ORIGINAL ARTICLE

Prevalence and Reasons for Contraceptive Discontinuation among Women of Reproductive Age in Urban and Rural Communities of Kano State, Nigeria

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ABSTRACT

Background: Contraceptive discontinuation is a significant factor contributing to low contraceptive prevalence in low-resource settings like Nigeria and can lead to increased unintended pregnancies and challenges in child spacing or planned parenthood. **Objectives:** This study aimed to assess the prevalence and reasons for contraceptive discontinuation among women of reproductive age in urban and rural areas of Kano State, Nigeria. **Methods:** A comparative cross-sectional study was conducted, employing structured survey questionnaires. **Results**: Of the 605 participants, 207 in urban and 228 in rural areas had discontinued at least one contraceptive method, resulting in discontinuation rates of 68.3% and 75.5%, respectively. The difference in discontinuation was statistically significant, with the rural counterparts having higher discontinuation rates with a p-value ≤0.05. Implanon had the highest discontinuation rates (55.1% in urban and 37.2% in rural areas), while the withdrawal method had the lowest rates (0.0% in urban and 2.5% in rural areas). The most common reasons for discontinuation were side effects (24.2% in urban and 36.1% in rural areas), distance too far (21% in urban and 5.1% in rural areas), and husband's disapproval (12.8% in urban and 16% in rural areas). **Conclusion:** The high prevalence of contraceptive discontinuation poses significant risks of unplanned pregnancy and unsafe abortions, thereby increasing maternal morbidity and mortality rates of mothers and neonates in Kano State. Urgent interventions addressing the root causes are imperative to reverse this trend, and women should have proper counselling on the side effects of the contraceptive method used.

Keywords: Contraceptive discontinuation, Urban, Rural, Women of reproductive age, Kano

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Introduction

Nigeria has an estimated maternal mortality ratio (MMR) of 1,047 deaths per 100,000 live births, accounting for 14% of the worldwide maternal mortality burden.[1] The World Health Organization (WHO) lists family planning as one of the six crucial medical measures to ensure safe motherhood, which is widely known to intensify the reduction of maternal deaths.[2] Thus, family planning has been shown to decrease a county's MMR by an estimated 450 points when it moves from low to high levels of contraceptive use by lowering high-parity births.[3] Often, reproductive goals are hampered, leading to unwanted pregnancies and unsafe abortions resulting from stopping contraceptive use in women who are not ready for pregnancy. Women who do this run the risk of experiencing maternal morbidity as well as mortality.[4] The discontinuation of contraceptives has a detrimental impact on women's reproductive health outcomes, which is a rising public health concern. A significant percentage of women who stop using

contraceptives because they don't want to become pregnant end up with undesired pregnancies, unexpected births, and unsafe abortions, all of which raise the risk of maternal morbidity from pregnancy and childbirth, as well as poor results for the health of the unborn child.[5] Among women who use contraception, approximately 30 per cent of these pregnancies can be linked to contraceptive failure and discontinuation.[6]

The prevalence of discontinuing contraception is still high among low and middle-income countries (LMICs). According to a study conducted in 25 low- and middle-income nations, 38% of women have discontinued the use of contraceptives within 12 months, 55% within 24 months, and 64% within 36 months.[7] Condom users had the highest discontinuation rates within a year (50%), and IUD users had the lowest.[7] Approximately 40% of those who used injectables, the pill, intermittent abstinence, and withdrawal discontinued them within a year. The most frequent reasons for discontinuing were health-related or side-effect-related, followed by method-related reasons.[8] Therefore, reducing the number of women who discontinue contraception early on can be a helpful strategy for lowering unmet needs and unwanted pregnancies.[7] In this study, we assessed the prevalence and reasons for contraceptive discontinuation in rural and urban communities of Kano state, Nigeria.

Methods

Study setting

Kano State is one of the 36 Federal Republic of Nigeria states in the North-Western. The state has 44 Local Government Area (LGA) councils, covering 499 km^{2,} has a projected population of 15,124,281 million in 2022, with a nearly equal distribution of males, 7,713383 (51%) and females 7,410,898 (49%),[8] based on the 2006 National Population and Housing Census, and 3.2% annual growth rate.

Health services in the state are more concentrated in the urban areas than in the rural areas where most health problems exist. Eighty-nine per cent (89%) of all doctors and 73%) of nurses in the state government's employment were in the metropolis. The state had 970 primary health care (PHC) facilities, 704 of which provided maternal and child health services at different levels, including family planning services.[8,9]

Study Sites

The study was carried out in six LGAs in Kano state; one out of eight LGAs from urban (Kano municipal council) and five out of thirty-six LGAs from rural areas (Albasu, Tsanyawa, Gabasawa, Bunkure and Warawa) were selected by simple random sampling, making a ratio 1:5.

