



Utilization of Long-Acting Reversible Contraceptive (LARC) Methods in a tertiary hospital in southwestern Nigeria: A Mixed Methods Study

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Received: 10 July 2020 / Accepted: 19 October 2020 / Published online: 3 January 2021
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Abstract

Background/Purpose There is an increasing trend in the utilization of long-acting reversible contraceptive (LARC) methods globally. The study assessed the utilization of LARC methods and its determinants in a tertiary hospital, southwestern Nigeria using a mixed method study.

Methods A cross-sectional study of women attending the Family Planning Clinic of the tertiary hospital was conducted between November 1, 2018 and October 31, 2019 using both quantitative and qualitative methods. Quantitative data was collected using structured questionnaire while in-depth interviewer topic guide was used to obtain qualitative data from the respondents. The quantitative and qualitative data obtained from the respondents were analyzed using SPSS version 22 and open code version 3.6.2, respectively, and the determinants of utilization of LARC methods were identified using multivariate regression model.

Results The current utilization rate of LARC methods was 65.6% and implants accounted for 75% of LARC used. Higher education ($p=0.035$), more than 3 living children ($p=0.030$), previous use of LARC ($p=0.028$), good knowledge ($p=0.025$) and positive attitude of the women about LARC ($p=0.026$) were significant determinants of utilization among the women. Limiting size of family was the commonest reason among LARC users, while partner disapproval, fear of procedure and side effects were reasons given by non-users.

Conclusions The utilization rate of LARC methods are high, and this should be sustained through improved information dissemination, education of women and involvement of male partners in reproductive health matters including family planning.

Keywords Utilization · Long-acting reversible contraceptive methods · Tertiary hospital · Nigeria

Introduction

The ability to limit and space pregnancies has a significant impact on woman's well-being, child survival, and economic growth and development [1–3]. Rapid population growth remains a major concern in many sub-Saharan African countries including Nigeria with the attendant socio-economic ills, developmental and health challenges [4]. The prevalence

of the use of any contraceptive method in Nigeria is 17% and of modern methods is 12% while the unmet need for family planning is 19% [5]. The factors reported to account for this low utilization rate include the desire for large family size, illiteracy, poverty, ignorance, husband dominance, religious and community beliefs, unaffordability and inaccessibility of family planning services [6]. The resultant high parity is a significant contributor to the high maternal mortality rate in Nigeria [5]. Research indicates that the promotion of family planning in countries like Nigeria with high birth rates has the potential to reduce poverty and hunger and avert 32% of all maternal deaths and nearly 10% of childhood deaths [7, 8].

Long-acting reversible contraceptive (LARC) methods are defined as modern “methods” that require administering less than once per cycle or month [9]. The trend in contraceptive usage has changed from user-dependent to user-independent methods of contraception, and LARC methods are very efficient in this regard [10, 11]. LARC methods offer

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women the option of using highly effective and convenient methods with the added advantage of being long-lasting and improved compliance rates [12, 13].

The LARC methods are becoming increasingly acceptable globally including Africa and other developing nations due to their added advantages and improved availability and accessibility from donor funding [14, 15]. Yet records suggest that only 3% of married women in Nigeria utilize LARC methods despite being the most cost-effective method [5]. Factors reported from studies in other developing countries such as lack of trained providers, availability and accessibility may be responsible for this low utilization [16, 17].

This study examined the current utilization of LARC methods and determinant factors in the Family Planning Clinic of Ekiti State University Teaching Hospital, Ado-Ekiti using mixed methods and findings from this study will help to influence policies aimed at strengthening and improving LARC methods usage in this region of the country.

Methods and Materials

This cross-sectional study was conducted in the Family Planning Clinic (FPC) of the Department of Obstetrics and Gynaecology, Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti between November 1, 2018 and October 31, 2019. The FPC attends to about 905 clients annually. Family planning methods are provided at reduced costs to clients due to the government's subsidization with the support of non-governmental organizations.

The sample size for the study was calculated using the prevalence of contraceptive use of modern methods in Nigeria (12% from the Nigeria Demography and Health Survey 2018 report) [5]. The following formula was used:

$$n = (Z^2pq)/d^2$$

where n is the minimum sample size, Z is the standard normal deviation, set at 1.96, p is the prevalence of modern contraceptive use in Nigeria (0.12), and q is $1-p$ (0.88). The degree of accuracy was set at 0.05. The sample size was calculated to be 189 women of reproductive age with a 10% attrition rate.

