reflété l'emploi étant donné que 3,1% étaient des usagers courants de n'importe quelle méthode, dont les injectables, les pilules et les ceintures traditionnelles étaient les plus populaires. Presque 10% de non usagers avaient l'intention de commencer à employer une méthode dans l'année qui vient; parmi elles, 37,3% voulaient utiliser les injectables. Quand on leur a demandé leur dernier accouchement, 87% des femmes avaient voulu être enceintes et seules 15% ont pensé que leur dernière grossesse a été mal-calculée. Il faut une approche sensible et qui favorise les communautés pour réduire les risques liés à la haute fécondité tout en respectant les préférences des communautés (*Afr. J. Reprod. Health* 2010; 14[3]: 65-70).

Key words: Rural women, contraception, fertility, northern Nigeria.

Introduction

Nigeria is the most populous country in Africa with an estimated population in 2009 of 152 million people, a growth rate of 2.6% and fertility rate of 5.7[1]. Of the world's population, 75% live in developing countries characterized by high fertility rates, high maternal and infant mortality and low life expectancy. In general, it is estimated that the average woman would bear 15 children over her reproductive lifetime if she used no contraceptive method[2]. Rapid population growth slows economic development, can be harmful to the environment, over stretches social services, exacerbates poverty and fuels conflicts[3]. Total fertility rate (TFR) in pre-modern societies typically ranged from 4.5 to 6.5 live births per woman, which offset high mortality. In countries with a steady decline in mortality and minimal change in fertility rates, such as northern Nigeria, rapid population growth poses a challenge to sustainable development[4].

Concerns about women's health related to maternal morbidity and mortality has made discussions on fertility intentions and contraceptive preferences paramount. Nearly half of pregnancies worldwide are unintended, and much scope remains to

improve contraceptive coverage[4]. The goal is to avert adverse health outcomes associated with unintended pregnancies in order to increase chances of attaining the fifth Millennium Development Goal (MDG) of reducing maternal mortality by three quarters by the year 2015.

Across the globe, fertility rates have fallen largely due to the widespread and increasing use of modern methods of contraception. However, in some developing countries the uptake of contraception remains low due to cultural, economical and political barriers[5]. Today, sub-Saharan Africa is the region with the lowest levels of contraceptive use and the high levels of fertility rates. A study of six ethnic groups in Nigeria (Yoruba, Hausa, Fulani, Ibo, Kanuri, Efik and Ibibio) found that all placed a high premium on large family size.

Furthermore, there was some evidence of concern about a potential link between contraceptive use and infertility among them. Community suspicion, and in many cases, rejection of family planning, particularly in the northern region of Nigeria has impacted the health of women and children[6].

The national contraceptive prevalence rate (CPR) for modern methods in Nigeria is 11%. 29% of women reported in the Nigerian Demographic and Health Survey (NDHS) that they want to have another child soon and 32 % would prefer to have their next child in 2 or more years. In northern Nigeria, researchers found that the mean number of pregnancies was 6.7 and the mean number of live births was 5.7[7]. On the aver-age, northern Nigerian women have given birth to one child by the age of 19 and more than 50% have eight or more children by the time they are in their late forties[8].

There was no national response to high fertility trends until 1989, when the Nigerian government released its National Population Policy, calling for the "reduction of the birth rate through voluntary fertility regulation methods compatible with national economic and social goals"[9,10]. Yet contraceptive decision-making remains a deeply personal and sensitive issue that often involves religious or philosophical convictions. A long history of insensitivity and failed attempts by outsiders to encourage contraceptive uptake has led to an increasing awareness among researchers, clinicians and program planners that the topic of contraception must be approached in a sensitive, empathetic and non-judgemental manner[11].

