

■ Original Research Article

Assessment of Knowledge, Uptake and Determinants of Modern Contraceptive Method Use among Women of Reproductive Age in Benue South Zone, North Central Nigeria

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Abstract

Background: According to WHO, Nigeria has the highest burden of maternal mortality in the World. Increased contraception uptake has been shown to reduce maternal mortality by up to one-third. The aim of this study was to identify factors influencing modern contraceptive uptake in Benue South Zone, upon which interventions can be designed. **Methods:** This cross-sectional study targeted 280 women of reproductive age (WRA) selected by multistage sampling. Simultaneously, a facility family planning services assessment was conducted in health facilities selected from each Ward. Trained assistants collected two sets of data using a 2018 NDHS-adapted questionnaire, hosted on the online ODK Collect survey platform. The information was analyzed on SPSS version 23. **Results:** Over half of the women desired to have five or more children and three-quarters had been pregnant, with 21% already with five or more living children. The miscarriage/abortion rate was low. Over 95% knew about modern contraceptives and knew them from radio and television jingles. More than half of the women were currently using modern contraceptives, which were predominantly Condoms, Pills, Implants and Injectables; the same range of contraceptives stocked by their health facilities. Only the age of respondents had a statistically significant association with contraceptive uptake in this study. **Conclusion:** This study revealed that WRA in the Benue South District have good knowledge and high utilisation of modern contraceptives, and the age of respondents showed a statistical association with contraceptive uptake in the study.

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INTRODUCTION

Nigeria is the most populous nation in Africa with an estimated population of about 216 million people in 2021 and is estimated to become the third most populous country in the world by 2050.ⁱ Nigeria's total fertility rate (TFR) of 5.3 is one of the highest in the world while the contraceptive prevalence rate of 17% of all methods of family planning is one of the lowest in the world contributing to the high population.^{ii,iii} Even though family planning is one of the most cost-effective health interventions in the world, low and middle income countries (LMICs) like Nigeria are struggling to scale up its use to maximize the benefits. Family planning is defined as the process whereby individuals and families

anticipate and attain their desired number of children with the spacing and timing of their births.³ Family planning is an important intervention for achieving the first target of the third sustainable development goal (SDG-3) goal, which involves reducing global maternal mortality ratio to less than 70 per 100,000 live births. The benefits of family planning are wide-ranging as it simultaneously contributes to the reduction of neonatal, infant, and under-5 mortality by ensuring optimal care of these children.⁴ Studies have shown that a 2-year spacing between children in developing countries will reduce infant mortality by 10% and child mortality by about 20%.^{iv} Currently, Nigeria is estimated to have the highest burden of maternal mortality, and the second highest mortality ratio in the world, second only to Sierra Leone.^v

Family planning is capable of reducing this maternal mortality by 30%.^{4,6}

Several factors affect the knowledge and utilization of contraceptives in Nigeria and these include sociodemographic factors like age, marital status, education, tribe, religion, occupation, and social class.^{vi,vii,viii,ix} These factors may be enhanced by other factors such as cultural norms, and more so within a group of people that share the same beliefs, especially in terms of gender roles as men are considered the decision-makers for health in the family, contraceptive methods for uptake inclusive.^{8,9} In the light of Nigeria's quest to achieve the SDG-3 target of less than 140 maternal deaths per 100,000 live births, with less than six years to 2030, an enhancement of this public health strategy is necessary.

To promote increased family planning use and uptake, reduce mortalities, improve family health and acquire demographic dividend, concerted efforts are necessary to improve the contraceptive prevalence rate (CPR) across Nigeria, Benue State inclusive. This study's objectives were to determine the knowledge, uptake and socio-demographic determinants of family planning among women in the reproductive age group, and the accessibility of modern contraceptives in selected health facilities in the Benue South Zone. No such study had been previously published.

SUBJECTS AND METHODS

Study Area

Benue State is located in the North Central region of Nigeria with her capital in Makurdi. The state derives its name from the river Benue which is the second largest river in the country. Benue State has three senatorial zones; the Northwest, the Northeast, and the South senatorial zones. The Southern senatorial zone, which is made of Ado, Agatu, Apa, Obi, Ogbadibo, Ohimini, Oju, Okpokwu, and Otukpo local government areas (LGAs), has Otukpo as its administrative capital. The South zone is bounded in the North by Nassarawa State, in the North-East by Gwer West LGA, East by Gwer East and Konshisha LGAs, in the South by the Ebonyi States, in the Southwest by Enugu State, and in the West by Kogi State. English is the official spoken language while the two major tribes are Idoma and Iggede. The major occupation of the citizens is subsistence farming which is one of the reasons the state has the moniker of the state: 'Food Basket of the Nation'. Other occupations include civil service and trading. The predominant religion of the people is Christianity and most of the people reside in rural areas. The zone has 608 health facilities of which 583 (95.9%) are primary health care facilities and 25 (4.1%) are secondary health facilities.