Women who participated in the study were recruited using a systematic random sampling method to avoid bias and those who gave consent to participate were included in the study while those who did not give consent and could not respond to the interview questions were excluded.

Quantitative Data

Pretest questionnaires were administered to clients who visited the FPC by trained nurses of the clinic and specialist

registrars of the Department. The questionnaire was divided into two sections. The first section obtained information on sociodemographic characteristics such as age, education, number of living children, and utilization of modern contraception while the second section assessed knowledge, attitude and factors affecting the use of LARC methods.

The knowledge of women was measured by the number of correct answers to eight items on knowledge, with a score between 0 and 8. It was categorized as "high" for scores of 80% and above, "moderate" for scores of 60–79% and "low" for scores of less than 60% of the knowledge questions. Also, the attitude of the women was measured by assigning them into two categories which are positive attitude—those who scored above mean to the correct answers to questions measuring attitude to LARC methods and negative attitude—those who scored below mean. Utilization of long-acting contraceptive methods among the women was set as binary outcome variable [18].

Qualitative Data

Nineteen in-depth interviews were conducted among the women with an interview tool containing a list of open-ended questions which were used to explore the respondents' knowledge, attitude and the reasons for use or non-use of LARC methods. The study participants were selected through a purposive sampling method. One person was assigned for taking note and tape recording while the principal investigator facilitated the interview. An interviewer guide was used to facilitate the in-depth interview.

Statistical Analysis

The data collected were entered and analyzed using the Statistical Package for Social Sciences (SPSS) software, version 22 (IBM, Illinois, Chicago). Categorical variables were presented in frequency and percentages while continuous variables were expressed in mean and standard deviation. Chi-square was used in testing for significance for categorical variables and student t-test for continuous variables. P -value < 0.05 was considered statistically significant. Data obtained from the in-depth interview were translated and transcribed to English and categorized and coded accordingly to main thematic areas using Open code software version 3.6.2.

Results

Quantitative Data

A total of 189 women who visited the FPC during the study period were recruited and participated in the study with a

response rate of 100%. The mean age of the women was 31.04 ± 8.46 years and the median parity was 3. About two-thirds of the women were aged 20–35 years (66.0%) and 66.1% women were urban dwellers. More than three-quarters of the women were married (76.2%) and had more than two living children (77.8). Other sociodemographic characteristics of the study participants are as shown in Table 1.

Table 2 shows that health workers (68.3%), television/radio (53.4%) and friends (43.9%) were mentioned by the women as the main sources of information about contraception. Injectables (70.4%) and oral pills (52.4%) were the two most frequently used contraceptive methods while the commonest current method among the women

Table 1 Sociodemographic characteristics of participants involved in the study

Variables	Frequency (N)	Percentages (%)
Age of woman (years)		
< 20	25	13.2
20–29	55	29.1
30–39	75	36.9
≥ 40	34	17.8
Living children		
1–2	42	22.2
3–4	104	55.0
≥ 5	43	22.8
Marital status		
Married	144	76.2
Single	20	10.6
Divorced	14	7.4
Separated	11	5.8
Religion		
Christianity	101	53.4
Muslim	88	46.6
Education of woman		
Primary	17	9.0
Secondary	60	31.7
Tertiary	112	59.3
Occupation of woman		
Unemployed	18	9.5
Self employed	33	17.5
Privately employed	43	22.8
Government employed	95	50.3
Place of residence		
Urban	125	66.1
Rural	64	33.9
†Age of women (years)	31.04 ± 8.46	
‡Parity	3	

† Mean \pm Standard deviation

‡ Median

Table 2 Source of information and use of contraceptive methods

Variables	Frequency (N = 189)	Percentages (%)
^a Source of information		
Health workers	129	68.3
Television/Radio	101	53.4
Friends	83	43.9
Newspaper/ Posters/Leaflets	82	43.4
Church/Mosques	79	41.8
^a Methods heard		
Condoms	189	100
Pills	170	89.9
Injectables	159	84.1
Intrauterine device	134	70.9
Implants	130	68.8
Sterilization	101	53.4
^a Methods ever used		
Injectables	133	70.4
Pills	99	52.4
Intrauterine device	79	41.8
Implants	67	35.4
Condoms	55	29.1
None	52	27.5
^a Current method use		
Implants	75	39.7
Intrauterine device	49	25.9
Pills	20	10.6
Injectables	15	7.9
Condoms	7	3.7
None	23	12.2
Cost of contraception		
Expensive	46	24.3
Not expensive	143	75.7
^a Reasons for using contraception (n = 189)		
Birth limiting	158	83.6
Birth spacing	134	70.9
Prevent pregnancy	89	47.1
Prevent sexual infections	50	26.5

^a Multiple responses

was implants (39.7%) followed by the intrauterine device (25.9%).