There is considerable variation in contraceptive usage from country to country and region to region. One-third of developing countries have a skewed method mix, in which a single method accounts for more than half of all contraceptive use. In many cases, this is an indication that knowledge or access to a broad range of contraceptive methods is limited[12]. In places where a wider variety of methods have become available, contraceptive uptake has often been observed to rise[13]. Genuine access to a broad method mix involves many factors − the availability and affordability of a variety of contraceptive methods, community members' awareness and understanding about these methods, and their ability to overcome the various barriers to obtain the method of their choice. Personal preferences, social norms, gender preferences, women's education, rural or urban residence and perceived acceptability of family planning have all been shown to impact contraceptive usage[14,15]. Understanding these determinants is a critical first step in the design of interventions to increase CPR[16].

The importance of having accurate information about contraceptive methods is often underestimated. Ozumba et al. found that in southeast Nigeria, 68% of the unmarried rural population learned about contraceptive methods from either the mass media or from health workers[17]. These two primary sources of contraceptive information[7] should be much more efficiently used to disseminate correct information and dispel misconceptions in northern Nigeria. Mass media is heard or seen by passive consumers so it is less likely to be perceived as invasive. Community-based health workers with training to counsel potential users in family planning initiation and continuation bring an interactive aspect to knowledge dissemination because they can respond to individual needs, answer questions and reassure users. Efforts to attend to the population's needs have far to go: 97% of women of reproductive age in northwest Nigeria who were not using any method of contraception reported that they neither discussed family planning with fieldworker nor at a health facility in the last 12 months[7].

Several studies have looked at contraceptive use in northern Nigeria. In Maiduguri, Mairiga et al. found injectables to be the most commonly used and female sterilization the least commonly used method[18]. Ameh et al. also found injectables to be the most commonly used method (50.7% of users) in Zaria[19]. In contrast, Mutihir et al. reported that in Jos, the IUCD was the most commonly used method by 26.1% of users[20].

In any community, identifying fertility preferences and the determinants of contraceptive intentions and use is essential. Such information will help guide strategies that will be effective in reducing the number of unintended and/or unwanted births. The resultant fertility decline will help stem high mortality and engender sustainable population growth and economic prosperity even in the most remote settlements.

Methods

Data collection and instruments

A community-based, cross-sectional, descriptive

Table 1. Socio-demographic characteristics of respondents.

Age	N	%
10-19	253	17.9
20-24	314	22.3
25-29	307	21.8
30-34	202	14.3
35-39	162	11.5
40-44	96	6.8
45-49	74	5.0
Educational status		
Quranic only	786	55.8
Conventional only	381	27.1
Both	241	17.1
Current marital status		
Currently married	1165	82.7
Co-habitating	95	6.7
Not in a union	148	10.5
Age at 1st Child birth		
<20	1007	71.5
20-24	306	21.7
25^{+}	95	6.7
Parity		
0	240	17.0
1-4	675	47.9
5+	493	35.0

study was designed using a semi-structured questionnaire adapted from the 2003 Nigerian Demographic and Health Survey[7] to collect quantitative data from married and unmarried women aged 15 – 49 living in Shika Dam, Dakace and Tsibiri in the Zazzau emirate of Kaduna State, northern Nigeria. Girls between the ages of 10 and 14 years were also included if they were married.

Initial contact with the communities occured via a meeting with the community liaison officer, the community head and the council of chiefs. Formal permission was sought from the leaders in each community prior to initiation of the research. Preceding the survey, each village was mapped, followed by house numbering and household listing. Research assistants were recruited and trained and the questionnaire was pretested and refined.

All consenting women aged 15 – 49 years, and consenting 10-14 year-old girls who were married were recruited into the study. Women who were absent from the community at the time of the study and those who preferred not to participate were excluded. The study protocol was approved by the Ethical Committee of Ahmadu Bello University Teaching Hospital, Shika, Zaria and the Institutional Review Board of the University of California, Berkeley. Participants were assured of confidentiality and there were no penalties for refusal to participate. Data collection was completed in June and July of 2007.