Study Design

A cross-sectional descriptive study design was employed for this study

Study Population

Inclusion Criteria

All women of reproductive age between the ages of 15 and 49 who were sexually active who gave written consent to participate were recruited for the study.

Exclusion criteria

Women of reproductive age who declined participation were excluded from the study.

Sample size determination

The minimum sample size was determined using the formula for calculating sample size for comparison of two independent groups

$$n = (z_{\alpha})^2 pq/d^2$$

where n = minimum sample size

z_{α} = 95% confidence interval which corresponds to 1.96

p = proportion of women in the reproductive age group in Nigeria who used modern contraceptive methods as surveyed in the NDHS 2018 = 17.0%

q = complementary probability = $(1 - p) = 1 - 0.17 = 0.83$
 d = expected difference between the two proportions which will be considered important if it exists = 5% = 0.05%

Therefore

$$n = (1.96)^2 \times 0.17 \times 0.83 / (0.05)^2$$

$$n = (3.8416 \times 0.17 \times 0.83) / 0.0025 = 0.5420 / 0.0025$$

$$n = 216.8 = 217$$

Considering 10% non-response rate, the sample size was adjusted to n_1 using the formula

$$n_1 = n / (1 - f)$$

Where n_1 = desired sample size and

f = non-response rate of 10% $n_1 = 217$

$$1 - (10\%)$$

$$n_1 = 217 / [1 - (0.1)]$$

$$n_1 = 217 / 0.9 = 241.11 = 242 \text{ women of reproductive age}$$

Sampling Technique

A multistage sampling technique was used. The first stage involved the selection of local government areas (LGAs); Four LGAs were randomly selected from Benue South District (3 from the 7 Idoma LGAs and 1 from the 2 Iggede LGAs), both involving the use of a table of random numbers. The second stage was the random selection of 7 Wards from each of the 4 LGAs (total of 28 Wards). The third stage was the recruitment of 10 women of reproductive age (WRA) from each of Ward. For the selection of the WRA, the World Health Organization (WHO) Lot Quality Assurance Sampling (LQAS)^x, which is the method used for assessing routine immunization in communities with inadequate enumeration infrastructure, was utilized. (It required the interviewer to start from the center of the selected Ward

and draw four quadrants. A bottle or pen was then spun in the middle of the quadrants and where it faced was the quadrant where the survey started. Thereafter, each household with an eligible mother was surveyed and then the survey was based on taking a right turn after exiting the house. A house was then skipped, and the next household surveyed until the 10th woman was recruited in each Ward). Consequently, 70 WRA were recruited from each of the four LGA to bring the total of recruited women to 280.

Study instruments

Tools for data collection

The Open Data Kit (ODK), installed on Android phone devices, was used in this survey to gather, manage, and efficiently analyze its data. All the research assistants received hands-on training on how to use the soft- and hard-ware.

The instruments

Two quantitative instruments - one for interviewing the WRA; and the second was a checklist for assessing Family Planning service capacity of each health facility involved in the study, served to the heads of selected health facilities. The WRA interview instrument was a questionnaire adapted from the one used in the NDHS survey 2018², while the quantitative questionnaire for assessing the health facilities was adapted from published in-country study,¹¹ and covered the characteristics of facility, services provided by the facility including family planning services, personnel, and patient flow.

Data Collection

Careful selection of eight research assistants was done after which a full day hands-on training on the study, their roles, responsibilities and how to conduct the fieldwork using study hardware and software. These assistants were paired, and each pair was assigned to cover seven Wards of the study area. Each Android phone was assured of adequate access to the Internet for data upload throughout the study period.

Data Management

Quantitative data was checked for completeness and downloaded to a personal computer and analyzed using the Statistical Package for Social Sciences (IBM) version 23. Data was summarized using frequencies and percentages for categorical variables. Chi-square was used to test any statistical relationship between

categorical variables. The level of statistical significance was set at 5%.

