



**UPTAKE OF LONG-ACTING REVERSIBLE CONTRACEPTIVES (LARCs) AND FACTORS INFLUENCING USE AMONG WOMEN VISITING HEALTH FACILITIES IN ENUGU STATE, NIGERIA**

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**ABSTRACT**

Maternal morbidity and infant mortality are two major public health issues affecting developing nations. Long-acting reversible contraceptive (LARC) methods can substantially reduce the high levels of unwanted pregnancy as well as maternal mortality and morbidity, especially in developing countries. The study evaluated uptake of LARC and the factors influencing their use among women visiting family planning clinics in Enugu State. A three-year retrospective review of clients' family planning unit records at three facilities – a primary, a secondary, and a tertiary health institution, all in Enugu State. The descriptive statistics of the information regarding their obstetrics, socio-demographic, and comorbid conditions, as well as their history of using contraceptives, were conducted using SPSS version 20. To identify variables influencing LARC uptake, inferential statistics (Chi-square) was used. The significance threshold was set at  $p < 0.05$ . Of the 1127 women data retrieved from the daily hospital records, 642 (68.0%) were taking LARCs, while the other 302 (32.0%) were taking non-LARCs. The facility ( $p=0.001$ ), referral ( $p=0.006$ ), life birth category ( $p=0.023$ ), mode of delivery ( $p=0.006$ ), and intention for more children ( $p=0.008$ ) were found to be significantly associated with the use of LARCs. The use of LARC in this research setting was encouraging and several factors were associated with the use of LARC. Family planning services still need to be strengthened, while bringing to bear every strategy that can contribute to improving its uptake.

**KEYWORDS:** Long-acting reversible contraceptives (LARCs); Family planning; Nigeria; Health facilities.

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**INTRODUCTION**

Maternal morbidity and infant mortality are two major public health issues affecting developing nations. Family planning is a human right and a means of female emancipation [1]. It is an educational strategy that aims to lessen poverty, advance economic growth and development, boost women's productivity, lower fertility, and enhance maternal health and child survival [1]. It entails using a variety of contraceptive treatments to prevent conception. Some of them have the ability to stop the transmission of sexually transmitted diseases like HIV/AIDS in addition to controlling conception.

Most women choose to have not more than two children in industrialized nations like the United States, where they can put off getting pregnant for up to three decades [2]. The prevalence of contraception use rose with age, from 38.7% of women between the ages of 15 and 19 to 74.8% of women between the ages of 40 and 49. From 2017 to 2019, 65.3% of American women between the ages of 15 and 49 used at least one kind of contraception [3]. Modern contraceptive methods have not been widely adopted in developing nations like sub-Saharan Africa due to factors such as level of education, community socio-economic status, literacy level, etc. [4].

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In Nigeria, the percentage of married women who used family planning increased from 15% in 2013 to 17% in 2018 [5]. Modern methods of contraception, such as male and female sterilization, injectable contraceptives, intrauterine devices (IUDs), contraceptive pills, implants, female and male condoms, the calendar days' method, the lactational amenorrhea method (LAM), and emergency contraception used by married women, saw an increase in prevalence from 10% to 12%, while traditional methods, such as the calendar method, withdrawal method, and use of strings and condoms, recorded a decrease [5].

There are short-acting reversible contraceptives (SARCs) like pills, transdermal patches, vaginal rings, and depot medroxyprogesterone acetate [DMPA] injection as well as long-acting reversible contraceptives (LARCs) such implants and IUDs. Short-acting reversible contraceptives are reportedly used by more women than long-acting reversible contraceptives, especially after their first pregnancies [6].

A variety of factors influence contraceptive use, including the number of living children, geographic area, and literacy level. According to the National Demographic Health Survey, 15% of mothers with 3–4 live children and 26% of women living in urban areas used contraception on a regular basis. The survey also indicated that married women account for the vast majority of women. Higher degree holders (23%) were more likely than individuals with minimal education (4%) to adopt modern contraceptive procedures [5].

Studies have demonstrated that family planning knowledge and need are still very unmet, despite the fact that there is significant contact between health care providers and postpartum women during immunization [7,8]. According to a survey, 35% of women of reproductive age in poor nations like Ethiopia use long-acting reversible contraceptives regularly [9].