Statistical Analysis

Data was analysed using SPSS Version 17.0 for Windows. Frequencies were run based on respondents' sociodemographic characteristics, contraceptive use, and fertility knowledge and intentions. Bivariate analysis was conducted to determine the effect of age on contraceptive use.

Limitations

With a cross-sectional study design, the research team was limited in its ability to assess the direction of the relationship between associations. Data collection was particularly challenging due to the heavy work load of the respondents. It is also possible that some female respondents could have felt intimidated by male investigators or also by investigators of either gender who were not from the community or from the same socio-economic class. Though all research investigators were well trained, errors in translation and interpretation may have affected the findings.

Results

Sociodemograpic characteristics of respondents

The sociodemographic characteristics of the respondents are described in Table 1. The three communities, located surrounding Zaria city, have a population size ranging from 1404 to 2868 people. Most of the residents in the rural communities of Shika Dam and Tsibiri are Hausa-Fulani Muslims. Dakace, the only peri-urban community of the three, also has a Hausa-Fulani majority but is also home to many other ethnic and religious groups. The primary occupations in all three communities are farming and fishing, but in Dakace a subset of its population is also engaged in industrial jobs.

A total of 1408 women of reproductive age, representing 24.4% of the combined population of the three communities, were recruited into the study. The largest proportion of women (44.1%) was between the ages of 20-29, with a mean age of 26.3 years (SD 8.3). While the majority of the women (55.8%) had received Quranic education, only 27.1% had attended conventional education. 82.7% of the sample was married and 71.5% had given birth to their first child before the age of 20. Nearly half of the sample had between 1 and 4 children and 35% had more than 5 children. Only 17% had not yet had their first child.

Fertility preferences

Figure 1 describes women's preferences related to their last pregnancy: 87% of respondents reported that they wanted to become pregnant at the time, 12% stated that they would have preferred to wait,

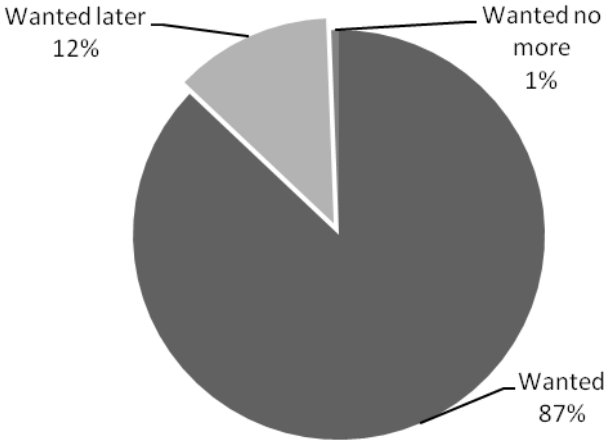

Figure 1. Pregnancy desires of women at onset of last pregnancy (n=332).

Table 2. Knowledge of contraceptive methods.

Contraceptive methods	N	%
Pill	762	54.1
Female sterilization	669	47.5
Injectables	667	47.4
Male sterilization	249	43.9
Male condoms	548	38.9
IUCD	393	31.0
Amulets	416	28.3
Herbs	399	28.3
LAM	357	25.4
Pregnancy interruption	232	23.6
Traditional rings	332	23.6
Emergency	134	16.5
Implants	182	12.9
Withdrawal	160	11.4
Rhythm	128	9.1
Female condoms	127	9.0
Diaphragm	104	7.4
Foam/Jelly	95	6.7

and 0.6% did not want to have any more children at all. When asked how many children they would like to have, 30 respondents declined to state a number, possibly indicating an aversion to the question that may have seemed intrusive or puzzling. Of the women who responded, the median number of children was 8 and the mode was 10. (Figure 2) The largest proportion of women (37%) gave a number from 5-9, followed by 32% of women who wanted 10-14 children. Less than 20% wanted 4 children or less. Of the women who stated their desired number of children, 80% responded that their ideal number of children was six or more.

Table 3. Ever use, current use and non-use of contraceptives, by age.

