Journal of Medicine and Medical Sciences Vol. 7(1) pp. 006-014, February 2016
Available online http://www.interesjournals.org/JMMS
DOI: http:/dx.doi.org/10.14303/jmms.2016.021

Full Length Research Paper

Comparative assessment of modern contraceptives' knowledge and utilization among women in urban and rural communities of Sokoto State, Nigeria

[1*]Tunau K, [2]Awosan K.J, [2]Adamu H, [1]Muhammad U, [1]Hassan M, [1]Nasir S, [2]Raji M.O, [2]Oche M.O, [1]Nwobodo E.I, [3]Baba T.M

[1]Department of Obstetrics and Gynecology, Usmanu Danfodiyo University, Sokoto, Nigeria
[2]Department of Community Health, Usmanu Danfodiyo University, Sokoto, Nigeria
[3]Department of Sociology, Usmanu Danfodiyo University, Sokoto, Nigeria
*Corresponding author's E-mail: karimatunau@gmail.com

Abstract

Although, the effectiveness of contraception in reversing the high fertility rate that undergirds the high maternal mortality ratio in many developing countries of the world has been demonstrated in several studies, ironically, the contraceptive prevalence rate remains low in these countries. This study was conducted to assess modern contraceptives' knowledge and utilization among women in Sokoto State, Nigeria. A comparative cross sectional descriptive study among 401 women (rural 202, urban 199) selected by multistage sampling technique was conducted in the months of January and February 2010. Informed consent was obtained and information was collected using a pretested semi-structured questionnaire, data analysis was done using computer software, SPSS version 20. Although awareness of family planning services was high (rural 88.1%, urban 94.5%), knowledge of modern contraceptives was poor (rural 12.9%, urban 28.6%). Respondents with formal education were four times more likely to have good knowledge of modern contraceptive methods as compared to those with no formal education (aOR = 4.119, p < 0.001, 95% CI = 2.333 – 7.274). Current use of modern contraceptives was correspondingly low (rural 5.0%, urban 22.6%). Respondents resident in urban communities were twice likely to use modern contraceptives as compared to those in rural communities (aOR= 2.116, p = 0.029, 95%CI = 1.080 – 4.148). This study demonstrated poor knowledge and utilization of modern contraceptives among women in Sokoto State, Nigeria. These findings suggest the need for intensification of health education on family planning across the populations, girl child education and women empowerment to enable them make informed choices in issues regarding family planning, and equitable provision of family planning services in both urban and rural communities of the State.

Keywords: Knowledge, utilization, modern contraceptives, women, Sokoto.

INTRODUCTION

Although, the effectiveness of contraception in reversing the high fertility rate that undergirds the high maternal mortality ratio in many developing countries of the world has been demonstrated in several studies, ironically, the contraceptive prevalence rate remains low in these countries. Maternal mortality in developing countries and economically restrained settings remains a daunting and largely unmet global public health challenge. More than half a million women, nearly all of them in the developing world, die each year during pregnancy or childbirth. This amounts to one every minute (Ronsmans and Graham, 2006). Another million suffer serious, sometimes permanent pregnancy-related injuries. Much of this suffering and death could be prevented through effective family planning engendered by modern contraception.

The benefits of modern contraceptives are well known as family planning (FP) is one of the most important key strategies in preventing the deaths of women, neonates,

infants and children (Stover and Ross, 2010). The widespread adoption of family planning represents one of the most dramatic changes of the 20th century. The growing use of contraception around the world has given couples the ability to choose the number and spacing of their children and has had tremendous lifesaving benefits. Access to safe voluntary family planning is therefore not only a human right but it is central to gender equality and women empowerment in addition to being a key factor in reducing poverty (UNFPA, 2016). Light has been shed on how family planning increases survival, improves the health of millions of people, and help achieve national goals (Monjok et al, 2010). Nevertheless, many people still lack access to Family Planning and Reproductive Health services due to various economic, socio cultural, and geographical barriers(Carr and Khan, 2004; Creel et al, 2010).

Nigeria at independence in 1960 had a population of just 45.2 million, this rose slightly to 88.92 million 30 years later in 1991. However with a growth rate of about 3% the population of the nation in the year 2012 had increased to about 166.2 million which indicates an increase of 268 percent during the last 50 years (NBS et al, 2012). Nigeria's high population growth constitutes a major challenge to its economic development. The country's rapid population growth is straining its educational and health infrastructures and services (United Nations, 2011). One explanation for Nigeria's high population growth is its low contraceptive prevalence rate (CPR), which was found to be 10% for modern methods and 15% for all methods (NPC and ICF Macro, 2009). Although the relationship between the country's high fertility rate and its low contraceptive rate is apparent, what are less clear are the reasons behind the population's limited practice of FP (Goliber et al, 2009).