Albasu LGA: Albasu LGA is a rural area and one of the newly created LGAs in Kano state, created in 1990. It has an area of 398 km^2 and an estimated population of 243,942, with women of childbearing age of about 53,667. It has 31 health facilities, all providing maternal and child health services, including family planning services at different levels in the LGA.

Bunkure LGA: Bunkure LGA is a rural area created by Rano LGA in 1988. It has a land area of 487 km^2 with a population of 213,048, as projected from the 2006 census, with a population of 46,870 women of childbearing age. There are 23 health facilities in the LGA, out of which 22 are public and one is private, and all provide maternal and child health services at different levels, including family planning services. Of the twenty-two public health facilities, three are primary health centres, seventeen are health posts, and two are dispensaries.

Gabasawa LGA: Gabasawa LGA is a rural LGA which was created from Gezawa LGA in 1989. It has an area of 605 km^2 with a total population of 343,811, women of childbearing age of 75,638, and 31 public health facilities, all providing maternal and child health services at different levels, including family planning services.

Tsanyawa LGA: Tsanyawa LGA is rural and was carved out from Bichi LGA in 1991. It has an area of 544.1 km^2 with a projected population of 219,400. Women of childbearing age are about 56455, and it has 31 health facilities, all providing maternal and child health services at different levels, including family planning services.

Warawa LGA: Warawa LGA is a rural area created by Dawakin Kudu Local Government in the early 90s. It has an area of 360 km^{2,} a population of 184,400 at the 2006 census, and a population of women of childbearing age of 75,638. It has 30 public health facilities, all providing maternal and child health services at different levels, including family planning services.

Kano Municipal Council (KMC): KMC LGA is an urban LGA with its headquarters in Kofar Kudu, which is located in the old city of Kano. It has an area of 17km^2 with a projected 2013 population of 455,696 spread over thirteen political wards. The LGA has 16 primary health centres, five secondary health facilities and a state-owned specialist hospital. There are also

eight private clinics within the LGA, all providing maternal and child health services at different levels, including family planning services.

Study Design

A community-based, comparative cross-sectional design was used to assess the prevalence and reasons for contraceptive discontinuation among women of reproductive age in rural and urban communities of Kano, Nigeria. Kano is one of the 36 states of the Federal Republic of Nigeria, and it lies between latitude 130 N in the North and 110 N in the South, as well as longitude 80 W in the West and 100 in the East.

Study population

The study population consisted of resident women of reproductive age (15–49 years) residing in the study areas.

Inclusion criteria:

1. Women who have used a modern contraceptive method within the last year for at least two months.
2. Women who have resided in the study area for at least a year before the study.

Exclusion criteria :

1. Married women of reproductive age who are very sick or developmentally disabled.
2. Women who withheld consent from participating in the study.

Sample Size Determination

The sample size for the study was estimated using the formula for comparing two proportions.[10] With standard normal deviate set at a 95% confidence level (1.96), and the power of a test to detect the difference between contraceptive discontinuation rate of urban and rural communities was set at 80% (0.84) with a 10% non-response rate. The proportion of contraceptive discontinuation rates from urban and rural areas of Ghana was 44.1% and 55.9%, respectively.[11] Thus, 306 respondents were sampled from each of Kano's rural and urban communities.

Sampling technique

A multistage sampling technique was employed to select respondents from the community**.** The first stage was the selection of the six LGAs by random sampling, one urban and 5 rural in Kano State, given a ratio of 1:5. The second stage was the selection of 25% study political wards from each selected ward by a simple random procedure. The third stage was the selection of fifty per cent of settlements within the selected political wards. The sample size allocated to the selected wards was proportionate to the population size of the settlement. The fourth stage was the selection of houses and households, a systematic sampling procedure was employed. The sampling interval was determined by dividing the number of houses and households by the sample size allocated proportionately to each selected settlement. The first house was identified by selecting a random number between one and the sampling interval. In the last stage, was the selection of respondents, women who ever used a modern method of contraceptive in the last year were approached to ascertain eligibility.

Data collection

An interviewer-administered, pre-tested, semi-structured questionnaire was used to collect data from eligible respondents. After the questionnaire had been pre-tested, it was adjusted to suit cultural appropriateness. Pre-testing also tested the ability of trained research assistants to administer the questionnaire.