Age	Ever Use N (%)	Current Use N (%)	Never Use N (%)
15-19	1 (0.4)	1(0.4)	252(99.2)
20-24	4(1.2)	0	310 (98.8)
25-29	18 (5.8)	6(1.9)	289(92.3)
30-34	16(7.5)	12(5.6)	186(86.9)
35-39	12(6.7)	18(10)	150(83.3)
40-44	7(6.9)	5(5.0)	89(88.1)
45-49	2(2.6)	2(2.6)	72(94.8)

Awareness of contraceptive methods

Two-thirds of respondents (64.6%) had heard of at least one method of contraception. Among modern methods, the pill was mentioned by over half of the sample (54.1%), closely followed by female sterilization (47.5%) and injectables (47.4%) Table 2. The traditional waist band was mentioned by 441 respondents (31.6%). Radio programmes and health workers were the most common sources of information about modern methods of contraception, and the chemist's shop was the most frequently mentioned place where one could obtain contraceptive method.

Utilization of contraceptives

Only 4.3% of women in the three study communities had ever used any method to delay or avoid pregnancy. Current usage was even lower − only 3.1% of women reported current use of either traditional or modern methods. The CPR for modern methods was 2.5% (n= 36/1408) and for traditional methods was 0.6 % (n= 8/1408). Among the 44 contraceptive users in the three communities, injectables were the most popular modern method (50%), followed by pills (20.5%). The third most popular method was the waist band (9.1%) a traditional band worn by Hausa-Fulani and Yoruba women that is believed to prevent pregnancy[21] (Tables 3 and 4). The wearer removes the band when a pregnancy is desired.

A slightly higher proportion of respondents (9.2%) stated that they intended to use a modern contraceptive method in the next 12 months. Of this group, injectables and pills again emerged as preferred methods. Unsurprisingly, women with higher levels of education had higher levels of awareness and use of methods. Among those women who were not using any form of contraception, the primary reason for non-use was a desire to get pregnant (28.4%). Another 26.3% felt contraception was unnecessary, and 10.3% cited religious or cultural reasons for not using it. Fewer than 5% mentioned a fear of side effects or spousal refusal and less than 1% mentioned cost as a barrier.

