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Original Research Article

Demand for modern contraceptives and use among women of reproductive age in north central Nigeria

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ABSTRACT

Background: The maternal mortality rate in north central Nigeria remained unacceptably high and the use of modern contraceptives among women of reproductive age in north central Nigeria may be a way of reducing maternal death. The study aimed to determine the contraceptive uptake among women of reproductive age in north central Nigeria and the factors that influence the use of contraceptives.
Methods: The study was a secondary analysis of 2018 national demographic and household survey data. Data were abstracted for women of reproductive age 15-49 years across seven states in Nigeria.
Results: The level of awareness of modern contraceptives was 91.6% while the modern contraceptive prevalence rate was 38.8% and current contraceptive prevalence use was 53.4%. The main source of information was radio 298 (22.4%) and the most common contraceptive used was implants 81 (29.3%) followed by hormonal contraceptive injections 77 (27.4%). The factors associated with the use of contraceptives include the age of the women, religion, level of education, number of children ever born, and partners' opinion (p=0.001). The proportion of women who oppose contraceptive use was significantly higher (χ^2=4.732, p=0.030). Similarly, the proportion of women whose husbands/partners opposed contraceptive use was significantly higher (χ^2=8.589, p=0.003, OR=3.2).
Conclusions: The prevalence of contraceptive use is low in north-central Nigeria despite the high level of awareness. There is a need to involve the women's partner to increase the uptake of contraceptive use.

Keywords: Contraceptives, Needs, Nigeria, North-Central, Women

INTRODUCTION

There is an estimated 35 million women of reproductive age in Nigeria with an annual number of births of approximately 7 million and annual population growth of 3.2%.[1] This rapid population growth in Nigeria is attributable to the high fertility rate (TFR) of 5.5 children per woman.[1] Family planning which is the ability of individuals and couples to attain their desired number and spacing of their children through the use of contraceptives is one of the most cost-effective public health interventions, which is pivotal to reducing the country's fertility rate.[2] The use of modern contraceptive is

generally poor with values as low as 25% in the Middle and Western Africa when compared to Europe, Latin America and Caribbean whose values are 70% uptake.[3] Globally, the contraceptive prevalence rate (CPR) among married women of reproductive age is 62% while modern contraceptive prevalence rate (mCPR) is 56%.[4]

The prevalence of contraceptive use is increasing worldwide while the coverage remains unacceptably low in many low- and middle- income countries (LMIC) with about one in three women of reproductive age (15-49 years) failing to use modern methods despite their yearning to delay or limit pregnancy.[5] The use of contraceptive is low among women of low socio-economic status this is due to inability to access modern contraception.[6] Northern Nigeria has some of the worst reproductive health indicators which is partially attributed to poorly focused attention on the associated factors of unmet contraceptive need.[7,8] Different studies reported low CPR among women in Northern Nigeria. A study by Duze et al found 10.3% CPR among rural women in the north which was much higher than the 2.0% reported by Doctor et al but lower than 18.0% reported by Solanke et al.[9-11] Studies also revealed male control over women's utilization of modern contraceptives in the North.[8,10]

There are conspicuous north-south variations in contraceptive use. Studies revealed a gap of 12.4% points in contraceptive prevalence between the north and south of Nigeria (5.2% versus 17.6%) and the major contributors to the gap were ideational characteristics (explaining 42.0% of the gap) and socio-economic profiles (explaining 42.6%).[7] Modern contraceptive prevalence in the south doubled that of the north, it was between 2.7% and 12.4% in the Northern zones of Nigeria compared to between 11.4% and 24.9% in the Southern zones.[1,7] Northern states like Yobe, Jigawa, and Sokoto had modern contraceptive prevalence rates of 0.5%, 0.6%, and 0.7% respectively.[1] The odds of non-use and unmet need for contraceptives were higher in the Northern parts and rural areas of Nigeria which reflects the deeply ingrained socioeconomic inequalities across different geopolitical regions in the country.[12]