Nigeria has the second highest maternal mortality rates (MMRs) worldwide and is only next to India (UNICEF, 2016). According to the Nigeria Demographic and Health Survey 2008 (NPC and ICF Macro, 2009), the average MMR in the country was 500 deaths /100000 live births. There were however, regional variations as even within the country Sokoto State was among the States with the highest MMR. The State average MMR was 1500/100000 live births and was even found to be higher in hospital based studies (UNFPA Nigeria, 2005). For each woman that dies about 30% are left with serious morbidities (Smith et al, 2009; Goliber et al, 2009). Despite this high maternal mortality, the northwest region, which includes the study area, has the highest fertility rates and lowest acceptance rates for family planning in the country. Furthermore, the female literacy rates were also among the lowest in the country; and for all these parameters, there was disparity between urban and rural areas (NPC and ICF Macro, 2009; Akunga, 2010).

Research about the barriers that impede access to reproductive health services recognized that problems of access extend beyond physical access to include issues of economic, administrative, cognitive and psychosocial access (Bertrand et al,1995).Studies across Nigeria have identified inadequate knowledge of the various family planning methods as a major obstacle to their acceptance (Moronkola et al, 2006). In addition, the wide disparity in CPR between urban and rural communities has been linked to differences in the socio-economic characteristics of women in these areas, particularly, level of education (Srikanthan and Reid, 2008).

In order to make the Millennium Development Goals more achievable in Nigeria, and to improve overall maternal health, there is a need to explore in detail contraceptives knowledge and utilization among the populace; this would provide an insight into the prevailing low contraceptive prevalence rate across the country. Previous studies on contraceptives' knowledge and utilization in Sokoto were majorly conducted among clients attending the health facilities (Isah and Nwobodo, 2009; Ibrahim and Sadiq, 1999; Ibrahim and Okolo, 1997), while the populations in Sokoto remain understudied, whence the need for this study. The findings would be invaluable in designing strategies for addressing gaps in knowledge and effect significant improvement in modern contraceptives' utilization in the State.

MATERIALS AND METHODS

This was a comparative cross sectional descriptive study among women of child bearing age in urban and rural communities of Sokoto State between January and February 2012. Sokoto State is situated in the north-western part of Nigeria with Sokoto town as the State capital.

There are 23 Local Government Areas (LGAs), five of which are urban, while the remaining 18 are rural. Sokoto State has a population of 3,696,999 people, based on the 2006 census with an estimated population of 4,802,298 projected for 2015 (NPC and ICF Macro, 2009). The inhabitants are predominantly Muslims and of Hausa and Fulani ethnic groups. The population largely resides in the rural areas, and women of childbearing age constitute about 20% of the total population (UNFPA Nigeria, 2005).

Only women aged 15 – 45 years, resident in the area and have given birth to a child were considered eligible for enrolment into the study. The sample size was estimated at 150 and adjusted to 190 to compensate for non-response (with an anticipated 90% response rate) using the formula for comparing two proportions (Kirkwood and Sterne, 2006):

$$n = \frac{(Z_\alpha + Z_\beta)^2 \times [P1\,(1 - P1) + P2\,(1 - P2)]}{(P1 - P2)^2}$$

The level of significance was set at 5% ($\alpha = 0.05$), and the power at 80%, where: n = minimum sample size per

group; Zα = two-sided percentage point of the normal distribution corresponding to the required significance level (α = 0.05) = 1.96; Zβ = one-sided percentage point of the normal distribution corresponding to 100 – the power (i.e., 100 – 80% = 20% = 0.2) = 0.84; P1 and P2 = prevalence of current use of any modern contraceptive method among currently married women aged 15 – 49 years = 16.7% and 6.5% in urban and rural areas of Nigeria respectively (NPC and ICF Macro, 2008).

The eligible participants were selected by multistage sampling technique. At the first stage, one LGA was randomly selected from each of the urban and the rural LGAs by balloting (Sokoto south LGA was selected among the urban LGAs, while Wurno LGA was selected among the rural LGAs). At the second stage the wards in each of the selected LGAs were listed and two were randomly selected from the eleven wards in each of the LGAs by balloting. At the third stage, a line list of all the settlements and their respective populations in each of the two wards selected were made and three settlements from each ward were randomly selected by balloting. At the fourth stage, house numbering and listing was carried out to determine the number of houses in each of the selected settlements. One in four houses was selected by systematic sampling technique (in direct proportion to the number of houses in the respective settlements) until the required sample size was obtained. One woman of child bearing age was interviewed per house. However, in an event that more than one woman in a house qualified, balloting was done to select who was enrolled into the study. On the other hand, where there was no woman that qualified in the selected house, the next house was used.