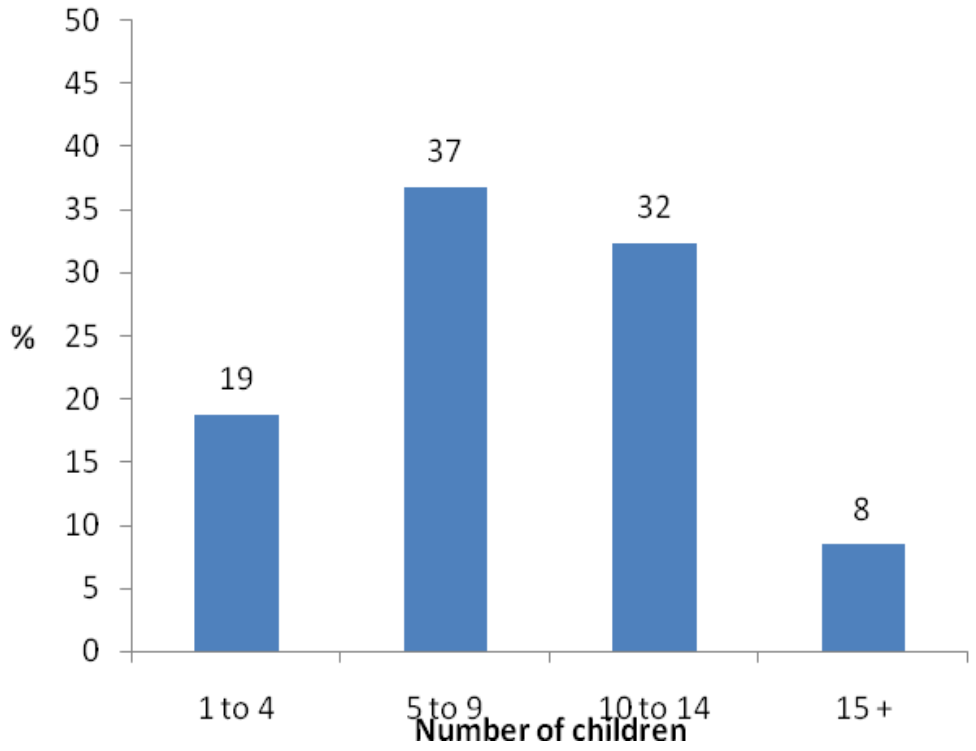

Figure 2. Ideal number of children among respondents (n= 262).

Table 4. Contraceptive methods in current use (n=44).

Contraceptive Method	N	(%)
Injectables	22	50.0
Pills	9	20.5
Waist bands	4	9.1
Female sterilization	2	4.5
Intrauterine Contraceptive Device	2	4.5
Amulets	2	4.5
Condoms	1	2.3
Lactational Amenorrhea Method	1	2.3
Herbs	1	2.3

Discussion

In rural areas of northern Nigeria, there is a strong expectation that women will bear many children which is likely to be internalized by Hausa-Fulani women. Unlike many other African cultures, in Hausa-Fulani society, men conduct their work outside the household and women's work is conducted primarily within the household compound.

In these communities, it is unclear to what extent the community is aware of the potential dangers associated with very high parity. Although use of modern contraception was extremely low (2.5%), awareness of methods was high (64.6%). The high level of awareness of female sterilization within these communities may be due to ANC health talks that alert them on the likelihood of sterilization if they incur a ruptured uterus due to prolonged or obstructed labour and non-use of skilled attendance at childbirth.

The main sources of information about contraceptive methods were the mass media and health workers, which corroborate the results found in successive NDHS reports. In order to further improve the current level of awareness and utilization of contraceptive methods, it will be necessary to deliver accurate and timely information about reproductive health, safe motherhood and family planning using the channels that are most accessible to them.

High level of contraceptive awareness does not necessarily translate into regular contraceptive use, even in regions where women may privately prefer to space or limit childbearing[22]. Sixty-five percent of respondents were familiar with at least one contraceptive method, only 3.1% reported current use of a method, which is considerably lower than the national CPR of 15% (CPR for modern methods = 11%). This low rate of contraceptive use can be partially attributed to families' desire and expectation of large families, but other factors also play a role. It is clear that using contraceptives to delay, space or limit childbearing is yet to be perceived as an essential element of safe motherhood by many. This is the task that should engage the attention of reproductive health advocates in the region.

Women who managed to attain a higher level of education exhibited greater awareness and utilization of contraceptive methods in this study. This is

further evidence to support intensification of girl-child education in these settings, as education will not only raise women's level of awareness about contraceptive options, but it will engender better reproductive health for themselves and possibly also for their children.

Conclusion

These findings sound a timely alarm that in rural northern Nigerian communities, where fertility remains high and contraceptive use is low, the road towards a two-thirds reduction in maternal mortality will be long. However, by paying greater attention to improving educational opportunities for women, and by using mass media and health workers to provide accurate information about family planning, improvements in reproductive health outcomes can be achieved. A community-friendly approach using education will improve family planning utilization, modify fertility intentions and save maternal and newborn lives in rural settings.

Acknowledgements

The authors will like to acknowledge the communities of Dakace, Shika Dam and Tsibiri for their participation. The authors would also like to thank the PRHP program at Ahmadu Bello University and the teaching hospital Zaria, the University of California, Berkeley and National Institute of Health, Fogarty International Centre and National Institute of Child Health and Development (5D43TW007696-04).