It is unclear how widely family planning services are used and provided in Enugu State. Few research studies have been conducted to evaluate the use of contraceptive methods in Enugu State. Additionally, some research in Nigeria have made use of secondary data from the National Demographic and Health Survey (NDHS) and Performance Monitoring and Accountability (PMA) data set, as well as prospective surveys including questionnaires and interview-based surveys. Few have used historical data from healthcare institutions. Thus, using routinely collected hospital data from the family planning registers, this study evaluated the use of LARCs and factors affecting their use among women

who attended some family planning clinics in Enugu State.

## **METHODS**

### **Study Design**

It was a retrospective study of three different health institutions' family planning registers between 2015 and 2017.

### **Study Setting**

The study was carried out in three health facilities - a primary health centre (Health Centre Nsukka), one secondary health centre (District Hospital, Nsukka), and a tertiary health facility (University of Nigeria Teaching Hospital Ituku-Ozalla, UNTH), all in Enugu State. One of the largest tertiary teaching hospitals in South East Nigeria, University of Nigeria Teaching Hospital Ituku-Ozalla (UNTH) is situated on 200 acres of land. It is situated along the Enugu-Port Harcourt Expressway, 21 kilometres from Enugu Capital City. It includes three (3) outposts in addition to 41 major departments. With cutting-edge amenities, the hospital currently has a bed capacity of over 500. The UNTH Ituku/Ozalla has comprehensive service, teaching, and research aims. This is accomplished by offering its clients in-patient and out-patient services through the use of highly skilled staff, providing instructional resources, and promoting research on all topics pertaining to health.

The Nsukka Health Center, located on Odenigbo Road, is one of the primary health facilities in Nsukka, Enugu State. It provides family planning clinics, prenatal care, and vaccination services. The district hospital is located on the Enugu Road in Nsukka, Enugu State. All of the health care facilities used in this study have dedicated family planning units that are open on specific days of the week. The district hospital's child care clinics are held once a week (on Tuesdays), while those at the Nsukka Health Centre and UNTH are held twice a week (on Mondays and Wednesdays).

### **Study Sample**

Clients who visited family planning clinics between 2015 and 2017 and were prescribed any contraceptive method had their daily records reviewed.

### **Inclusion/Exclusive Criteria**

The daily records of each client that went to a family planning clinic were used from 2015 to 2017.

### Study Instrument

Data on the social demographics, obstetric characteristics of women, co-morbidities, and the method of contraception selected by the clients on their clinic visit were collected using a data collection form. These particulars were taken from the client's record cards.

### Data Analysis

Statistical Product and Service Solutions (SPSS) version 20 was used to clean, code, and then analyze the data. The analysis did not include missing responses. Frequencies and percentages were used for the descriptive analysis. A test of association between the method of contraception and some independent variables, such as facility and the quantity of live births, was conducted using chi-square. A p-value of 0.05 was used as the significance threshold.

### Ethical Implications

The University of Nigeria Teaching Hospital (UNTH) provided ethical clearance (NHREC/05/01/2008B-FWA00002458-1RB00002323), and the heads of the healthcare facilities' child care clinics and family planning units gave their approval. The study was carried out while maintaining the clients' confidentiality and privacy.

## RESULTS

A total of 1127 women's records were extracted from daily hospital records; 51.9% (585) came from UNTH, 2.2% (25) from the district hospital, and 45.9% (n = 517) from the Nsukka health centre. The vast majority (48.5%, 531) had completed their secondary education. Approximately 84.2% (n = 951) were Christians, and 61.5% (n = 659) were referred by clinical personnel (Table 1).