A set of pretested, semi-structured, interviewer administered questionnaire was used to obtain information on respondent's socio-demographic characteristics, knowledge and utilization of modern contraceptives. The questionnaire was adapted from the Nigeria Demographic and Health Survey 2008 questionnaire (NPC and ICF Macro, 2008). Pretesting of the questionnaire was done among 15 women of child bearing age in one of the LGAs that was not selected for the study, no ambiguity was detected and there was no need for any modification. Ten Midwifery students assisted in questionnaire administration after pre-training on conduct of survey research, the objectives of the study, selection of study subjects and questionnaire administration. Institutional ethical clearance was obtained from the Ethical committee of Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria. Permission to conduct the study was obtained from the chairmen of the LGAs selected for the study. Advocacy visits were carried out to establish rapport with the leaders of the settlements selected; informed consent was also obtained from the participants before data collection.

Data was analyzed using SPSS version 20 computer statistical software package. Study subjects' responses to the knowledge questions were scored and graded. Knowledge of modern contraceptives was assessed using a twelve-item scale. One mark was awarded for correct response, while wrong response or non-response attracts no mark. Respondents that knew seven or more types of modern contraceptives were graded as having good knowledge, while those than knew less than seven types of modern contraceptives were graded as having poor knowledge. The chi-square test and independent t test were used for bivariate analysis involving categorical and continuous variables respectively. Logistic regression analysis was used to determine the variables that predict good knowledge and utilization of modern contraceptives. All levels of significance were set at $p < 0.05$.

RESULTS

A total of 401 women, comprising of 202 women in the rural group and 199 women in the urban group participated in the study. All the questionnaires administered were useable for analysis giving a response rate of 100 percent. The ages of respondents in both the rural and urban groups ranged from 15 to 45 years. The mean age of the respondents in the rural group was 27.91 ± 8.0, while that of respondents in the urban group was 27.07 ± 6.1, there was no significant difference in the mean age of the respondents in both groups (mean difference = 0.846, standard error of difference = 0.711); t = 1.189, p = 0.235.The rural group had a larger proportion of both adolescent mothers aged 15 – 19 years (rural 15.8%, urban 10.1%) and relatively old mothers aged 35 years and above (rural 23.7%, urban 12.0%) as compared to the urban group. The differences in the age distribution of respondents in the two groups were found to be significant ($\chi^2 = 17.782$, $p = 0.007$).

Most of the respondents in both groups were married (rural 93.6%, urban 94.0%). All the respondents in the rural group (100%) and an overwhelming majority of respondents in the urban group (96.4%) were Muslims. A significantly higher proportion of respondents in the urban group (49.7%) had formal education as compared to those in the rural group (10.9%), $\chi^2 = 71.839$, $p < 0.001$.

Majority (60.9%) of the respondents in the rural group were self-employed, as compared to 31.7% in the urban group. There were more women in government employment in the urban group (17.1%) than in the rural group where there was virtually none (0.5%). Similarly, there were more full-time housewives in the urban group (41.7%) than in the rural group (32.2%).

The differences between the rural and urban groups in the distribution of respondents by occupation were found to be significant ($\chi^2 = 4.339$, $p < 0.037$) as shown in Table 1.

Table 1: Socio-demographic profile of respondents

Variables	Rural group n = 202 Frequency (%)	Urban group n = 199 Frequency (%)	Test of significance
Age groups (in years)			
15 – 19	32 (15.8)	20 (10.1)	$\chi^2 = 17.782$,
20 – 24	30 (14.9)	46 (23.1)	p = 0.007
25 – 29	46 (22.8)	65 (32.7)	
30 – 34	46 (22.8)	44 (22.1)	
35 and above	48 (23.7)	24 (12.0)	
Marital status			
Single	1 (0.5)	6 (3.0)	$\chi^2 = 5.560$,
Married	189 (93.6)	187 (94.0)	p = 0.135
Divorced	6 (3.0)	3 (1.5)	
Widowed	6 (3.0)	3 (1.5)	
Religion			
Islam	202 (100.0)	192 (96.5)	$\chi^2 = 7.239$,
Christianity	0 (0)	7 (3.5)	p = 0.007
Educational status			
None	7 (3.5)	0 (0)	$\chi^2 = 71.839$,
Quranic only	173 (85.6)	100 (50.3)	p < 0.001
Primary	14 (6.9)	16 (8.0)	
Secondary	5 (2.5)	44 (22.1)	
Tertiary	3 (1.5)	39 (19.6)	
Occupation			
Unemployed	9 (4.5)	7 (3.5)	$\chi^2 = 4.339$,
Student	2 (1.0)	10 (5.0)	p = 0.037
Business/ trading	123 (60.9)	63 (31.7)	
Civil servant	1 (0.5)	34 (17.1)	
Farmer	2 (1.0)	2 (1.0)	
Full-time housewife	65 (32.2)	83 (41.7)	

