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Original Research Article

Health Facility Related Factors Affecting Uptake of Long-Acting Reversible Contraceptives among Women of Reproductive Age Attending Meru Teaching and Referral Hospital, Meru, Kenya

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Abstract: ***Background*:** The most efficient and cost-effective forms of birth control are long-acting reversible contraceptives (LARC). In spite of their effectiveness, less than 15% of women globally who are of reproductive age use LARC. In Kenya, just 18% of women who are of reproductive age are using LARC method. The frequency in Meru County (11.2%) is much lower than it is nationwide. The objective of the study was to establish health-facility factors influencing the uptake of LARC among Women of Reproductive age (WRA) receiving care at the Meru Teaching and Referral Hospital. ***Methods*:** Analytical cross-sectional survey research design was used in the study. Women of Reproductive Age receiving family planning services at Meru Teaching and Referral Hospital in Meru County were the study's target population. Ten key informants were chosen through purposive sampling, and 170 women who were of reproductive age were chosen by systematic random sampling. In order to get quantitative data for this study, the researcher utilized a semi-structured questionnaire and a key informant guide was used to gather qualitative data. The Embu Teaching and Referral Hospital served as the pretesting site for the research tools. The presentation of qualitative data involved the thematic organization and narration. Chi-square tests were utilized to examine the relationship, at a 95% confidence interval, between the uptake of LARC and variables linked to social culture, health facility-related characteristics, and knowledge level. The strength and connection of the factors that were discovered to be significant were tested using regression analysis. ***Results*:** The majority of the mothers (51.2%) were in the 20–29 age range, with a small percentage (n=5, 2.9%) being older than 40; the married women were more (n=106, 62.4%) and half of the mothers had secondary level of education (n=85, 50%) unlike that of the partner that was found to be mostly tertiary level of education (n=102, 60%). A larger proportion of the women had 1-2 living children (n=106, 62.4%). However, majority of the women were either house wives or students (n=63, 37.1% and n=60, 35.3%) respectively. A high percentage of the women were Christian (n=153, 90%) with a larger proportion residing on rental houses (n=122, 71.8%). According to the study, the uptake rate for LARC among women who were of reproductive age was 11.2%. The factors that affected this rate included: the timeliness of service provision at x2(N=170), 15.62, p<.001, and distance to the health facility at x2(N=170), 10.84, p<.001. The study also generated three themes which are, high cost of LARC services, inadequate staff who have been trained on insertion and removal of LARC and inadequate supplies required for service provision. ***Conclusion*:** The study concluded that LARC uptake among women of reproductive age was impacted by health facility characteristics. The study makes several recommendations, the health facilities should enhance the promptness with which they provide services, particularly family planning services. Further research should be carried out to explore on health care provider characteristics that influence uptake of LARC.

Keywords: Long-Acting Reversible Contraceptives, Contraceptives, Family Planning Methods.

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INTRODUCTION

Family planning refers to the use of contraceptives or other methods by intimate partners to plan for the number and spacing (birth interval) of children they hope to have [1]. Sterilization, abortion, contraception, and using other natural methods of preventing conception are some examples of the different types of contraceptives. The choice of family planning method aids married couples in having the ideal number of children and the appropriate amount of time (space) between them. Long-acting reversible contraceptives (LARC) aid in wider spacing of children and, when withdrawn from use, fertility quickly returns and it prevents unplanned conception for at least three years. Additionally, they are very effective, reversible, and mostly independent of users' compliance [2].