Ethical consideration

Ethical approval was obtained from the Aminu Kano Teaching Hospital Health Research and Ethics Committee (AKTH/MAC/SUB/12A/P-3/VI/3338) and the State Ministry of Health (SHREC/2022/3116). A written informed consent form was given to those who could read to append their signature before data collection. For those who were not literate, details of the consent form were explained to them, and their thumbprints were appended if consent was given to the respondent. The terms of the Helsinki Declaration were respected throughout the research by the research team.

Data analysis

The data was uploaded to Microsoft Excel and collated, cleaned, and analyzed using the SPSS version 26 statistical software package (IBM SPSS). Continuous data were summarized as mean ± standard deviation, and categorical variables were expressed in proportions and displayed as tables. The contraceptive discontinuation of women in urban and rural areas was compared using the Chi-square test of association or Fisher's exact test where appropriate, with a p-value of 0.05 or less considered significant.

Results

A total of 612 questionnaires were administered to the respondents, and 605 questionnaires were filled out and returned (303 for the urban group and 302 for the rural group), giving a response rate of 98.9%. The response rate among those in urban areas was 99.0%, and 98.7% among those in rural areas.

The respondents ranged from 18 to 49 years, with the mean ages (± Standard Deviation, SD) of 29.1±6.2 years in the urban group and 30.23±6.9 years in the rural group. More than half of the participants in the study (57.4% in the urban group and 49.0% in the rural group) fell within the age group of 25-34 years. Most urban and rural respondents (61.7% and 78.8%, respectively) identified as Hausa and followed the Islamic faith (90.8% and 99.0%, respectively). Approximately two-thirds (65.6%) of urban respondents had a secondary education, while only 31.1% of rural respondents had reached the same educational level. Furthermore, less than a quarter (23.5%) of rural respondents had no formal education, compared to only 3.0% of urban respondents. The occupation distribution revealed that most urban and rural respondents were housewives (38.3% and 67.9%, respectively), followed by businesswomen (34.3% in the urban group and 11.6% in the rural group).

Table 1: Socio-Demographic Characteristics of the Respondents

Variable	Urban n =303(%)	Rural n=302 (%)
Age group (years)		
15-24	65 (21.5)	62 (20.5)
25-34	174 (57.4)	148 (49.0)
35-44	57 (18.8)	83 (27.5)
45 and above	7 (2.3)	9 (3.0)
Mean age (years)	29.07±6.2	30.23±6.9
Tribe		
Hausa	187(61.7)	238(78.8)
Fulani	86(28.4)	58(19.2)
Yoruba	6(2.0)	2(0.7)
Igbo	20(6.6)	3(1.0)
Others (Babur)	4(1.3)	1(0.3)
Religion		
Islam	275(90.8)	299(99.0)
Christianity	28(9.2)	3(1.0)
Highest educational level		
None	9(3.0)	23(7.6)
Arabic	9(3.0)	71(23.5)
Primary level	29(9.6)	96(31.8)
Secondary level	199(65.6)	94(31.1)
Tertiary level	57(18.8)	18(6.0)
Occupation		
Housewife	116(38.3)	205(67.9)
Petty trader	53(17.8)	17(5.6)
Businesswoman	104(34.3)	35(11.6)
Farmer	7(2.3)	10(3.3)
Civil servant	23(7.3)	15(5.0)
Others	0(0.0)	20(6.5)

All (100%) of the respondents in both urban and rural groups were married; the majority (83.8% urban and 72.2% rural groups) were in monogamous settings. Half (50.5%) of the respondents in the urban group had given birth to less than four children, while slightly above half (52.3%) of respondents had given birth to more than four children in the rural group. Most respondents (83.2% and 93.7%) in urban and rural groups, respectively, reported their desired number of children to be more than four. The proportions of respondents with no male children in the urban and rural groups were 6.9% and 14.6%, while those with no female children were 22.4% and 19.2%, respectively. More respondents in the urban group had lost at least one child than respondents in the rural group (73.9% vs 33.7%).