The women's obstetric characteristics (Table 2) showed that more than half (52.6%, 577) had between 0 and 4 children, and more than half (59.7%, 624) of those children were still alive. The vast majority of them (94.2%, or 985) gave birth vaginally. The majority (60.8%, 599) had normal menstrual periods, and 82.2% of them (or 868) did not exclusively breastfeed their infants. A greater proportion of them (73.9%, or 805) had no plans to have more children. Before registering at the study hospitals, nearly all of the women (80.9%, 654) had obtained contraception from public health facilities. Combination oral contraceptives (COC) (55.4%, 506), emergency tablets (1.3%, 12), intrauterine devices (16.2%, 148), condoms (6.1%, 56), implants (7.3%, 67), and injectables (4.4%, 40) were the most

frequently reported modern contraceptives used prior to their index visit to the family planning clinics. The withdrawal method (1, 0.1%) and natural procedures (25, 2.7%) were the traditional approaches that were reportedly used.

Smoking was the most common comorbidity (41.6%, 470), followed by hypertension (22.1%, 184), and 7.1% (76) had other conditions such as diabetes, jaundice, urinary tract infection, severe headache, ulcer, and Sickle cell anemia (Table 3). According to Table 4, nearly all of the women (642, 68.0%) were using long-acting reversible contraception. Table 5 lists the variables that may influence the decision to use LARC or non-LARC. Using LARC was significantly associated with visiting the district hospital (92%), being referred by a healthcare institution/worker (72.8%), having a life birth of 0 to 4 children (72%), delivering by caesarean section (C/S) (84.9%), and wanting more children (70.5%), all at p 0.05.

## DISCUSSION

According to the report, more than half of the clients attended UNTH. The high number of clients recorded at UNTH could be due to the hospital's ability to provide tertiary health care to a large number of patients. The tertiary hospital also provided a wider range of contraceptives, as well as more personnel who could advise customers on contraceptive options. Almost half of the women completed secondary school, implying that they were educated enough to understand the importance of family planning. This is comparable to a study conducted in seven Nigerian states using the female dataset from Performance Monitoring and Accountability (PMA) 2016 (round 3), which found that the majority of women in the family planning unit completed secondary school [10]. In addition, a separate study of rural postpartum women in southwestern Nigeria discovered that slightly more than half of the women completed secondary school [11]. Unlike in our current study, most of the women who visited the Family Planning Clinic (FPC) of the Department of Obstetrics and Gynecology, Ekiti State University Teaching Hospital (EKSUTH) Ado-Ekiti attended tertiary institutions in another related study [12].

Furthermore, nearly half of the women were referred to family planning centres by health care professionals. This was most likely due to the women receiving information on family planning options as well as potential locations with family planning facilities during prenatal and postnatal clinics.

**Table 1:** Socio-demographic characteristics of women that visited Family Planning Clinics

<b>SOCIAL DEMOGRAPHICS</b>	<b>n (%)</b>
<b>Facility</b>	
UNTH	585(51.9)
District Hospital Nsukka	25(2.2)
Health Center Nsukka	517(45.9)
<b>Education</b>	
Some primary school	54(4.9)
Primary school completed	119(10.9)
Some secondary school	274(10.9)
Secondary school completed	531(48.5)
Tertiary	102(9.3)
<b>Religion</b>	
Muslim	33(3.1)
Christian	951(84.2)
Others	92(8.6)
<b>Referral</b>	
Healthcare Institution/worker	659(61.5)
Communication Media	56(5.2)
Friends /Relatives	357(31.6)

UNTH – University of Nigeria Teaching Hospital.

**Table 2:** Obstetrics Characteristics of women that visited Family Planning Clinics

<b>Obstetrics Characteristics</b>	<b>n (%)</b>
<b>Life Birth Category</b>	
0 to ≤4 Children	577 (52.6)
>4 Children	521 (47.4)
<b>Alive category</b>	
0 to ≤4 Children	624 (59.7)
>4 Children	422 (40.3)
<b>Mode of delivery</b>	
Vaginal	985 (94.2)
C/S	61 (5.8)
<b>Type of cycle</b>	
Regular	599 (60.8)
Irregular	103 (10.5)
<b>Breastfeeding</b>	
No	868 (82.2)
Yes	188 (17.8)
<b>Wants more children</b>	
No	805 (73.9)
Yes	215 (19.7)
<b>Prior methods used</b>	
COCs	506 (55.4)
IUCDs	148 (16.2)
Condoms	56 (6.1)
Withdrawal	40 (4.4)
Implant	67 (7.3)
Injectables	40 (4.4)
Abstinence	7 (0.8)
Drug/Withdrawal	1 (0.1)
Emergency	12 (1.3)
Natural	25 (2.7)
<b>Source of prior contraception</b>	
Public	654 (80.9)
Private	122 (15.1)
Others	28 (3.5)

C/S – Cesarean Section; COCs – Combined Oral Contraceptives; IUCDs – Intra-uterine Contraceptive Devices.