According to the United Nations, the prevalence rate of the LARC varies by roughly 20.6% throughout different regions of the world [3]. These regions include Asia (17.8%), Europe (11.5%), Africa (6.1%), Latin America and the Caribbean (6.9%), North America (5.6%), and Sub-Saharan Africa (3.5%). According to data from the World Health Organization, 40% of the estimated 185 million births that take place each year in developing countries are assumed to be unwanted [4]. The majority of U.S. research indicates that postpartum women's use of LARC is correlated with “not trying for pregnancy at the time of conception” and “not desiring another pregnancy within two years” [5]. Worldwide, the percentage of married or in-union women of reproductive age who use LARC has continued to rise [6]. Married or in-union women use LARC at a rate of 36% in the lowest-income nations and at a rate of 66% in high-income countries [7]. The prevalence of LARC usage in Europe varies by country, with estimates in 2019 ranging between 2.9% for Poland and 18.0% for France [8].

With a prevalence rate of 21% and 15%, respectively, female sterilization and intrauterine devices (IUDs) accounted for 57% of total contraceptive usage in Africa [3]. A study in Kenya found that the utilization of the LARC approach has grown by 17.6% [9]. The Kenya Health Act restored Kenyan women's right to safe, effective, acceptable, and affordable contraceptive services, and a number of recent family planning policy documents have emphasized the importance of LARC due to their long-acting, highly effective, safe, and convenient nature [10]. Furthermore, FP2020 released a global declaration supporting LARC as part of the method mix for all women who are or may become pregnant [11]. Despite the method's efficacy, studies have demonstrated that barriers such as health workers' counseling skills and competence are to blame for the limited acceptance of LARC [12].

The primary reasons for the limited adoption of LARC methods among women of reproductive age include provider preference for short-term methods, insufficient numbers of trained providers, lack of awareness among potential users [2-13], and financial barriers [14]. Numerous studies indicate that LARC usage is influenced by sociocultural variables. The number of children, cultural beliefs, education level, family and spouse support are important sociocultural elements that impact the usage of LARC [15, 16], as well as religion [17], and attitudes [18]. The perspective of healthcare professionals, along with personal beliefs and opinions regarding certain LARC-based contraception methods, significantly influence the factors affecting their usage [19]. Research has also indicated that misconceptions about IUDs are prevalent among both patients and healthcare providers [20]. Consequently, this results in a low adoption rate of LARCs among women, despite their demonstrated effectiveness. Healthcare providers are partly responsible for the spread of misinformation, which contributes to the limited use of LARCs by women [19].

Research indicates that there is an ongoing requirement to educate healthcare practitioners about the efficacy of LARC for their patients, since healthcare providers have been found to be the main reason why women are not using LARC methods [21, 22]. According to a study conducted in Kenya, addressing healthcare providers' lack of training and confidence with IUC insertions could have a significant positive impact on utilization [23]. Furthermore, outdated data regarding patient compatibility and side effects, the lack of skills and training provided to healthcare professionals, and the high initial cost of IUDs and implants have contributed to the low usage of LARCs [24]. A study in the USA revealed a rise in the use of LARC methods across all demographics, including age, race, education, and income levels. Young mothers under 30 with one or two children experienced the largest increase in LARC usage, which was attributed to provider bias [25], further supporting the perspective that providers who lack adequate knowledge about LARC tend to discourage its use regardless of demographic or health conditions [26].

A study carried out in Europe suggested that enhancing healthcare providers' knowledge, training, and confidence, particularly for nulliparous women, could significantly increase the use of IUCs [27]. Another study investigated practitioners' perceptions of LARC's safety, effectiveness, and acceptability in the United Kingdom [28]. In Africa, the impact of healthcare providers on the adoption of LARC was evident. In Malawi, challenges to LARC provision included a heavy workload, irregular LARC supply, and inadequate resources [29]. Lack of IUCD-specific expertise, provider discomfort with insertion, and insufficient contraceptive counseling all contribute to low IUCD usage in Ghana [30]. According to research done in Egypt, obtaining formal contraceptive training was a strong predictor of prescribing LARC, and clinicians had usually negative opinions regarding LARC before training [31].