Table 2: Respondent's Family Characteristics

Variables	Urban n=303 (%)	Rural n=302 (%)
Current marital status		
Married	303 (100.0)	302 (100.0)
Marriage Type		
Monogamous	254 (83.8)	218 (72.2)
Polygamous	49 (16.2)	84 (27.8)
Number of co-wives		
One	14 (28.6)	17 (20.2)
Two	22 (44.9)	46 (54.8)
Three	10 (20.4)	20 (23.8)
Four	3 (6.1)	1 (1.2)
Number of Children delivered		
1-4	153 (50.5)	144 (47.7)
>4	150 (49.5)	158 (52.3)
The desired number of children		
1-4	51 (16.8)	19 (6.3)
>4	252 (83.2)	283 (93.7)
Number of male living children		
0	21(6.9)	44(14.6)
1-4	239(78.9)	238(78.8)
>4	43(14.2)	20(6.6)
Number of female(s) living children		
0	68(22.4)	58(19.2)
1-4	226(74.6)	216(71.5)
>4	9(3.0)	28(9.3)
Ever lost a child		
Yes	65(21.5)	101(33.4)
No	238(78.5)	201(66.6)
The number of children lost.		
1	48(73.9)	34(33.7)
2	14(21.5)	34(33.7)
3	1(1.5)	22(21.8)
4	2(3.1)	6(5.9)
≥5	0(0.0)	5(4.9)

Regarding the pattern of contraceptive utilization almost all respondents used more than one contraceptive method, the majority of the respondents in the urban and rural groups used the injectable method (74.8%) and (71.4%) respectively; use of Pills in both urban and rural groups was (42.5% vs 52.2%), Implants in both groups were (55.1% vs 32.2%) respectively, and the least common methods used were female condom (1.4% vs 1.6%) and lactational amenorrhea (LAM) (0.3% and 2.5%).

Table 3: Methods of Modern Contraceptives Ever Used by Respondents

Variables (Multiple responses)	Urban n (%)	Rural n (%)
Pills		
Yes	125(42.5)	144(52.2)
No	169(57.5)	132(47.8)
Injectable		
Yes	220(74.8)	198(71.7)
No	74(25.2)	78(28.3)
IUCD		
Yes	16(5.4)	7(2.5)
No	278(94.6)	269(97.5)
Implant		
Yes	162(55.1)	77(32.2)
No	132(44.9)	199(72.1)
MC		
Yes	4(1.4)	9(1.6)
No	290(98.6)	267(96.7)
LAM		
Yes	1(0.3)	1(0.4)
No	293(99.7)	275(99.6)
Withdrawal Method		
Yes	0(0.0)	7(2.5)
No	294(100)	269(97.5)
Others		
Yes	0(0.0)	7(2.5)
No	294(100)	269(97.5)

Of those who had ever used a contraceptive method, rural and urban groups had discontinued at least one method (75.5% V 68.3%, respectively. The difference in discontinuation was statistically significant, with the rural counterparts having higher discontinuation rates (χ^2=3.9; p= 0.04).

Table 4: Overall Prevalence of Respondents that Discontinued at Least One Method

VARIABLES	URBAN n=303 (%)	RURAL n=302(%)	TEST STATISTICS (χ^2)	p-value
Discontinued contraceptive method	207(68.3)	228(75.5)	3.9	0.049*
Still using contraceptive	96(31.7)	74(24.5)		
Total	**303(100)**	**302(100)**		

*Statistically Significant

Health concerns and or side effects were the most frequent reasons reported for discontinuation by the respondents in the urban area 51(24.2%) and in the rural areas 63(36.1%). Other reasons for discontinuation in the urban area included method failure 25(11.8%), husband's disapproval 27(12.8%), distance too far 44(21%), poor quality of services 13(6.2%), inconvenience from use 10(4.7%), methods not available 3(1.4%) and interference with body process 4(1.8%) while in the rural areas included method failure 33 (18.9%), husband's disapproval 28(16.3%), distance too far 9(5.1%), poor quality of service 6(3.4%), inconvenience from use 3(1.7%), methods not available 9(5.1%) and interference with body process 1(0.6%). However, some women had more than one reason for discontinuing a method of contraception. The reasons for discontinuation in the urban and rural groups were side effects and health concerns, distance too far, cost too much, and husband's disapproval compared with rural group side effects and health concerns, method failure, husband's disapproval and cost too much.

Table 5: Reasons for Contraceptive Discontinuation Among Women of Reproductive Age in Urban and Rural Groups.