Awareness of family planning services among respondents

Awareness of family planning (FP)services was high in both groups but it was significantly higher in the urban group (94.5%) as compared to the rural group (88.1%), $\chi^2 = 5.080$, p = 0.024. Furthermore a significantly higher proportion of respondents in the urban group were aware of places to access FP services (86.4%) as compared to their rural counterparts (60.9%), $\chi^2 = 33.610$, p < 0.001.The main sources of information regarding FP services for the urban respondents were from health workers (42.9%) and social gatherings (20.5%). Whereas for the rural respondents the main sources of information were the radio/television (50.5%) and social gatherings (19.8%). Only 16.1% of the rural respondents obtained information about FP services from health workers. The differences in the sources of information on FP services between the respondents in the two groups were found to be significant ($\chi^2 = 72.224$, p < 0.001) as shown in Table 2.

Knowledge of modern contraceptive methods among respondents

Knowledge of contraceptive methods was generally poor among the respondents in both groups. However, while majority of the urban group respondents knew most of the modern contraceptive methods such as injectable (85.4%), pill (83.4%), male condom (64.8%), lactational amenorrhea (62.8%), implant (59.8%) and intrauterine device (57.3%); majority of the rural group respondents knew just pill (60.4%) and injectable (58.9%). Except for foam/jelly and emergency contraception, a significantly (p < 0.05) higher proportion of respondents in the urban

Table 2: Awareness of family planning services among respondents

Variables	Rural group n = 202 Frequency (%)	Urban group n = 199 Frequency (%)	Test of significance
Aware of family planning services			
Yes	178 (88.1)	188 (94.5)	$\chi^2 = 5.080$,
No	24 (11.9)	11 (5.5)	$p < 0.024$
Aware of places to access family planning services			
Yes	123 (60.9)	172 (86.4)	$\chi^2 = 33.610$,
No	79 (39.1)	27 (13.6)	$p < 0.001$
Source of information about family planning services			
Health workers	31 (16.1)	96 (42.9)	$\chi^2 = 72.224$,
Friends/relations	22 (11.5)	43 (19.2)	$p < 0.001$
Husband	4 (2.5)	7 (3.1)	
Radio/television	97 (50.5)	32 (14.3)	
Social gathering	38 (19.8)	46 (20.5)	

Table 3: Knowledge of modern contraceptive methods among respondents

Modern contraceptive methods	Correct responses	
	Rural group n = 202 Frequency (%)	Urban group n = 199 Frequency (%)
Male condom	64 (31.7)	129 (64.8)*
Female condom	24 (11.9)	53 (26.6)*
Diaphragm	11 (5.5)	41 (20.6)*
Foam / jelly	20 (9.9)	29 (14.6)
Pill	122 (60.4)	166 (83.4)*
Injectable	119 (58.9)	170 (85.4)*
Intrauterine device (IUD)	49 (24.6)	114 (57.3)*
Implants	47 (23.3)	119 (59.8)*
Emergency contraception	23 (11.4)	36 (18.1)
Male sterilization	13 (6.4)	48 (24.1)*
Female sterilization	13 (6.4)	48 (24.1)*
Lactational amenorrhea	83 (41.1)	125 (62.8)*

*Statistically significant ($p < 0.05$)

group knew the various modern contraceptive methods as compared to the rural group respondents (Table 3).