Ethical Clearance

Ethical clearance for this study was obtained from the Health Research Ethics Committee (HREC) of the Federal University of Health Sciences, Otukpo, Benue State (FUHSO-HREC/02/05/2023-05/2023). Written informed consent was obtained from each participant before enrolment into the study. Study candidates who declined consent were politely excluded from study. Confidentiality of any information given was assured through the secure handling of the completed questionnaire by the trained Interviewers.

RESULTS

The fieldwork of this study was successfully conducted over a 20-day period. All the 280 intended WRAs were recruited and interviewed, and the earmarked 28 health facilities located in the 28 study Wards were assessed. Almost 80% of the study participants were aged between 20-30 years, which coincides with the peak years of childbearing. Well over 90% of the study participants were Christians, which conforms to the general pattern in Benue State.

Over 50% of the respondents desired five or more children, about 20% wanted four or more children, while 14% were undecided on the number of children desired.

About three-quarters of the subjects had ever been pregnant. Live childbirth had never been experienced by 33%, while 21% had had five or more live childbirths.

Similarly, 31% had no currently living child while 21% had five or more currently living children. An overwhelming 83% of the participants had never experienced miscarriage or abortion, while 13% had experienced one.

Over 95% of the study subjects knew about family planning (contraception); two-thirds heard of it through the Radio, one-third from television, and the rest through other means.

The most known contraceptives to the respondents were condoms, Pills, Implants and Injectables. More than half of the respondents were currently using contraceptives, and the most used modern methods were Condoms, Implants and Pills. For the contraceptive users, 13% had been on it for less than one month, 54% for between one and twelve months, and 33% for over a year.

Table 1: Showing the Socio-Demographic Features of the Respondents

Age (years)	Frequency (N=280)	%
<20	35	12.5
20-29	125	44.6
30-39	93	33.2
40-49	27	9.7
Educational level Attained		
No formal	39	13.9
Primary	56	20.0
Secondary	145	51.8
Tertiary	40	14.3
Ethnicity		
Idoma	184	65.7
Igede	74	26.4
Tiv	5	1.8
Others	17	6.1
Religion		
Christianity	264	94.3
Islam	7	2.5
Traditional	8	2.9
Others	1	0.4
Current Marital status		
Married	186	66.4
Single	66	23.6
Separated	13	4.6
Divorced	2	0.7
Cohabiting	13	4.6
Total	280	100

Over half of participants who used contraceptives, sourced them from public health facilities (PHCs and General Hospitals), while one-third patronized Pharmacy and Chemist outlets.

Two-thirds of the health facilities assessed were owned by the LGAs while the rest by the State Government. All but three of the health facilities were stocked with family planning commodities at the time of the study.

After a cross-tabulation of selected socio-demographic characteristics of the respondents with the uptake of contraceptives, statistically significant association was established only within the age of respondents ($p=0.004$). No association was established with respondents' educational attainment, religion or ethnicity.

Table 2: Showing Fertility Intentions and Practices of Respondents

Desired Total Family Size	Frequency	%
None/Undecided	40	14.3
1	1	0.4
2	4	1.4
3	30	10.7
4	66	23.6
5 or more	139	50.4
Ever been Pregnant		
Yes	215	76.8
No	65	23.2
Number of with Children Ever Born Alive	Frequency	%
None	92	32.9
1-2	70	25.0
3-4	58	20.7
5-6	34	12.1
7 or more	26	9.3
Number with Children Currently Alive	Frequency	%
None	86	30.7
1-2	73	26.1
3-4	63	22.5
5-6	38	13.6
7 or more	21	7.2
Number of Pregnancies Miscarried/Aborted	Frequency	%
None	232	82.9
1	36	12.9
2	36	3.9
3	11	0.4
Total	280	100.0

DISCUSSION

The socio-demographic profile of the respondents in the study was comparable to those of other published randomized studies.^{2,10} Over half of the women in this study had intended family size of five or more children, which compares to the mean ideal number of children reported for Benue State in 2018;² and one-fifth already had five or more currently living children. This high fertility tendency is typical of rural Nigeria settings with peasant farming occupation as high premium is placed on bearing many children who will provide support for the family economic investment.

About one-third of the women had no currently living children despite the fact that 70% of them were involved in conjugal relationships. That the prevailing miscarriage/abortion rate was low may infer the existence of substantial infertility in the study area.