**Table 3:** Reported comorbidities among women that visited Family Planning Clinics

<b>Comorbidities</b>	<b>N (%)</b>
<b>Diabetes</b>	
No	1035 (98.6)
Yes	13 (1.2)
<b>Jaundice</b>	
No	1049 (99.6)
Yes	4 (0.4)
<b>UTI</b>	
No	1038 (98.8)
Yes	13 (1.2)
<b>Severe headache</b>	
No	1021 (97.1)
Yes	31 (2.9)
<b>Ulcer</b>	
No	1036 (98.8)
Yes	13 (1.2)
<b>SCA</b>	
No	1046 (99.8)
Yes	2 (0.2)
<b>Smoker</b>	
No	660 (58.4)
Yes	470 (41.6)
<b>Hypertension</b>	
No	649 (77.9)
Yes	184 (22.1)

UTI – Urinary Tract Infection; SCA – Sickle Cell Anemia.

**Table 4:** Contraceptive methods selected by women that visited Family Planning Clinics

<b>CONTRACEPTIVE METHOD</b>	<b>n (%)</b>
Implants	259 (27.4)
IUCDS	383 (40.6)
Pills	62 (6.6)
Injectables	190 (20.1)
Condoms	16 (1.7)
COCs	34 (3.6)
<b>Contraceptive Class</b>	
LARC	642 (68.0)
Non-LARC	302 (32.0)

IUCDs – Intrauterine Contraceptive Devices; COCs– Combined Oral Contraceptives; LARC – Long Acting Reversible Contraceptive.

**Table 5:** Factors determining the selection of LARC and non-LARC

<b>FACTORS</b>	<b>LARC (n%)</b>	<b>NON-LARC (n%)</b>	<b>P-VALUE</b>
<b>FACILITY</b>			
UNTH	333 (76.6)	102 (23.4)	<b>0.0001*</b>
District hospital	23 (92.0)	2 (8.0)	
Health CentreNsukka	285 (59.1)	197 (40.9)	
<b>EDUCATION</b>			
None	4 (57.1)	3 (42.9)	0.475
Some Primary school	30 (78.9)	8 (21.1)	
Completed Primary school	64 (65.3)	34 (34.7)	
Some Secondary school	171 (71.5)	68 (28.5)	
Completed Secondary school	297 (66.9)	147 (33.1)	
Tertiary	59 (66.3)	30 (33.7)	
<b>RELIGION</b>	59 (66.3)	30 (33.7)	
Muslim	21 (72.4)	8 (27.6)	
Christian	547 (68.7)	249 (31.3)	
Others	47 (64.4)	47 (35.6)	
<b>REFERRAL</b>			
Healthcare institution/worker	399(72.8)	149 (27.2)	<b>0.001*</b>
Communication	30 (65.2)	16 (34.8)	
Friends/relatives	182 (60.1)	121(39.9)	
<b>ALIVE CATEGORY</b>			
0 to ≤4 Children	365 (71.7)	144 (28.3)	0.062
>4 Children	236 (65.7)	123 (34.3)	
<b>LAST PREGNANCY</b>			
Normal	560 (66.8)	278 (33.2)	0.127
Complicated	53 (75.7)	17 (24.3)	
<b>MODE OF DELIVERY</b>			
Vaginal	559 (66.7)	279 (33.3)	<b>0.006*</b>
C/S	45 (84.9)	8 (15.1)	
<b>BREASTFEEDING</b>			
No	485 (66.6)	245 (33.6)	0.072
Yes	123 (73.7)	44 (26.3)	
<b>WANT MORE CHILDREN</b>			
No	478 (66.6)	240 (33.4)	<b>0.008*</b>
Yes	124 (70.5)	52 (29.5)	
<b>HYPERTENSIVE</b>			
Yes	113 (75.8)	36 (24.2)	0.144
No	382 (69.7)	166 (30.3)	

UNTH – University of Nigeria Teaching Hospital; C/S – Caesarean Section.