More than a quarter (28.7%) of the rural group respondents did not know any modern contraceptive method. The proportion of respondents with good knowledge of modern contraceptive methods among the urban group (28.6%) was about twice that of the rural group (12.9%), and the difference was significant ($\chi^2 = 15.192$, $p < 0.001$) as shown in Table 4. The proportion of respondents with good knowledge of modern contraceptive methods was also significantly ($p < 0.05$) higher among respondents with formal education (40.5%) as compared to those with no formal education (12.1%), and formal education was the only predictor of good

Table 4: Grading of respondents' knowledge of modern contraceptive methods

Variables	Rural group n = 202 Frequency (%)	Urban group n = 199 Frequency (%)	Test of significance
Number of components of modern contraceptive methods known to respondents			
0 (none)	58 (28.7%)	20 (10.1)	$\chi^2 = 60.182$,
1 – 3	76 (37.6)	41 (20.6)	$p < 0.001$
4 – 6	42 (20.8)	81 (40.7)	
7 – 9	22 (10.9)	32 (16.1)	
10 – 11	4 (2.0)	12 (6.0)	
12 (all)	0 (0)	13 (6.5)	
Knowledge grading			
Poor (0 – 6)	176 (87.1)	142 (71.4)	$\chi^2 = 15.192$,
Good (7 – 12)	26 (12.9)	57 (28.6)	$p < 0.001$

Table 5: Utilization of modern contraceptives by respondents

Variables	Rural group n = 202 Frequency (%)	Urban group n = 199 Frequency (%)	Test of significance
Ever used contraceptives			
Yes	31 (15.3)	82 (41.2)	$\chi^2 = 33.124$,
No	171 (84.7)	117 (28.8)	$p < 0.001$
Current use of contraceptives			
Yes	16(7.9)	48 (24.1)	$\chi^2 = 19.642$,
No	186 (92.1)	151 (75.9)	$p < 0.001$
Current use of modern contraceptives			
Yes	10 (5.0)	45 (22.6)	$\chi^2 = 19.614$,
No	192 (95.0)	154 (77.4)	$p < 0.001$
Modern contraceptive method currently used	**(n = 10)**	**(n = 45)**	
Pill	4 (40.0)	11 (24.4)	$\chi^2 = 3.154$,
Injectable	4 (40.0)	30 (66.7)	$p = 0.371$
Intrauterine device	1 (10.0)	1 (2.2)	
Implant	1 (10.0)	3 (6.7)	

knowledge of modern contraceptive methods. Respondents with formal education were four times more likely to have good knowledge of modern contraceptive methods as compared to those with no formal education (Adjusted Odds Ratio (aOR) = 4.119, $p < 0.001$, 95% Confidence Interval (CI) = 2.333 – 7.274).

Utilization of modern contraceptives by respondents

Less than half of the respondents in the urban group (41.2%), and less than a fifth of the respondents in the rural group (15.3%) had used one form of contraceptive in the past (traditional or modern). Similarly, about a quarter of urban group respondents (24.1%) and a few rural group respondents (7.9) currently use one form of contraceptive (traditional or modern). Current use of modern contraceptive methods amongst both groups was low, but it was about four times higher among the urban group respondents (22.6%) as compared to the rural group respondents (5.0%) and the difference was significant ($\chi^2 = 19.612$, $p < 0.001$). The most commonly used modern contraceptives among both groups were injectable (rural 40.0%, urban 66.7%) and pill (rural 40.0%, urban 24.4%), but a few of them also use implant and intrauterine device. There was no significant difference in the type of modern contraceptives currently used by both groups ($\chi^2 = 3.154$, $p = 0.371$) as shown in Table 5. Whereas the proportion of respondents that currently use modern contraceptive methods was also

Table 6: Logistic regression analysis for predictors of utilization of modern contraceptive methods

Variables	Odds ratio (OR)	p value	95% Confidence Interval (CI)	
			Lower	Upper
Good versus poor knowledge of of modern contraceptives	0.438	0.009	0.236 – 0.813	
Urban versus rural group	2.116	0.029	1.080 – 4.148	
Christians versus Moslems	0.701	0.660	0.144 – 3.418	
Formal versus no formal education	0.357	0.002	0.188 – 0.677	

significantly ($p < 0.05$) higher among those with good knowledge of modern contraceptive methods (32.5%) as compared to those with poor knowledge (11.6%), Christians (42.9%) as compared to Moslems (15.5%), and those who had formal education (32.2%) as compared to those with no formal education (8.9%), the only predictor of use of modern contraceptive methods was living in an urban community. Respondents in the urban group were twice likely to use modern contraceptive methods as compared to those in the rural group (Adjusted Odds Ratio (aOR) = 2.116, $p = 0.029$, 95% Confidence Interval (CI) = 1.080 – 4.148) as shown in Table 6.