Table 3: Showing Contraceptive Knowledge and Uptake of Respondents

Ever Heard of Family Planning (Contraction)	Frequency	%
Yes	268	95.7
No	12	4.3
Total	280	100
Source(s) of Family Planning/Contraception Information (multiple responses)	Frequency	%
Radio	172	61.4
Television	94	33.6
Internet	66	23.6
Others	51	18.2
Total	NA	NA
Type(s) of Family Planning/Contraceptives Known (multiple responses)	Frequency	%
Male Condom	252	90.0
Female Condom	205	73.2
Injectables	165	58.9
Pills	198	70.7
Intra-Uterine Device (IUCD)	79	28.2
Implants	206	73.6
Surgical Methods		
Female	84	30.0
Male	40	14.3
Emergency Contraception	146	52.1
Natural Method		
Withdrawal method	185	66.7
Rhythm method	86	30.7
LAM	66	23.6
Standard days Method	78	27.9
Total		
Is Respondent in Current Use of a Contraceptive?	Frequency	%
Yes	156	55.7
No	124	44.3
Total	280	100
If Yes, Type(s) of Contraceptives in Current Use (multiple responses)	Frequency	%
Male Condom	94	33.6
Female Condom	3	1.1
Injectables	8	2.9
Pills	20	7.1
Intra-Uterine Device (IUCD)	3	1.1
Implants	28	10.0
Withdrawal	21	7.5
Others	16	5.7
Total		
Duration of Current Use of Contraceptive	Frequency	%
<One Month	20	13.0
2-6 Months	47	30.5
6-12 Months	36	23.4
1-5 Years	40	26.0
>5 Years	11	7.1
Total	154	100
How the Contraceptive in Use was Sourced	Frequency	%
Primary Health Centre	30	19.5
General Hospital	50	32.5
Pharmacy/Chemist Shop	56	36.4
Others	18	11.6
Total	154	100

Table 4: Showing the Characteristics of the 28 Health Facilities in the Study Area Providing Family Planning Services

Categorization of Health Facilities	Frequency (N=28)	%
Primary Health Centre	17	60.7
Health Clinic	11	39.3
Ownership of Facility		
Public owned facility (LGA)	19	67.9
Public owned facility (State)	8	28.6
Privately owned facility	1	3.6
Family Planning/Contraceptive Commodities Availability in the Facility		
Available	25	89.3
Not available	3	10.7
Type of Available Family Planning/Contraceptive Commodities (multiple responses allowed)		
Male Condom	13	46.4
Female Condom	20	71.4
Injectables	18	64.3
Pills	18	64.3
Intra-Uterine Device (IUCD)	12	42.9
Implants	18	64.3
Surgical Methods	0	0
Beads	0	0
Others	0	0
Source(s) of Family Planning/Contraceptive Commodities	Frequency (N=26)	%
Benue State Ministry of Health	12	46.2
LGA Department of Health	7	26.9
Federal Ministry of Health	2	7.7
NGOs	1	3.8
Others	4	15.4

The study found that 67.1% of the women had had livebirths, and 69.3% had currently living children at the time of the study. This portrays a high survival tendency for children in the area.

Over 95% of these study subjects had knowledge of contraceptive methods, and this was higher than the national average of 92.1%.² This is similar to another study done in Benue State where the knowledge was about 96.1%, even though the latter study was among undergraduates.¹² Similarities also exist between this study and another one done in Plateau state where the knowledge of condoms was 95% but differ from one in Osun State where the knowledge was 27% less. The most known contraceptive types in this study were condoms, Pills, Implants and Injectables, and this pattern also compares to that at the National level² and similar to the study done in Lebanon and India^{3,13} though in contrast to findings from Ethiopia where injectables were widely known compared to barrier contraception and pills.¹⁴ Incidentally, the three most known contraceptives

Condoms, Implants and Pills were still the most currently used types. The reason for this may not be far-fetched as both Condom and Pills are user-dependent and would most suite residents of rural settings where there is a dearth of skilled providers to serve the user-dependent types like the IUCD. The utilization in this study is lower than reported in two other studies in Benue State though male condoms were preferred in all three.^{10,15} This contraceptive prevalence rate in this study was also lower than studies in Osun State, Nigeria and Lebanon.^{3,7}

The disproportionately high rate of use of the Withdrawal method over the much more effective natural methods, like Lactation Amenorrhea Method (LAM) and Standard Days Method, is concerning as this will predispose the users to incurring unintended pregnancies. In the event of the latter, such pregnancies swell the number of deliveries of the women, since the abortion rate is low in the area.