A qualitative study of healthcare providers in Tanzania found that eligibility constraints include restrictions on family planning methods based on age, parity, marital status, and spousal permission [32]. Some family planning providers still impose restrictions on access to contraception based on age or marital status, which affects women's ability to choose the most suitable contraception methods, consequently decreasing the likelihood of using LARC methods [28]. A study conducted in Kenya revealed that insufficient skills or expertise among healthcare practitioners, inadequate patient awareness, and high initial costs remain major barriers [33]. The adoption of LARC in Meru County has decreased somewhat from 14.2% in 2014 to <12% in 2022. Among women of reproductive age, injectables account for 28%, pills for 22.2%, and condoms for 4.4% of short-term contraceptive use. The long-acting reversible contraceptives are the least used, with implants being the most preferred method at 18.8% and IUCD at 3.6% [34]. The Kenyan population policy advocates family planning as a right that is founded on informed and voluntary choice to achieve a balance between resources and population [35]. The purpose of the current study was to establish the relationship between health facility factors and uptake of LARC methods by women of reproductive age who visit Meru Teaching and Referral Hospital in Kenya.

METHODOLOGY

The study was conducted in Meru Level 5 Teaching and Referral Hospital (MeTRH). It is a public health-care service provider, a referral hospital and a medical training and research institution giving holistic, quality and economical health-care services to the citizens of Meru County and beyond. An analytical cross-sectional survey design using a mixed-method approach was used. Women of reproductive age (WRA) seeking contraceptive services in Meru Teaching and Referral Hospital at the MCH in the family planning clinic were the target in this study. The WRAs that were included in the study were aged 15–49 years who consented, and those excluded in the research were family-planning clients aged between 15–49 years who were mentally handicapped as well as those who did not consent. In addition, 10 healthcare professionals dealing with the provision of contraceptives were included, namely clinical officers and nurses. To obtain a representative sample, the sample size was determined by using Cochran formula [36].

The study area, which was MeTRH, was purposely selected due to the low statistics of LARC uptake compared to the national level. Systematic random sampling was used to select the study sample because it is inexpensive and has little chance of data manipulation. To get the Kth interval, the study population, which was 260, was divided by the adjusted sample size, which was 170, to get a sampling interval of 2. The first participant was selected randomly using a secret ballot; in this procedure, five pieces of paper were written and put in a container, one with a YES and four with a NO. The participant who picked a YES was the first participant. Then data were gathered after every second WRA until a sample size of 170 was attained. Ten key-informant participants, who included two clinical officers and eight nurses working in the family-planning clinic, were purposively selected into the study.

This study used a researcher-administered, semi-structured questionnaire to collect quantitative data. The semi-structured questionnaire was utilized because it gathered information from the participants to answer the research questions. An in-depth key-informant interview guide was utilized to collect qualitative data because the nurses and clinical officers have insight and knowledge regarding contraceptive methods.

The questionnaire was divided into three sections, with both closed- and open-ended questions. Section A included social-demographic statistics, such as the participants' personal information, including age, marital status, education level, and occupation status of both the respondent and spouse, and household income. Section B examined LARC uptake, including past use of any contraceptive, current use of contraceptives, and the kind of contraceptive used at the time of research. Section C assessed health-facility factors, which included privacy, waiting time, supplies availability, the distance to the hospital, cost of transport to the hospital and cost of health care services.

Key-informant (KI) interviews were conducted to collect qualitative data from clinical officers and nurses in MeTRH. The interviews were in English and were conducted face-to-face. Data collection during the interview was through note-taking and audio recording, which were later converted to verbatim. Before beginning the main investigation, the researcher did a pretest study. A pretest was used to assess research protocols, data-collection instruments, sample-recruitment strategies and other research methods [37]. The goal of pretesting was to determine the viability of the data-gathering equipment. Pretesting was carried out in Embu Level 5 Hospital in Embu County. A total of 17 women of reproductive age, accounting for 10% of the research sample population, were used.