DISCUSSION

The rural group had a larger proportion of both adolescent mothers aged 15 – 19 years (rural 15.8%, urban 10.1%) and relatively old mothers aged 35 years and above (rural 23.7%, urban 12.0%) as compared to the urban group. With a 23% national prevalence of mothers aged 15-19 years, teenage pregnancy is a major health concern in Nigeria because of its association with high mortality and morbidity for both mother and fetus (NPC and ICF International, 2014). In addition, many adolescent girl who become pregnant have to leave school, this has long-term implications for them as individuals, their families and communities. Evidence from studies also suggests that women who have more than 4 children (as commonly seen among relatively old mothers) are at increased risk of maternal mortality (WHO, 2016). Most of the respondents in both the rural group (93.6%) and urban group (94.0%) were married, this could be due to the fact that the respondents were predominantly Moslems, and Islam forbids having children out of wedlock.

There were more women in government employment (that guarantees a stable income) in the urban group (17.1%) than the rural group, where there was virtually none (0.5%), this could be related to the low literacy level among the women in the rural group (10.9%) as compared to the urban group (49.7%), and the fact that formal education is often a pre-requisite for government employment. By implication, the women in the urban group are more empowered compared to those in the rural group, this would enable them to overcome social, economic and cultural factors that limit their ability to make informed choices, particularly in the areas affecting the most intimate aspect of their lives – their reproductive health (Adetokunbo and Herbert, 2003).

Whereas, awareness of family planning services and where to access them was high and comparable in both groups; knowledge of modern contraceptive methods was poor, and that of the urban group (28.6%) was about twice that of the rural group (12.9%). In fact, more than a quarter of the rural group respondents (28.7%) had no knowledge of any modern contraceptive method. A possible reason for the poor knowledge of modern contraceptives among the rural group respondents as compared to their urban counterpart in this study could be the low literacy level among the rural group (10.9%) as compared to the urban group (49.7%), as respondents with formal education were four times more likely to have good knowledge of modern contraceptive methods as compared to those with no formal education (aOR = 4.119, $p < 0.001$, 95% CI = 2.333 – 7. 272). In addition, the main source of information on modern contraceptives among the women in the rural group was television/radio which usually does not provide for any feedback for clarifying doubts and allaying fears, in contrast to the urban group respondents whose main source of information was health workers which provide for detailed discussion and counseling. Similar to the finding in this study, several studies have reported high level of awareness of family planning but poor knowledge of the various FP methods (Izugbara et al., 2009; Oye-Adeniran et al., 2005).

Despite high level of awareness of family planning services, utilization was low. About a quarter and less of respondents (urban 24.1%, rural 7.9%) currently use one form of FP or the other, this brings to focus the high

unmet family planning needs in these communities. This finding is in concordance with the findings in studies by Lawoyin et al (2002) and Allagoa and Nyengidiki (2011) that reported high awareness but low use of contraceptives.

Although, modern contraceptive prevalence rate (CPR) was low, it was more than four times higher among the urban group respondents (22.6%) as compared to the rural group respondents (5.0%). The difference observed in CPR between the rural and urban communities in this study is similar to what has been observed by Bachok et al (2007) in Malaysia and Kazi (2006) in Pakistan (who also observed that, although rural areas may just be a few kilometers from the main cities, they were decades away from modern age, with most of them in abject poverty). Contrary to the very low CPR (5.0%) among women in the rural group in this study, a study among women in rural communities of south-western Nigeria reported a high CPR of 63.3% (Olugbenga - Bello et al., 2011). This was believed to be due to the high literacy rate among women in southwestern Nigeria, with about two-thirds of the respondents having post primary school education.

Pills and injectable were the main methods of modern contraceptives used in both communities, while a few also used intrauterine devices and implant. Women preference for injectable contraceptive has been attributed to its relatively long duration of action (at least 2 months) and the possibility of keeping their husbands out of the picture should they disagree on use of modern contraceptives (Kebede, 2006; Mqhayi et al., 2004). Contrary to the finding in this study, a recent health facility based study in Sokoto (the study area) reported implant as the most commonly used contraceptive among the women studied (Shehu and Burodo, 2013). Also, Debb (2010) in India and He et al (2009) in China found that the most popular FP methods among the population studied were sterilization and intrauterine devices (IUDs). Permanent methods are not popular in the study area partly because of religious beliefs and also the general aversion to surgery.