With these unfriendly statistics in Nigeria, it is of keen interest to ensure there is a rapid improvement in maternal health in the country. The provision of safe, effective, and affordable modern contraceptive methods is central to achieving high levels of demand satisfied for family planning and address women's sexual and reproductive health desires.[13] Therefore, the desired CPR must be achieved across the geo-political regions of Nigeria to meet the sustainable development goals (SDGs). Thus, improving contraceptive uptake among women of reproductive age in north central Nigeria is a critical component of improved maternal health in the country.[14,15] The knowledge of factors responsible for the low uptake of modern contraceptive among women of reproductive age in north central Nigeria will help to curb the increasing maternal mortality and in planning measures to achieve the sustainable development goal 3. Studies on modern contraceptive use among women of reproductive age has been done in different part of Nigeria but few in the north central Nigeria.[14,16-20] The studies in north central Nigeria were done in Plateau State therefore not a good representation of the north central.[19,20] This current study aimed to determine the contraceptive uptake among women of reproductive age in all the seven states in north central Nigeria and the factors that influences the use of contraceptive. A better understanding of these factors will therefore provide an efficient framework for developing sustainable interventions that are not only effective, but also readily acceptable given their responsiveness to the local context.

METHODS

Study location

The study utilized data from seven states in north central, which are Kwara State, federal capital territory (FCT) Abuja, Benue, Plateau State, Niger State, Nasarawa State and Kogi State. The north central is a transitional zone between the northern and southern Nigeria. It is located at latitude 8.96940 and longitude 7.55570 and is elevated at 418 meters (1,371 feet) above sea level. The population is about 39 million according to the 2006 census and 2016 projected population of 60 million.[21] The ethnic groups are Tiv, Igede, Idoma, Igala, Igbo, Nupe, Okun, Yoruba, Zaar (Guus) to mention a few. The main religions are Christianity (65%), Islam (25%) and traditional religion (10%) of the population.[22] The major occupation are agriculture, education and mining.

Study design

This was a secondary analysis of the 2018 national demographic and household survey data.[23]

Study period

This study took place from January 2021 to September 2021.

Study population

Women of reproductive age 15-49 years who were residents of Kwara State, FCT Abuja, Benue State, Plateau State, Niger State, Nasarawa State and Kogi State. Women who were of reproductive age between 15-49 years who were sick and bed-ridden or were not willing to participate in the study were excluded from the study.

Sample size

The estimated population of women in north central Nigeria who were analysed for the purpose of this study were 1,451.

Ethical consideration

Ethical approval to download and analyse the dataset was obtained from the National Demographic and Health Surveys (NDHS) programme.

Data collection tools

The 2018 NDHS study used a quantitative questionnaire design. The data used in this analysis were collected using the women's questionnaire. The women were asked questions on the following topics: background characteristics (including age, education, and media exposure), birth history and child mortality, knowledge, use, and source of family planning methods.

Sampling technique

The 2018 NDHS included all women aged 15-49 years in the sample households. Those who were either permanent residents of the selected households or visitors who stayed in the households the night before the survey were eligible to be interviewed. However, the sample for the 2018 NDHS was a stratified sample selected in two stages. Stratification was achieved by separating each of the states into urban and rural areas. In total, 74 sampling strata were identified. Samples were selected independently in every stratum via a two-stage selection. Implicit stratifications were achieved at each of the lower administrative levels by sorting the sampling frame before sample selection according to administrative order and by using a probability proportional to size selection during the first sampling stage.

In the first stage, 1,400 enumeration areas (EA) were selected with probability proportional to EA size. Enumeration area size was the number of households in the EA.

A household listing operation was carried out in all selected EAs, and the resulting lists of households served as a sampling frame for the selection of households in the second stage. In the second stage selection, a fixed number of 30 households was selected in every cluster through equal probability systematic sampling, resulting in a total sample size of approximately 42,000 households. The household listing was carried out using tablets, and random selection of households was carried out through computer programming. In total, 1,451 women were successfully interviewed.

Data collection method

Thirty-seven teams, each consisting of one supervisor, one field editor, two male interviewers, three female interviewers, one lab scientist, and one nurse were assigned across the different clusters in the six zones. The teams were closely monitored by the state coordinators and the quality controllers. After completion of the fieldwork in the zonal take-off centers in the first week, all the teams were brought back to the zonal office for a review session where they had an opportunity to clarify any questions. The teams were then dispatched to their respective states. Data collection lasted for six months.

Fieldwork monitoring was an integral part of the 2018 NDHS, and several rounds of monitoring were carried out by the NDHS core team, and the state coordinators. Weekly field check tables were generated from the completed interviews sent to the central office to monitor fieldwork progress and regular feedback was sent out to the teams.

Outcome measures

The outcome measure of the study was the contraceptive use or contraceptive uptake of the women of reproductive age 15-49 years in north central Nigeria.