References

1. Nigeria's population profile, Population Reference Bureau, info by country; Nigeria statistics UNICEF 2009
2. Bongaarts J, Potter RG. Fertility, biology and behavior. London: *Academic Press*, 1983.
3. Nazli Choucri, Population and Conflict: New dimensions of population dynamics. United Nations Fund for Population Activities Policy Development Studies, Number 8, 1983.
4. Cleland, J. Contraception in historical and global perspective. Best Practice and Research. *Clin. Obstet. Gynaecol.* 2009; (23): 165–176
5. Konge JC, Oladipo AO, Barriers to uptake and use of modern methods of contraception in developing countries. *Intl. J. Gynecol. Obstet.* (1999) 65, 287-294
6. Akinfeleye R, Charlse JO, Omideyi AK. Sociocultural factors affecting attitude and behaviour regarding population and family life in Nigeria, *Fam. Plann.* Nigeria UNFPA, 2009
7. National Population Commission (NPC) [Nigeria] and ICF Macro. 2009. *Nigeria Demographic and Health Survey 2008.* Abuja, Nigeria: National Population Commission and ICF Macro.
8. Galandanci H, Ejembi C, Iliyasu Z, Alagh B, Umar U. Maternal health in Northern Nigeria—a far cry from ideal. *Brit. J. Obstet. Gynaecol.* 2007; 114:448–452.
9. Clifford O, Family planning attitude and use in Nigeria, A factor analysis. International Family Perspectives, 1999; 25(2):86-91
10. Federal Government of Nigeria, National Population policy for development, unity and self-reliance, Ikoyi, Lagos, Nigeria: federal Ministry of Health, 1988.
11. Michelle G, Ronald TB, Contraception and family planning, *Curr. Obstet. Gynaecol. Diagnosis and Treatment* 9th edition,2003,
12. Sullivan T M et al., Skewed contraceptive method mix: Why it happens, why it matters. *J. Biomed. Sci,* 2006; 38(4); 501-521.
13. Doucouré A, Djeneba D, Touré F, et al. The effect of a family planning CBD project in Mali. In Foreit J, Frejka T, eds. *Family Planning Operations Research: A Book of Readings.* (New York: Population Council, 1998)113-18.N.
14. Jejeebhoy S J. Women's education, fertility and the proximate determinants of fertility. United Nations, 1992; 40.
15. Castro M T. Women's education and fertility: results from 26 demographic and health surveys. *Stud. Fam. Plan.* 1995; 26: 187-22.
16. Weldegerima B, Denekew A, women's knowledge, preference, practices of modern contraceptive methods in Worita, Ethopia. PMID: 18794040 [PubMed - Indexed for MEDLINE] 2007.
17. Ozumba BC, Obi SN, Ijioma NN, Knowledge, attitude and practice of modern contraception among single women in a rural and urban community in Southeast Nigeria. *J. Obstet. Gynaecol.* April 2005; 25(3): 292 – 295
18. Mairiga AG,Kyari D,Audu B,Lawuwa BM. Socio-clinical characteristics of modern contraceptive users at the University of Maiduguri Teaching Hospital. Niger *J Clin Pract.* June 2007; 10(2):152-5.
19. Ameh N, Sule ST. Contraceptive choices among women in Zaria, Nigeria. *Niger. J. Clin. Pract*. sept 2007; 10(3):205-7.
20. Mutihir JT, Pam VC. Overview of contraceptive use in Jos University Teaching Hospital, North Central Nigeria. *Niger. J. Clin. Pract.* June 2008; 11(2):139-43.
21. Jinadu MK, Olusi SO, Ajuwon B, Traditional fertility regulation among the Yoruba Southwestern Nigeria. A study of prevalence, attitude and practice *Afr. J. Reprod. Health*. 1997 Mar; 1(1):56-64.
22. Omo-Aghoja LO; Omo-Aghoja VW; Aghoja CO; Okonofua FE; Aghedo O; Umueri C; Otayohwo R; Feyi-Waboso P; Onowhakpor EA; Inikori KA. Factors associated with the knowledge, practice and perceptions of contraception in rural southern Nigeria. *Ghana Med. J.* 2009 Sep; 43(3):115-21.