Although, residing in an urban community was the only determinant of use of modern contraceptive methods in this study, use of modern contraceptive was also found to be significantly associated with formal education, good knowledge of modern contraceptives and Christianity. These findings tally with the pattern observed in other studies within and outside Nigeria (Johnson and Ekong, 2016; Sharma et al., 2012; Shah et al., 2006).The higher CPR among women in the urban group as compared to those in the rural group could be due to the relative ease of access to FP information and services in the urban areas, as compared to the rural areas. This finding is in agreement with the findings in previous studies by Fotso et al (2011) and Adebimpe et al (2011) and it brings to the fore the prevalent inequity in accessibility (physical, financial and intellectual) to healthcare and other social services that underpin the disparity in contraceptive prevalence rate, fertility rate and maternal mortality ratio in rural and urban populations across Nigeria (NPC and ICF International, 2014).

CONCLUSION

This study demonstrated poor knowledge and utilization of modern contraceptives among women in Sokoto State, Nigeria. These findings suggest the need for intensification of health education on family planning across the populations, girl child education and women empowerment to enable them make informed choices in issues regarding family planning, and equitable provision of family planning services in both urban and rural communities of the State.

ACKNOWLEDGEMENTS

The authors appreciate the chairmen of Sokoto south and Wurno LGAs, the leaders of the settlements where the study was conducted, and all the women that participated in the study for their cooperation.

REFERENCES

Adebimpe WO, Asekun-Olarinmoye E, Bamidele JO, Abodunrin O (2011). A comparative study of sociodemographic determinants and fertility pattern among women in rural and urban communities in southwestern Nigeria. Continental J. Med. Res. 5(1):32-40.

Adetokunbo OL, Herbert MG (2003). Short textbook of public health medicine for the tropics.4th edition. London. Edward Arnold. p 325.

Akunga A (2010). Northern Nigeria: Approaches to enrolling girls in school and providing meaningful education to empower change. United Nations Girls' Education Initiative. Available at: http://www.e4conference.org/wp-content/

Allagoa DO, Nyengidiki TK (2011). Knowledge, attitude and practice of contraception amongst antenatal patients at the University of Port Harcourt Teaching Hospital, Port Harcourt. Niger. J Health Sci. 11(3): 89-92.

Carr D, Khan M (2004). The unfinished agenda: meeting the needs for family planning in less developed countries. Washington, DC: Population Reference Bureau. Available at: http://www.issuelab.org/resource/

Creel LC, Sass JV, Yinger NV (2010) Client-centred quality: clients' perspectives and barriers to receiving care.New Perspectives on Quality of Care: No 2. Population Reference Bureau. Available at: http://www.prb.org/

Bachok N, RazakAA, Ismail NM, Hamza TNT (2007). Acceptance and knowledge of family planning among Muslim women in rural villages of Kelantan. JIMA 39(3): 109-116.

Bertrand JT, Hardee K, Magnani RJ, Angle MA (1995). Quality of care and Medical Barriers in Family planning programs.Int. Family Planning Perspect. 21(2): 64-69.

Deb R (2010). Knowledge, attitude and practices related to family planning methods among the Khasi tribes of east khasi hills Meghalaya. Anthropol. 12(1): 41-45.

Fotso JC, Ajayi JO, Idoko EE, Speizer I, Fasiku AO, Mberu B and Mutual M (2011). Family planning and reproductive health in urban

Nigeria: levels trends and differentials. Measurement Learning and Evaluation Project for the Urban Reproductive Health Initiative. Available at: https://urbanreproductivehealth.org/resource/

Goliber T, Sanders R, Ross J. (2009). Analyzing family planning needs in Nigeria: lessons for repositioning family planning in sub-Saharan Africa. Washington, DC: Futures group, Health Policy Initiative, task order 1.

He H, Φstbye T, Daltveit AK (2009). Reproductive and family planning history, knowledge, and needs: a community survey of low-income women in Beijing, China. BMC Women's Health 9:23. DOI:10.1186/1472-6874-9-23.

Ibrahim MI, Okolo RU (1997). Profile of contraceptive acceptors in UDUTH, Sokoto, Nigeria. Niger. Med. Pract. 33: 913.

Ibrahim MT, Sadiq AU (1999). Knowledge, attitude, practices and beliefs about family planning among women attending primary health care clinics in Sokoto, Nigeria. Niger. J. Med. 8: 154- 158.

Isah AY, Nwobodo EI (2009). Family planning practices in a tertiary health institution in north-western Nigeria. Niger. J. Cli. Pract. 12: 281-3.

Izugbara CO, Ezeh AC, Ibisomi L, Mberu B (2009). Change and continuity in reproductive norms and behavior: A Northern Nigeria study. Nairobi, Kenya: African Population and Health Research Centre.

Johnson O, Ekong I (2016). Knowledge, attitude and practice of family planning among women in rural community in southern Nigeria. British J. Med. Med. Res. 12(2): 1-8.