Data analysis

The quantitative data were analysed using SPSS version 21. Univariate analysis was carried out to show the proportions and frequency distribution of socio-economic and demographic variables from the NDHS data. Also, univariate analysis showed the frequency and percentage distribution of the awareness of modern contraceptive methods among women of reproductive age. Bivariate analysis such as chi-square tests was carried out to test for statistical associations between dependent (contraceptive use) and independent variables (factors) at 5% level of significance. Multivariate analysis was performed using binary logistic regression to evaluate the factors influencing use of contraceptive use.

RESULTS

The mean age of the respondents was 30.9±7.80 years, more (54.7%) of the respondents were 30 years and below. Sixty-eight percent lived in rural area and majority (51.1%) were Muslim. About 36.8% had no education while only 11.5% had tertiary education. Forty-eight percent of the respondents belong to the upper range of the wealth index and fifty-one percent had given birth to more than three children (Table 1).

Table 2 showed that majority (91.6%) were aware of modern method of contraceptives. The major source of information was from radio (22.4%) closely followed by television (14.6%). The prevalence of modern method of contraceptive use among respondents was 38.8% while the proportion of respondents who were currently using modern method of contraceptives was 53.4%.

Table 3 showed the pattern of modern method of contraceptive use among respondents. This revealed implants (29.3%) was the highest, followed by use of injection (27.9%), pills (11.2%), and male condom (11.2%). However, the use of female condom was the lowest at 0.4%.

Table 1: Socio-demographic characteristics of respondents.

Variables	Frequency (N=1451)	Percentage
Age group (years)		
≤30	794	54.7
>30	657	45.3
Residence		
Urban	461	31.8
Rural	990	68.2
Religion		
Christianity	512	35.3
Islam	742	51.1
Catholic	190	13.1
Traditional	7	0.5
Level of education		
None	534	36.8
Primary	295	20.3
Secondary	455	31.4
Tertiary	167	11.5
Wealth index		
Poorest	175	12.1
Poorer	260	17.9
Middle	327	22.5
Richer	373	25.7
Richest	316	21.8
No. of children ever born		
None	93	6.4
≤3	624	43.0
>3	734	50.6

Table 2: Awareness of modern contraceptives among respondents.

Variables	Frequency (N=1451)	Percentage
Awareness on modern method of contraceptives		
Yes	1329	91.6
No	122	8.4
Sources of information*		
Radio	298	22.4
Television	194	14.6
Government clinic	151	11.4
Private clinic	55	4.1
Text messages	45	3.4
Newspaper	32	2.4
Pharmacy	29	2.2

*Multiple response

The factors associated with the use of modern contraceptive among respondents is seen in Table 4. The proportion of respondents (46.5%) who were above 30years that use contraceptive was significantly higher when compared to those who were 30 years and below (χ^2=28.604, p=0.001). The proportion of respondents (50.0%) who lived in urban areas that use contraceptive was significantly higher when compared to those who lived in rural areas (χ^2=35.211, p=0.001). The proportion of respondents (55.1%) with tertiary education who use contraceptive was significantly higher when compared to those with lower level of education (χ^2=71.349, p=0.001). It also revealed the proportion of respondents (64.4%) who opposes contraceptive use was significantly higher than those who didn't oppose (χ^2=4.732, p=0.030). The proportion of respondents (89.6%) whose husband/partner did oppose contraceptive use and who didn't use contraceptives was significantly higher than those whose husband/partner oppose and uses contraceptive (χ^2=8.589, p=0.003).

Table 3: Pattern of modern method of contraceptives use among respondents.

Variables	Frequency	Percentage
Implants	81	29.3
Injection	77	27.9
Pills	31	11.2
Male condom	31	11.2
Withdrawal	28	10.1
IUD	10	3.6
Female sterilization	5	1.8
Periodic abstinence	5	1.8
Lactational amenorrhea	4	1.4
Other traditional	3	1.1
Emergency contraception	2	0.7
Standard days method	2	0.7
Female condom	1	0.4

The result shown in Table 5 revealed that respondents who live in urban areas were two times likely to use contraceptives than those in rural. Also, respondents whose partner/husbands opposes contraceptive use were three times likely not to use contraceptives.