Variable (Multiple responses)	Urban n (%)	Rural n (%)
Side effect/ Health concern	51(24.2)	63(36.1)
Distance too far	44(21.0)	9(5.1)
Cost too much	34(16.1)	23(13.1)
Husband disapproval	27(12.8)	28(16.0)
Method Failure	25(11.8)	33(18.9)
Poor quality of service	13(6.2)	6(3.4)
Inconvenience with the method	10(4.7)	3(1.7)
Interference with the body process	4(1.8)	1(0.6)
Method not available	3(1.4)	9(5.1)

Discussion

The findings of this study indicated that women in the reproductive age group in urban and rural communities in Kano were found to have a high prevalence of contraceptive discontinuation. This may partly explain the high fertility rate and the rising rate of unsafe abortions, as well as the prevailing high rate of maternal and infant morbidity and mortality rates in the state.[11,12,] Significant similarities and differences in the socio-demographic characteristics compared to the study groups are worthy of note. Except for

religion and level of education, proportions of other socio-demographic characteristics were significantly different comparing the groups.

The contraceptive discontinuation rates were significantly higher in the rural population than in their urban counterparts (75.5% vs. 68.3%). This is not unexpected, as Kano State has been previously reported to have a low prevalence of contraceptive use and a high rate of discontinuation.[11,12] Similar studies noted a high discontinuation rate in urban communities in Senegal (68.7),[12] Ghana (56%),[13] India (90%),[14] Iran (78.8%),[15] and southwest Ethiopia (83%).[16] The previous studies used a methodology comparable to or similar to this one. On the other hand, the prevalence of contraceptive discontinuation in this study is higher than what was reported by similar studies conducted in Nigeria(48% and 41%),[11,17] Tanzania,[18] Uganda(31.5),[19] Pakistan(25%),[20] South Ethiopia(46.2%),[21] North Ethiopia(40.7%),[22] and the Democratic Republic of Congo(10%).[23] The much lower findings from discontinuation contraceptive rate were probably caused by reasons such as having well-established in-country family planning programs, [21,23] studying only one method,[20] and it was a facility-based study.[23]

Health-related issues and side effects were reported as the most typical reasons for discontinuation by respondents in both urban and rural groups (24.6% vs. 27.6%); these are comparable to results reported in studies from Kano(21%),[24] Bangladesh(26%),[25] Indonesia(37%),[26] rural Tanzania,[27] and North Ethiopia(41.6%).[22] This is likely because side effects are pervasive, and they often lead to contraceptive discontinuation, which may, in turn, cause high fertility rates with maternal and neonatal mortalities.[17,22,24] The findings in this study were dissimilar to some other studies. A higher proportion of respondents reported health-related side effects in Jos,[28] Pakistan (37%),[20] and India. [29] This may be because most of the studies were conducted on implants, injectables and IUDs, which are known to cause significant contraceptive side effects.[13,28]

Another reason for contraceptive discontinuation was the husband's disapproval (13.0% vs. 12.3%) among women in both rural and urban communities, respectively. This reason was also reported in Kano,[13] North Ethiopia (34%),[22] and South Ethiopia.[21] Reports from this study noted that respondents' husbands who had a low level of education status were more likely to discontinue contraception methods. Education helps them understand and outweigh the advantages and disadvantages of the contraceptive methods they are using.[21] Also, in recent times, studies have noted that male involvement in family planning reduces contraceptive discontinuation.[30] During the interviews, some respondents confirmed that the increasing involvement of husbands in family planning has reduced discontinuation in their health facilities.[17,30] Male involvement in family planning use and permanent contraceptive methods are key strategies to reduce fertility and promote maternal and child health. It is crucial to the success of family planning programs and women's empowerment and is associated with better reproductive health outcomes such as contraceptive acceptance, continuation, and safer sexual behaviours.[31]

Distance too far from the health facility in the urban and rural groups (3.9% vs 21.3%) was also reported as reason for discontinuation. The study showed that urban communities have better access to family planning supplies than rural communities. Urban areas have been reported to have more health facilities that render family planning services than rural areas,[32] other reasons given by respondents in the urban and rural groups for discontinuation were inconvenient to use (3.4% vs 1.7%), and interference with body processes (1.9% vs. 0.4%) in both urban and rural areas respectively, and all these reasons may be related to their higher levels of education. Studies report that women with higher levels of education are more likely to report inconvenience and interference with their body/body shape following the use of contraceptives.[33] Quantitative data from the study provided information about the current prevalence of both contraceptive users and discontinuers. Therefore, the outcome can serve as proof for the formulation of family planning policies and programs to increase the use of contraceptives in Nigeria. The cross-sectional study design, however, makes it impossible to determine the causal (temporal) relationships. Finally, the question about reproductive health history may lead to recall bias.

Conclusion

The majority of women in rural areas had higher rates of discontinuing contraception compared to their urban counterparts, and the difference in discontinuation was statistically significant. The rate of discontinuation for the injectable method of contraception was the highest in urban areas compared with rural areas. When implementing

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