Kazi K (2006). A study of knowledge attitude and practice of family planning among the women of rural Karachi. A dissertation submitted in fulfillment of the degree of doctor of philosophy in social work, University of Karachi. Available at: htpp://prr.gov.pk/Thesis/2525.

Kebede Y (2006). Contraceptive prevalence in Dembia district, northwest Ethiopia. Ethiopian J health Dev. 20(1): 32-38.

Kirkwood BR, Sterne JAC (2006).Essential medical statistics.2nd edition. Oxford, UK: Blackwell Publishing.

Lawoyin TO, Osinowo H, Babatunde M, Bajomo TG, Betiku AO, Biakolo, Busari KT, Fehintola A (2002). Family planning in rural Nigeria: a study among men. Afr. J. Med. Med. Sci.31(2):159-62.

Monjok E, Smesny A, Ekabua JE, EssienEJ (2010).Contraceptive practices in Nigeria: literature review and recommendation for future policy decisions. Open Access J. Contracep.1: 9–22.

Moronkola AO, Ojediran MM, Amosu A (2006). Reproductive health knowledge, beliefs and determinants of contraceptives use among women attending family planning clinics in Ibadan, Nigeria. Afr. Health Sci 6(3): 155-159.

Mqhayi M, Smit J, McFadyen M, Beksinka C, Conolly C, Zuma K, Morono C (2004). Missed opportunities: emergency contraception utilization by young South African Women. Afr. J. Reprod. Health 8(2): 137-144.

NBS, UNICEF, UNFPA (2012). Nigeria Multiple Indicator Cluster Survey 2011. Abuja , Nigeria: National Bureau of Statistics, United Nations Children's Fund, United Nations Fund for Population Activities.

NPC and ICF International (2014). Nigeria demographic and health survey 2013. Abuja, Nigeria and Rockville, Maryland, USA.National Population Commission and ICF International.

NPC and ICF Macro (2009). Nigeria demographic and health survey 2008. Abuja, Nigeria: national Population Commission and ICF Macro.

Olugbenga-Bello AI, Abodunrin OL, Adeomi AA (2011). Contraceptive practices among women in rural communities in southwestern Nigeria. Global J. Med. Res. 11 (2): 1-9.

Oye-Adeniran BA, Adewole IF, Odeyemi KA, Ekanem EE (2005).Contraceptive prevalence among young women in Nigeria. J. Obstet. Gynaecol. 25(2): 182-185.

Ronsmans C, Graham WJ. On behalf of The Lancet Maternal Survival Series Steering Group (2006). Maternal mortality: who, when, where, and why. Lancet. 368:1189−1200.

Shah NJ, Pradhan P, Reddy AS, Joseph B (2006). Contraceptive practices in newly married women in sub-urban Bangalore. Health Pop.Persp. Issues 29: 21-28.

Sharma V, Mohan U, Das V, Awasthi S (2012). Socio-demographic determinants and knowledge, attitude, practice: survey of family planning. J. Fam. Med. Prim. Care 1: 43-7.

Shehu CE, Burodo AT (2013). Contraceptive choices among women attending the fertility research unit of UsmanuDanfodiyo University Teaching Hospital, Sokoto. Sahel Med. J. 16(3): 93-96.

Shrikanthan A, Reid RL (2008). Religious and cultural influences on contraception. J ObstetGynecol Can. 30(2): 129-37.

Smith R, Ashford I, Gribble J, Clifton D (2009). Family planning saves lives. 4th edition.Population Reference Bureau.

Stover J, Ross J (2010). How increased contraceptive use has reduced maternal mortality. Matern. Child Health J. 14(5): 687-95 doi:10.1007/s10995-009-0505-y.

United Nations (2011).World Population Prospects.United Nations Department of Economic and Social Affairs, Population Division. Pop/db/cp/rev 2010[Cited 17th March 2012].

UNICEF (2016).Maternal and child health.United Nations Children's Fund. Available at: http://www.unicef.org/nigeria/children/

UNFPA (2016).Family planning: overview. United Nations Fund for Population Activities. New York, USA. Available at: htpp://www.unfpa.org/family-planning.

UNFPA Nigeria (2005). Reproductive health and gender indicators: Report on 2004 baseline survey of UNFPA assisted States in Nigeria. Abuja, Nigeria: United Nations Fund for Population Activities, Nigeria.

WHO (2016).Family planning / contraception. Fact sheet No 351. Available at: http:www.who.int/mediacentre/factsheet/fs351.