Almost four-fifths (77.2%) of the women had heard about long-acting reversible contraceptive (LARC) methods while only 45.5% of them had used LARC methods before. About two-thirds (65.6%) of the women were currently using LARC methods, and implant (60.5%) was the common method used by them. Lack of knowledge (78.5%), fear of the procedure (75.1%) and fear of side effects (72.3%) were the three most common reasons given by the women for not using LARC methods (Table 3).

Table 3 Uptake of long-acting and reversible contraceptives methods (LARCM)

Variables	Frequency	Percentage (%)
Ever heard of LARCM (<i>n</i> = 189)		
Yes	146	77.2
No	43	22.8
Previous use of LARCM (<i>n</i> = 189)		
Yes	86	45.5
No	103	54.5
LARCM used previously (<i>n</i> = 86)		
Intrauterine device	55	64.0
Implants	31	36.0
Current use of LARCM (<i>n</i> = 189)		
Yes	124	65.6
No	65	34.4
LARCM use currently (<i>n</i> = 124)		
Implants	75	60.5
Intrauterine device	49	39.5
^a Reasons for not using LARCM (<i>n</i> = 65)		
Lack of knowledge	51	78.5
Fear of procedure	49	75.1
Fear of side effects	47	72.3
Husband disapproval	38	58.5
Prefers other method	25	38.5
Religious prohibition	19	29.2
Knowledge about LARCM (<i>n</i> = 189)		
High	64	33.9
Moderate	49	25.9
Low	76	40.2
Attitude to LARCM (<i>n</i> = 189)		
Positive	110	58.2
Negative	79	41.8

^a Multiple responses

Table 4 shows that on bivariate analysis, age of women ($p = 0.029$), education of the women ($p = 0.012$), number of living children ($p = 0.002$), ever heard of LARC methods ($p < 0.000$), previous use of LARCs ($p = 0.000$), attitude of the women ($p = 0.001$) and knowledge of the women ($p = 0.000$) about LARC methods were significantly associated with the utilization of LARC methods while other factors such as marital status, ethnicity, religion, occupation and place of residence did not show any statistical significance, $p > 0.05$.

However, education of the women, number of living children, ever heard of LARC methods, previous use of LARC methods, attitude and knowledge of the women about LARC methods were significant determinants of utilization of LARC methods, p -value < 0.05 as shown in Table 5.

Table 4 Sociodemographic factors associated with uptake of long-acting and reversible contraceptive methods (LARCM)

Variables	Use of LARCM		<i>P</i> -value
	Yes	No	
Age of woman (years)			
< 20	14 (56.0%)	11 (48.0%)	0.029*
20 – 29	41 (74.5%)	14 (25.5%)	
30 – 39	53 (70.7%)	22 (29.3%)	
≥ 40	16 (47.1%)	18 (52.9%)	
Marital status			
Married	100 (69.4%)	44 (30.6%)	0.247
Single	10 (50.0%)	10 (50.0%)	
Divorced	8 (57.1%)	6 (45.5%)	
Separated	6 (54.5%)	5 (45.5%)	
Religion of woman			
Christianity	70 (69.3%)	31 (30.7%)	0.251
Muslim	54 (61.4%)	34 (38.6%)	
Education of woman			
Primary	7 (41.2%)	10 (58.8%)	0.012*
Secondary	35 (58.3%)	25 (41.7%)	
Tertiary	82 (73.2%)	30 (26.8%)	
Occupation of woman			
Unemployed	10 (55.6%)	8 (44.4%)	0.173
Self employed	18 (54.5%)	15 (45.5%)	
Privately employed	33 (76.7%)	10 (23.3%)	
Government employed	63 (66.3%)	32 (33.7%)	
Ethnicity			
Yoruba	74 (71.8%)	29 (28.2%)	0.050
Igbo	40 (62.5%)	24 (37.5%)	
Hausa	10 (45.5%)	12 (54.5%)	
Place of residence			
Urban area	81 (64.8%)	44 (35.2%)	0.744
Rural area	43 (67.2%)	21 (32.8%)	
Living children			
1–2	18 (42.9%)	24 (57.1%)	0.002*
3–4	74 (71.2%)	30 (28.8%)	
≥ 5	32 (74.4%)	11 (25.6%)	
Ever heard of LARCM			
Yes	115 (78.8%)	31 (21.2%)	0.000*
No	9 (20.9%)	34 (79.1%)	
Previous use of LARCM			
Yes	76 (88.4%)	10 (11.6%)	0.000*
No	48 (46.6%)	55 (53.4%)	
Attitude of woman about LARCM			
Positive	83 (75.5%)	27 (27.3%)	0.001*
Negative	41 (51.9%)	38 (48.1%)	
Knowledge of woman about LARCM			
High	57 (89.1%)	7 (10.9%)	0.000*
Moderate	39 (79.6%)	10 (20.4%)	
Low	28 (36.8%)	48 (63.2%)	