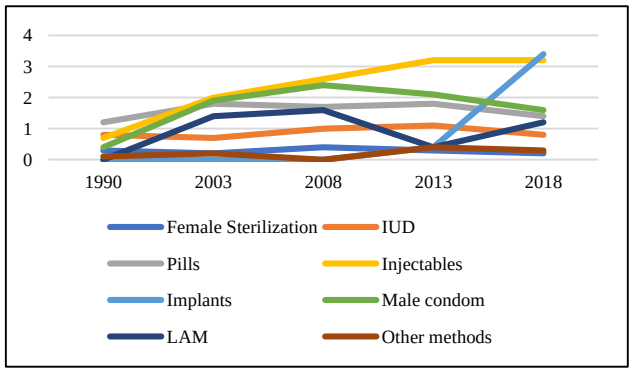

Figure 1: Trends in current use of modern contraception (1990-2018, NDHS).

The trends in use of modern contraceptives in Figure 1 reveals that most of the modern methods of contraceptives use increased from 1990 to 2008 and now decline from 2013 except for injectables and IUDs which remained constant on the increase. The use of implants showed a drastic increase from 2013 to 2018.

Table 4: Factors affecting the use of modern contraceptives among respondents.

Variables	Contraceptive use		χ^2	P value
	Yes, N (%)	No, N (%)		
Age group (years)				
≤30	232 (32.2)	489 (67.8)	28.604	0.001
>30	285 (46.5)	328 (53.5)		
Residence				
Urban	221 (50.0)	221 (50.0)	35.211	0.001
Rural	296 (33.2)	596 (66.8)		
Religion				
Christianity	247 (49.7)	250 (50.3)	51.539	0.001
Islam	191 (29.8)	451 (70.2)		
Catholic	79 (41.8)	110 (58.2)		
Traditional	0 (0.0)	6 (100.0)		
Level of education				
None	102 (23.4)	334 (76.6)	71.349	0.001
Primary	123 (43.3)	161 (56.7)		
Secondary	200 (44.7)	247 (55.3)		
Tertiary	92 (55.1)	75 (44.9)		
Wealth index				
Poorest	48 (27.0)	130 (73.0)	66.477	0.001
Poorer	83 (28.4)	209 (71.6)		
Middle	127 (37.0)	216 (63.0)		
Richer	124 (42.2)	170 (57.8)		
Richest	135 (59.5)	92 (40.5)		
No. of children ever born				
None	5 (6.5)	72 (93.5)	54.543	0.001
≤3	199 (34.3)	381 (65.7)		
>3	313 (46.2)	364 (53.8)		
Not having sex				
Yes	3 (42.9)	4 (57.1)	1.315	0.251
No	90 (24.1)	284 (75.9)		
Menopausal				
Yes	8 (34.8)	15 (65.2)	1.427	0.232
No	85 (23.7)	273 (76.3)		
Sub fecund/infecund				
Yes	3 (37.5)	5 (62.5)	0.759	0.384
No	90 (24.1)	283 (75.9)		
Postpartum amenorrhoeic				
Yes	6 (35.3)	11 (64.7)	1.143	0.285
No	87 (23.9)	277 (76.1)		
Breastfeeding				
Yes	19 (19.4)	79 (80.6)	1.803	0.179
No	74 (26.1)	209 (73.9)		
Respondent opposed				
Yes	21 (35.6)	38 (64.4)	4.732	0.030
No	72 (22.4)	250 (77.6)		
Husband/partner opposed				
Yes	7 (10.4)	60 (89.6)	8.589	0.003
No	86 (27.4)	228 (72.6)		

Table 5: Logistic regression of factors influencing use of modern contraceptives.

Variables	OR	95% CI		P value
		Lower	Upper	
Age group (years)				
≤30	0.546	0.437	0.682	0.001
>30	1.00			
Residence				
Urban	2.014	1.595	2.541	0.001
Rural	1.00			
Level of Education				
None	0.249	0.171	0.363	0.001
Primary	0.623	0.424	0.915	0.016
Secondary	0.660	0.462	0.944	0.023
Tertiary	1.00			
Wealth index				
Poorest	0.252	0.165	0.385	0.001
Poorer	0.271	0.187	0.391	0.001
Middle	0.401	0.284	0.565	0.001
Richer	0.497	0.350	0.707	0.001
Richest	1.000			
No. of children ever born				
None	0.081	0.032	0.202	0.001
≤3	0.607	0.483	0.763	0.001
>3	1.000			
No. of children living				
None	0.072	0.029	0.181	0.001
≤3	0.625	0.498	0.785	0.001
>3	1.000			
Respondent opposed				
No	0.521	0.288	0.944	0.031
Yes	1.000			
Husband/partner opposed				
No	3.233	1.422	7.349	0.005
Yes	1.000			