The researcher employed the split-half approach (odd numbers vs. even numbers) to determine the dependability of the study tools. The technique assessed the study instrument's internal consistency using a single-test administration, providing reliable indicators of reliability because, when all other variables were held constant, internal consistency reliability increased with increasing test content and administration-condition similarity [38]. The Cronbach's alpha value of 0.81 indicated that the research items were dependable.

Validity of the questionnaires and the key-informant guide was reviewed by two consultant gynaecologists and two midwives. Two lecturers from the School of Nursing and Public Health at Chuka University were consulted and peers for evaluation of both content and face validity of the questionnaire. The researcher ascertained that the research tools were understandable and categorized clearly. Interviewees were allocated codes, which were noted alongside individual identifiers in the facility record following the interview. After the pre-testing, the appropriate changes were made to the research tool by removing unnecessary questions.

Data were collected in MeTRH by the researcher during weekdays for a duration of one month. The researcher sought permission from the Nursing Service Manager and proceeded to the MCH department where data were to be collected and then identified prospective participants and explained the purpose of the study. Those who consented filled the consent form. After filling the consent form, the researcher read the questions and the choices to the participant and filled the responses based on the answers that the participants gave.

The researcher conducted face-to-face interviews for each consented key informant using a purposive sampling method; a list of those to be interviewed (clinical officers and nurses) was obtained from the shift in charge. The interviews were conducted in English. To ensure confidentiality of information, the interviews took place in the counselling room in the MCH department. The researcher arrived before the key informants, arranged the room for a face-to-face interview and waited for the KII participants to arrive. Permission to audio-record the proceedings was sought, and clarification was provided on any questions that the respondents did not understand. The interviews were carried out until the researcher attained a sample size of 10. Data were collected using notes and an audio recording taken using a phone.

The Statistical Package for the Social Sciences (SPSS) version 27 for Windows was used to examine quantitative data using regression analysis, chi-square tests and descriptive statistics. The components of descriptive statistics included mean, standard deviation, frequencies and percentages. Descriptive statistics helped the researcher establish the health-facility factors affecting uptake of LARC. Chi-square tests were used to check the relationship between the various independent variables and the dependent variable at a 95% confidence interval. Results of chi-square tests enabled the researcher to establish associations between the health-facility factors and uptake of LARC. Variables that were significant in the chi-square tests were used for regression analysis. Logistic regression analysis was carried out to identify the determinants influencing uptake of LARC and estimated odds ratio was used to establish the strength of association between the variables and uptake of LARC. Analysis was conducted at a 95% confidence interval. Qualitative data were transcribed into verbatim and thematic analysis (Nvivo version 12) was carried out by reading through the transcripts to identify the codes, categories and themes. Results were presented in the form of tables and narrations. All ethical considerations were applied.

RESULTS

1.0 Demographic Characteristics of Participants

Information was obtained on the age, gender, marital status, number of children each, education level, occupation, and partner's occupation of the selected women of reproductive age for the study. The majority of the moms (51.2%) were in the 20–29 age range, with a small percentage (n=5, 2.9%) being older than 40. On marital status both the married and those who reported never married came for the services, however, the married women were more (n=106, 62.4%). The participants indicated varied years in marriage with a larger proportion indicating 5-10 years and this included year of union in marriage for those who got married and later got separated or divorced.

Level of education of both the mother and the partner were also assessed and it was found that majority of the mothers had secondary level of education (n=85, 50%) unlike that of the partner that was found to be mostly tertiary level of education (n=102, 60%). There was no explanation for the variation in level of education between the two. A larger proportion of the women reported to have 1-2 living children (n=106, 62.4%).

Source of income and occupation determines the capability of an individual to afford services. In the current study, majority of the women were not employed and reported to be either house wives or students (n=63, 37.1% and n=60, 35.3%) respectively. This implied that they were mostly depending on their partners whose occupation was mainly either business (n=40, 23.5%) or formal employment (n=42, 24.7%). Majority of the women were Christian (n=153, 90%) with a larger proportion residing on rental houses (n=122, 71.8%). Table 3 gives a summary of the findings.