*Statistically significant

Table 5 Determinants of uptake of long-acting reversible contraceptive methods (LARCM)

Variables	Uptake of LARCM		Adjusted Odd Ratio AOR (95% CI)	p-Value
	Yes	No		
Age of woman (years)				
<20	14	11	1	
20–29	41	14	0.712 (0.316–1.376)	0.089
30–39	53	22	0.893 (0.402–1.923)	0.134
≥40	16	18	1.013 (0.576–3.103)	0.203
Education of woman				
Primary	7	10	1	
Secondary	35	25	2.012 (0.923–4.102)	0.042*
Tertiary	82	30	4.143 (2.122–7.321)	0.035*
Living children				
1–2	18	24	1	
3–4	74	30	2.876 (0.987–4.877)	0.030*
≥5	32	11	5.142 (2.123–9.458)	0.015*
Ever heard of LARCM				
Yes	86	23	4.012 (1.947–8.743)	0.019*
No	38	42	1	
Previous use of LARCM				
Yes	76	10	3.002 (1.563–6.236)	0.028*
No	48	55	1	
Attitude of woman about LARCM				
Positive	83	27	4.176 (2.320–9.231)	0.026*
Negative	41	38	1	
Knowledge of woman about LARCM				
High	57	7	7.501 (3.112–11.803)	0.025*
Moderate	39	10	5.923 (2.343–9.943)	0.032*
Low	28	48	1	

*Statistically significant

Qualitative Data

Knowledge of respondents on long-acting reversible contraceptive (LARC) methods.

About three-fifths, (59.8%), of the women demonstrated good knowledge of LARC methods in Table 3. The majority of the interviewees also showed this in their responses below.

One of the respondents said: “I heard about family planning that can be put in the hand and inside the womb and one will not get pregnant for about 5 years. I come here to ask about it and then use the one in the hand” (A 30-year-old government employee with the intention to use LARC).

Another respondent who demonstrated her good knowledge had this to say: “I know about family planning that are put in the womb and in the hand. The health workers explained to me that it can last for about 5 years when I use it. They told me that I will not have pains when they are

inserted or during removal.” (A 40-year-old married teacher on the implant).

This was also corroborated by another respondent: “Health workers provide us necessary information about the benefits and side effects of contraceptive methods. If there is a problem after starting use of a contraceptive method, they give us treatment based on the type of problem and even give us an appointment for investigation and treatment” (Said a 26-year married civil servant on intrauterine device).

However, another respondent differed in her knowledge by her response: “I am using injections for the past seven years as I don’t hear about this coil or insert into the hand” (A 33-year-old artisan on injectables).

Attitude of respondents toward LARC methods.

More than half (58.2%) of the women had positive attitude toward LARC methods in Table 3 and this is illustrated in the response of five of the interviewees. One of them said: “I am a civil servant and busy at work, so I cannot be coming to the clinic to receive injections and may also not remember to take oral pills. Once I am given the insert, it will be there for 3 years and that is the reason I prefer it” (A 33-year-old civil servant on implant).

Another user of LARC methods said: “I have used coil before and it worked for me. It was there for five years and I did not get pregnant. So, I will use it again because I don’t want to have any more children” (A 39-year-old self-employed user of the intrauterine device).

Also, one of the interviewees said: “I cannot use coil or insert because it will not allow me to have pregnancy on time. I still want have more children and I am using injections” (A 26-year-old non-user of LARC).

Discussion

The long-acting reversible contraceptive (LARC) methods are becoming increasingly acceptable and available globally including Nigeria [14]. The prevalence of the utilization of LARC methods among women in this study was 65.6%, and this was higher than the previous uptake rate of 39.9% in a study done in the same center in 2013 [19]. This finding was consistent with reports from Ethiopia [20, 21]. This increase in utilization might be due to increased awareness and promotion of LARC methods currently being done by the Government and Non-Governmental Organizations. Also, the adoption of task shifting in improving access to contraceptive methods by the Ministry of Health as proposed by the World Health Organization (WHO) and information dissemination through the news media have increased the utilization rate as shown in our study [22].