DISCUSSION

The study was conducted to determine the demand for modern contraceptives and its use among women of reproductive age in north central Nigeria. All the respondents who participated in this study were women/girls of reproductive age group ranging from 15 to 49 years and the mean age was 30.9 (7.8) years which was similar to studies done in Nigeria.[16-19] The age group less than 30 years were predominant in this study, and this was similar to studies done in other part of Nigeria.[16-19] The predominance of younger age group in the studies could be because the Nigeria population was predominantly a younger age group and the life expectancy of the Nigeria woman is 63 years.[24] It could also be because the younger age group were easily accessible in the study location.

Majority of the women in the study were Muslim and this is in line with other studies done in similar location (northern part of Nigeria).[14,19,25] Studies done in north-west, north central, north-east and interestingly in the South-West of Nigeria were predominantly Muslim.[14,19,25] Similarly other secondary data analysis also reviewed Islam as the most common religion.[16,17] Study by Ekholuentetale et al reported more Christian than Muslim.[26] The variations in the religion of the women could be due to the major religion practiced in the study location.

More than half of the women reside in rural area and majority were uneducated as seen in the study. This is because the acceptability of education of women in the north-central is still low as there are male dominance and women are considered house-keeper. Majority of the women are either full house-wife or sustenance farmer. This finding is in tandem with studies by Ekholuentetale et al and Blackstone et al but contrary to study done in the south-west Nigeria where majority of the women had

secondary level of education and resides in urban area.[16,18,26]

Almost all (92%) of the women were aware of modern contraceptive, but the prevalence of modern contraceptive use was low (38.8%). Our finding agreed with a study in Ogbomoso, south west, Nigeria were all the respondents were aware of contraceptive.[27] Another study in Jos, north central Nigeria revealed that awareness level was 88.1%.[20] The awareness does not translate to its use among the women in this study. This is not surprising as awareness has been shown to be a poor predictor of behavioural domain of attitude and practice.[28]

The main source of the information was radio and television. Various studies in Nigeria have found that the most common sources of information on contraceptive use are radio/television/newspapers/magazines, school-lectures/workshops/seminars and health workers, in that order.[29] It's of great concern that health care workers are not doing a better job at disseminating information about contraception. The health care workers at the family planning clinics should provide more credible information, sadly, the family planning clinics are not woman-friendly or adolescent-friendly. This unfriendly attitude is because family planning services are seen as a privilege reserved for married people.[30]

Furthermore, even among health practitioners in Nigeria, discussions about sex and contraception with young people are still deemed unacceptable.[29] As a result, there is a pressing need in Nigeria to promote adolescent and youth-friendly reproductive services to persuade sexually active young people to use contraception more frequently. However, changing the socio-cultural norms concerning sex education in adolescents in Nigeria must start with mass education of the adult population. Interestingly, the health care facilities in the Southern part of Nigeria are becoming a key source of information.[31] This is most likely due to the rising level of education among women in Southern part of Nigeria.

The mCPR in the present study was 38.8% while the proportion of women who were currently using modern method of contraceptives were 53.4%. The mCPR in this study was higher than what was reported by Monjok et al with mCPR of 13.0% but lower than what was reported in a study in Ogbomoso, South West, Nigeria were the mCPR was 49.7% and the current modern contraceptive use was 25.4%.[27,32] Study in Jos, north central Nigeria revealed prevalence of modern contraceptive use as 44.0%.[20] The mCPR in this study was unacceptably low and needed to be improved. The low mCPR recorded in this study is of public health importance since it could have been responsible for the high rate of unintended pregnancies and unsafe abortions in the country.[33] It is surprising that the major contraceptive used among the respondents in this study is implants closely followed by hormonal contraceptive injections. This is because they are not common options and most women are concerned about the side effects of hormonal contraception such as amenorrhea, menorrhagia, and metrorrhagia.[32,34] However, the high acceptability of this method of contraception in the North Central might be due to the poor support of the partners as regard contraceptive use, culture and religious bias. Also, the high successful met need of the implants and hormonal contraceptive injection might make the contraceptive acceptable among the women.[35,36]

The finding in this study is contrary to what was reported from the National Population Commission's 2003 Demographic and Health Survey (DHS) where condom was the most common contraceptive method known to and used among Nigerian women of reproductive age. The increased condom use was attributed to substantial condom marketing by both government and non-governmental organizations in response to the human immunodeficiency virus (HIV) epidemic.[31] Similarly, there are fewer restrictions on contraceptive purchases and use because patent medicine stores are common sources of contraceptives and condoms are readily available over the counter, compared to family planning clinics and health facilities where there are more restrictions.[29] This however is not common when there is poor partner support or when it is considered a contradiction to a religious belief.