Table 1: Demographic Characteristics of the mothers

Characteristic	Variables	Frequency	percentage
Age	<20 years	19	11.2
	20-29 years	87	51.2
	30-39 years	59	34.7
	40-49 years	5	2.9

Characteristic	Variables	Frequency	percentage
Marital status	Never married	56	32.9
	Married	106	62.4
	Separated/widowed	8	4.7
Number of years in marriage	<5 years	25	14.7
	5-10 years	50	29.4
	10-20 years	39	22.9
	Never married	56	32.9
Level of education of the mother	Primary	25	14.7
	Secondary	85	50
	Tertiary	60	35.3
Level of education of the partner	Primary	22	12.9
	Secondary	46	27.1
	Tertiary	102	60
Number of living children	1-2	106	62.4
	3-4	64	37.6
Occupation of the mother	Peasant farming	25	14.7
	Kiosk business	22	12.9
	House wife	63	37.1
	Student	60	35.3
Occupation of the partner	Peasant farming	25	14.7
	Kiosk business	42	24.7
	Big business	40	23.5
	Casual labourer	21	12.4
	Formal employment	42	24.7
Religion	Christian	153	90
	Muslim	17	10
Ownership of accommodation	Owned	48	28.2
	Rented	122	71.8

1.1 Uptake of LARC among Women of Reproductive Age

The study found that the uptake of LARC was at 11.2% (n=19). Among these mothers using LARC, nine mothers (5.3%) had used implants with only four (3.5%) reporting to have used both implant and IUCD. The main reason reported for use of LARC was spousal decision (n=9, 5.3%) and only three (1.8%) used it because of preferred duration. Majority of the mothers (n=70, 41.2%) who had not used LARC indicated that the method was not fit for them while thirty mothers (17.6%) reported not to be knowledgeable about the method. However, forty-three mothers (25.3%) reported to be willing to use the method if they were provided with adequate information about the method. The summary of these findings is indicated in table 2.

Table 2: Uptake of Long-acting reversible contraceptives

Variable	Category	Frequency	Percentage
Use of LARC	Yes	19	11.2
	No	151	88.8
LARC Method used	None	151	88.8
	Implant	9	5.3
	IUCD	6	3.5
	Both implant & IUCD	4	2.4
Reason for choosing LARC	Convenience	7	4.1
	Spousal decision	9	5.3
	Preferred duration	3	1.8
	Not Using LARC	151	88.8
Reasons for those not using LARC	Fertility related reasons	51	30
	Method related reasons	70	41.2
	Not knowledgeable of the method	30	17.6
	Those using method	19	11.2
Willingness to use the method if provided with adequate information	Unwilling	22	12.9
	Neutral	86	50.6
	Willing	43	25.3
	Those already using	19	11.2

1.2 Health Facility Related Factors Affecting Uptake of LARC

The study explored health related factors using seventeen items. A small proportion of the women (n=10, 5.9%) reported staff friendliness during family planning visits to be poor while the others reported the services to be acceptable, good and very good as shown in table 8. The mothers had varied concerns during the family planning visits of which majority (n=149, 87.6%) were addressed. During delivery of family planning visits, the mothers' privacy is key, the study found that 40% (n=68) of the mothers were not contented with the privacy provided during their family planning clinic service delivery. This was supported by Key informant 1

'.....we usually provide privacy to all clients who seek our services for family planning'

Quality of services offered is partly determined by the turn-around time of delivery of services. In the current study, 35.3% (n=60) of the mothers reported extreme delay in delivery of services with only 14.7% (n=25) reporting prompt service delivery. Despite the fact that majority of the mothers got the family planning service they needed, 35.9% (n=61) missed the family planning method they needed. Those who missed the service attributed it to inadequate service provider (n=15, 8.8), the needed method was not available (n=46, 27.1%) or was late to visit the clinic (n=25, 14.7%).