Our study revealed that education of the women, number of living children, ever heard of LARC methods, previous use of LARC methods, attitude and knowledge of the women

about LARC methods were significant predictors of utilization of LARC methods. Women with higher education were more likely to use LARC methods than women with low education. This finding was in agreement with those of other studies [7, 18, 23] but differed from studies done in Kenya that reported no association between uptake and education [7, 24]. This might be because education gives women better access to information from various sources including the news media, improved decision-making capabilities and increased use of maternal health services including family planning [25].

The study showed that women with more than two living children were more likely to use LARC methods. This was similar to findings of the studies done in Kenya, Ethiopia and Pakistan where women who did not wish to have any more children were more likely to use LARC methods [7, 26, 27]. This might be as a result of the fact that LARC methods may be considered as an alternative to the sterilization method. It is therefore no surprise that birth limiting was the commonest reason given by women for using LARC methods in this study. This was consistent with the findings of Mogeni et al. [7] and Zenebe et al. [23] but differed from those of Asegidew et al. [20] and Alemayehu et al. [28] where birth spacing was the commonest reason for the use of LARC methods.

Women who had heard about LARC methods and used them previously were more likely to use LARC methods in this study. These findings were consistent with reports from previous studies [25, 27, 29, 30]. In line with these studies too, women with better knowledge of LARC methods had higher odds of using LARC methods than those with low knowledge as demonstrated in our study. They opined that this might be due to increasing knowledge and awareness on new ideas, social changes, health promotion and opportunities through the dissemination of information on news and social media which affect an individual's perception and health behavior.

Attitude toward contraceptive methods plays a major role in the acceptance and utilization of such methods. In our study, women who demonstrated a positive attitude toward LARC methods were four times more likely to use LARC methods than women who had a negative attitude toward them. This was similarly reported in studies done in Kenya and Ethiopia [7, 20, 31].

Women who were non-users of LARC methods attributed this mostly to lack of knowledge, fear of the insertion procedure, side effects of LARC methods and refusal by their husbands. These were similarly expressed by women in different Ethiopian studies [7, 20, 28]. However, Mogeni et al. [7] opined that users' uptake and attitude about side effects are determined by the quality of information and counseling available to them because evidence has shown that proper pre-insertion counseling is associated with increased uptake,

acceptance of side effects and reduction in early method discontinuation.

The strength of the study lies in the fact that it was both a quantitative and qualitative study. However, this study is limited being a cross-sectional study making it difficult to establish a temporal relationship.

In conclusion, this study has revealed a relatively high utilization of long-acting reversible contraceptive methods. This reflects the increasing trend in the acceptance and utilization of LARC methods globally. Higher education of women, number of living children, previous use of LARC methods, good knowledge and positive attitude about LARC methods positively influenced the utilization of LARC methods. Therefore, there is a need to continue to strengthen reproductive health services and regularly train family planning providers on counseling, insertion and removal techniques of LARC methods. Future studies evaluating the role of men in the acceptance and utilization of LARC methods are encouraged.

Acknowledgement The authors wish to acknowledge all the women who consented to participate in this study, the specialist registrars and the nursing staff of the family planning clinic involved in the administration of questionnaires and conducting the in-depth interview. The authors did not receive any grant or fund from any organization or company for this study.

Author contributions AOP: Project/protocol development, data collection and manuscript writing and editing. AAA: Protocol development, data analysis and manuscript writing and editing. AAS: Data collection and manuscript writing and editing. AT: Data collection, data analysis and manuscript writing and editing.

Sources of Funding The authors did not receive any grant or fund from any organization or company for this study. We do not have any commercial or industrial affiliation or link and no conflicts of interest.

Compliance with Ethical Standards

Conflict of interests The authors declared that they have no conflicts of interest.

Ethical Approval Ethical approval and clearance for the study were obtained from the Institution's Ethics and Research Committee (EKSUTH/A295/2018/09/010). All the procedures performed in this study were done in accordance with the ethical standards of our Institution's Ethics and Research Committee and with the 1964 Declaration of Helsinki and its later amendments. The women who participated in the study were adequately informed about the study. Written informed consents were obtained from them before enrollment into the study. The women were at liberty to withdraw from the study without negatively affecting the continuation of their care in the hospital.

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