The same result was seen in a study [12], which found that a higher percentage of women sought contraceptive advice from a healthcare professional. According to a different survey, however, many women first learned about family planning through radio [10]. The majority of the women who used family planning techniques in this study had no more than four living children. Given the current economic crisis and the fact that the national health insurance program only covers four children until they reach the age of 18, the majority of families are unlikely to want to have more than four children. The findings are consistent with the findings of a study of postpartum mothers in southwest Nigeria, which found that nearly all of the women registered at the family planning centre had one to three children [11]. Before registering at the health centres, slightly more than half of the study sample used non-LARC techniques such as COCs. This could be because they were unaware of the use of LARCs and the procedures required in using LARC [13].

With a prevalence of 68%, women were shown to be more likely to use LARC procedures in this study. This uptake rate is higher than the 65.6% seen in a 2019 study done in the southwest of Nigeria [12]. It was also discovered that the prevalence of LARC use at the current Family Planning facilities in this study was higher than the prevalence of reported past contraceptive use. Increased public knowledge as a result of various awareness programs by government and non-governmental organizations (NGOs) may be responsible for this increase in LARC usage. Additionally, the World Health Organization's proposal for the delegation of tasks by the Ministry of Health to cadres of health professionals as well as the information provided via TV, radio, and social media have generally increased the utilization rate of LARC [14].

The type of facility, source of referral, number of live births, mode of delivery, and intention to have more children were all associated with the use of LARC. Women who visited the secondary hospital were more likely to receive LARC than those who visited the tertiary hospital. A variety of facility-related factors could be at work here. These facility-based factors could include the availability of trained health providers, the type of contraception in stock, and the type of clients who visit each facility. The family planning unit at the secondary hospital was staffed by highly trained midwives. The short acting methods may have also been widely available at the primary health centre, which could account for the large proportion of patients who received non-LARC methods at the facility. According to a study in Uganda, quality of service could positively affect

uptake of modern contraceptives [15]. Although this study did not assess service quality, a plausible explanation for the difference in LARC uptake at the facilities could be due to possible differences in service quality. The ability of health workers to communicate with clients may influence their understanding and use of FP.

Women referred by a healthcare professional were more likely to use LARCs than women referred by other sources. This finding is consistent with the findings of another study, which found that women referred by health personnel were 1.38 times more likely to use LARC methods than women who learned about family planning from other sources [12]. The use of LARC was also strongly related to the method of delivery. In contrast to our findings, some studies have found that vaginal delivery has a significant influence on the choice of LARC [11,13]. However, there is strong evidence that inserting LARC, particularly IUCD, during a caesarean section is safe, convenient, and acceptable, with high continuation rates [16].

Many women chose family planning to space or limit their childbearing. According to studies, women who wanted to stop having children were more likely to use LARC than women who wanted to have more children [11,17]. Surprisingly, according to our findings, women who desired more children were more likely to use LARC. One possible underlying explanation is that most of the women wanted to use the LARC to space their births.

## LIMITATIONS

The study's LARC utilization rate was satisfactory, suggesting that many families nowadays prefer small families. The study, however, has some limitations. First of all, there is a possibility that not all patients' information was gathered because the study was retrospective and used data from the daily register. Second, several variables that could influence LARC use, such as the educational level of the women and their husbands [1, 10], the respondents' wealth indexes [10], ages [10], previous unintended pregnancies [12], or the frequency of abortions [13], were not assessed. Third, the findings from the three hospitals in Enugu State cannot be generalized to the entire population.

## CONCLUSION

The use of LARC in the research setting was encouraging, and it was discovered that factors such as facility visited, source of referral, delivery method, and desire for more children influenced these women's decision to use LARC significantly. As a

result, it is critical to continue improving family planning service delivery and to routinely train family planning professionals on patient counselling, insertion, and removal techniques used with LARC methods. Finally, a more effective method of informing women of reproductive age about the safety and efficacy of LARC is required.

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