Other studies reported oral contraceptive pill as the most common contraceptive use and it is because they are widely accessible over the counter in Nigerian patent medicine and pharmacy shops. The oral contraceptive pills are mostly used by younger unmarried women and students.[37] The draw back on the use of the oral contraceptive pill was the lack of proper information especially the notion that long-term use of the oral contraceptive pill causes irreversible sterility.[15]

The factors influencing the use of contraceptive among women in this study are myriad which include the age of the women, type of residence, religion, level of education, number of children ever born, number of children living, partners opinion and wealth level of the couple. The study showed that older age group, residence in urban area, Christian, higher level of education, more than three children ever born, more than three children alive, highest household wealth index and supportive partners are more likely to use contraceptive and thereby have increase contraceptive uptake. These findings are in tandem with studies across Nigeria.[14,16,18,26,27] Limited availability and cost of contraceptives are of concerns in the north central especially in the rural region where there is lack of access to contemporary contraception and family planning services due to restricted availability.[15] While areas where services do exist in the North, there might be insufficient contraceptive supplies, insufficient numbers of qualified service providers, providers with weak interpersonal skills and minimal critical equipment.[15]

The demand for contraceptives in the Nigeria was majorly dependent on the women especially in northern Nigeria, household finances, level of education especially in northern Nigeria, myths and misconceptions about modern contraceptive methods, parity, pronatalist attitudes, and widespread preference for male children.[37] Other studies also showed that women educational status and contraceptive knowledge were factors influencing contraceptive uptake.[18,27,38] There is, therefore, the need to improve contraceptive literacy in rural communities of Nigeria especially the north central. This will involve an increased and sustained political will by the Nigerian government and its partner agencies to invest more on contraceptive use education programmes to improve the knowledge-base of rural women regarding contraception.

Study by Alo et al revealed that age of the woman and type of residence do not determine the use of contraceptive.[17] The study was a secondary data analysis from linked household and service delivery point datasets from a 2018 survey conducted by performance, monitoring and accountability in Nigeria. This finding was contrary to what was reported in this current study. The difference could be due to the sociodemographic characteristics of the respondents. It is however important to note that the other factors (religion, level of education, number of children ever born, number of children living, partners opinion and wealth level of the couple) in our study were factors listed in the study. The significance of the male partner in influencing the uptake of contraceptive was further emphasised by Blackstone et al where the partners attitude towards contraceptive increases the use of modern contraceptive among the women.[16]

The effect of religion in determining the use of contraceptive cannot be overemphasised as demonstrated in this study. This is re-enforced by studies in Northern Nigeria and Bangladesh which are predominantly Muslim settings and demonstrated rejection of contraceptives by the women due to religious reason and the perception that women who used contraceptives are promiscuous.[39,40]

There is a rising trend though marginal in the uptake of contraceptive in this study. This is highly encouraging and it is attributed to the increase household enlightenment and education by both government and non-governmental organizations in response to the rising maternal mortality and attainment of sustainable development goal 3.[31] Similarly, the percentage of contraceptive uptake among the geopolitical zone in Nigeria has been improving however at a marginal rate since 2003.[12] These studies showed that there is hope in the increase of contraceptive uptake in the North Central Nigeria.

The limitation of this study was the secondary analysis nature of the data as the data were collected retrospectively therefore there is a risk of recall bias. Similarly, the secondary nature of the data makes control over the selection and measurement of variables difficult. Also, information on contraceptive use was self-reported; hence the chances of reporting bias is likely.

CONCLUSION

In conclusion, there is a low modern contraceptive prevalence rate in north central Nigeria; however, there is a marginal increase in the uptake of contraceptive over the years reviewed, which is highly commendable. There is therefore, the need to improve the statistic and this can be done by focusing on the factors that influences the use of contraceptive as revealed by the study. These include the inclusion of male partner in contraceptive use, increase women empowerment to determine their reproductive health demand and improve contraceptive literacy in rural communities of Nigeria especially the north central. The improved knowledge and uptake of contraceptive may impact positively on the health indices especially in rural areas in Africa where decision affecting health are influenced by culture and religion.

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