The most frequently cited sources of information on contraception in the study, radio and television, are unhelpful because it failed to acknowledge the role of health facilities and health workers from whom the respondents admitted served them with their contraceptive choices. This is in contrast to another study done in Nigeria where Antenatal care was the major source of information.¹⁶ The widely dispersed largely agrarian settlements of the study area may explain the effectiveness of these electronic media for attracting women's attention to contraceptive use. Further elucidation of these observations will be helpful because electronic media jingles are expensive to serve.

In the setting of this study, where there is a high tendency for high fertility, it is assuring that 33% of the current contraceptive users had been using them for over one year, and 7% for over five years. These practices are sure to confer the health, economic and social benefits of contraceptive use on the families of the users.

Over half of the respondents using contraceptives sourced them from public health facilities, while three-quarters of the health facilities depended on the Benue State Government and LGAs for their supplies. The security of this family planning commodities logistic chain management system might soon be threatened by a recent revelation of inadequate funding of family planning by the Benue State Government if the situation persists.¹⁷ The published State's scorecard on Family planning rated the 2021 performance as "poor due to inadequate release of funds". It added that the State's expenditure on Family planning per woman of reproductive age was a paltry 20.44 Naira, and that only 52.9% of the budget was released.

That each of the randomly selected Wards involved in this study had a functional primary healthcare facility was impressive, and all but one of them were public owned. Also impressive was the observation that all but three of them provided contraceptive services.

Table 5: Showing cross tabulation of selected sociodemographic and contraceptive uptake

Variable	Contraceptive Uptake			Chi square	P value
	Yes Freq (%)	No Freq (%)	Total Freq (%)		
Age (years)					
<20	12(7.7)	23 (18.5)	35 (12.5)	12.967	0.004
20 – 29	77 (49.4)	48 (38.7)	125 (44.6)		
30 – 39	47 (30.1)	46 (37.1)	93 (33.2)		
40 – 49	20 (12.8)	7 (5.6)	27 (9.6)		
Religion					
Christianity	144 (54.5)	120 (45.5)	264 (94.3)	2.848	0.442
Islam	5 (3.2)	2 (1.6)	7 (2.5)		
Traditional	6 (3.8)	2 (1.6)	8 (2.9)		
Others	1 (0.6)	0 (0.0)	1 (0.4)		
Ethnicity					
Idoma	104(66.7)	80 (64.5)	184 (65.7)	2.589	0.477
Igede	37 (23.7)	37 (29.8)	74 (26.4)		
Tiv	3 (1.9)	2 (1.6)	5 (1.8)		
Others	12 (7.7)	5 (4.0)	17 (6.1)		
Education					
No formal education	15 (9.6)	24 (19.4)	39 (13.9)	6.378	0.095
Primary	33 (21.2)	23 (18.5)	56 (20.0)		
Secondary	82 (52.6)	63 (50.8)	145(51.8)		
Higher education	26 (16.7)	14 (11.3)	40 (14.3)		

Both factors are very critical in assuring these peasant rural women and their families of the accessibility and affordability of these lifesaving contraceptives.

The most commonly served contraceptives by these health facilities (over 60%), Condoms, Pills, Implants and Injectables, might have been the major influencer of the most prevalent types of contraceptives that were in current use by the women. Since almost 10% of the women had had seven or more livebirths, the provision of the additional options long-term and even permanent contraceptive methods such as the IUCD and sterilization would have been most appropriate. This gap could be attributed to the lower level of health facilities that serve these study areas and consequently limited skills of the service providers. A revelation of the cadre of staff of these health facilities by this study would have been helpful in this conversation, since substantial number of primary health facilities across the country are operated by Community Health Extension Workers

(CHEWs) on account of the non-availability of nurses and midwives to do so.

Although a number of studies have shown association between various sociodemographic features of clients with Contraceptive uptake, this study observed association between only the age of the women and Contraceptive uptake.^{18,19} This is at variance with other studies where socio-demographic characteristics like religion, number of sexual partners socio-economic status and educational status as determinants for contraceptive uptake.^{3,19,20}

CONCLUSION

In conclusion, this study has provided a broad understanding of the reproductive aspirations of the women in the area, and their contraceptive knowledge, preferences and practices. It has also revealed that they prefer large family size, have low abortion rates, are very

knowledgeable of modern contraceptives, patronize and use contraceptives that are served by their public health facilities. The hints that that their child survival might be high, and infertility significant, require deeper investigation. Almost all the health facilities in the area were public-owned and served contraceptives that were predominantly Condoms, Pills and Implants. Enhanced contraceptive accessibility and provision of wider contraceptive method options have the potential to raise contraceptive uptake and confer maternal health and wellbeing in Benue South District.

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