Generally, the mothers rated the family planning services offered as satisfying (n=89, 52.4%) with 47.6% (n=81) rating the services as neutral. Half of the mother were given return dates for the next visit while the other half was not. It was found that majority of the mothers (n=148, 87.1%) were commuting from the neighborhood less than 5 kilometers away. However, there are those who walked to the facility (n=21, 12.4%), those who used car or bus/ public means (n=42, 24.7%) and majority used motorbikes to get to the facility (n=107, 62.9%). In average the cost of transport ranged from Kshs. 50 to more than Kshs 200 with a majority (n=82, 48.2%) paying between Kshs 100 to Kshs 200. In the facility, all the mothers reported to pay for the family planning services, however, the cost was varied depending on the method. The pills costed as low as Kshs. 50 while the LARC costed Kshs 600.

'....our services are paid for, like a client who is in need of depo, they pay Kshs 200 while those in need of IUCD they pay Kshs. 600. Some clients opt for short term methods because of money.

(Key informant 5)

This was supported by another informant

'....among 10 mothers who come for family planning services, they opt for pills or injectables.

(Key informant 8)

Summary of these factors is shown in table 8.

Table 3: Health Facility Related Factors

Variable	Category	Frequency	Percentage
Mothers rating on staffs' friendliness during FP services	Poor	10	5.9
	Acceptable	47	27.6
	Good	35	20.6
	Very good	78	45.9
All concerns addressed during FP clinic	No	21	12.4
	Yes	149	87.6
Mothers rating on provision of privacy during FP visit	Poor	68	40
	Acceptable	60	35.3
	Good	25	14.7
	Very good	17	10
Timeliness of services delivery	Extreme delay	60	35.3
	Some delay	21	12.4
	Average	64	37.6
	Prompt	25	14.7
Missed FP service in the facility	No	109	64.1
	Yes	61	35.9
Reason for missing the services	Those who got services	84	49.4
	Lateness	25	14.7
	No service provider	15	8.8
	No needed method	46	27.1
Was given return date	No	85	50
	Yes	85	50
Overall rating of FP services	Neutral	81	47.6
	Satisfied	89	52.4
Distance to health facility	<5kms	148	87.1
	6-10 kms	22	12.9
Means of transport	Walking	21	12.4
	Car/bus	42	24.7

Variable	Category	Frequency	Percentage
	Motorbike	107	62.9
Cost of transport	<50Kshs	21	12.4
	51-100Kshs	25	14.7
	101-150Kshs	82	48.2
	151-200 Kshs	25	14.7
	>200 Kshs	17	10
Do you pay for FP services	Yes	170	100
How much do you pay for FP services	<50 Kshs	21	12.4
	101-200 Kshs	81	47.6
	>200 Kshs	19	11.2

During the key informant interviews,

'…the cost of services, inadequate staffs trained on insertion of long-acting reversible contraceptives and provision of privacy during family planning clinics determined the uptake of the LARC.
(Key informant 1)

Another participant reported

'…. It takes averagely 45 minutes to serve one client for LARC therefore it is time consuming in case you have more clients. This makes some health care providers to advocate for short term methods like injectables which take less time to serve one client.'

(Key informant 3)

'…. some clients missed the opportunity to use LARC since the implants and IUCDs were out of stock and it takes the health facility longer time to restock them. In cases where the clients insist to use the long-acting reversible contraceptives and they were out of stock, they get referred to other dispensaries.

(Key informant 6)

Supporting the cost factor, it was indicated by the key informants that insertion of long-acting reversible contraceptives was costly to the clients.

Each needed Kshs. 600 to receive the services, therefore, the clients opted for short term methods like pills and injectables which were costing between Kshs 50 to Kshs 150.

(Key informant 9)

Therefore, cost determined which method to use.

The health-related factors were cross tabulated as shown in Table 4.

Table 4: Association between Health-Related Factors and uptake of LARC

Variable	Category	Uptake of LARC		df	P value, df Chi-square
		No	Yes		
Mothers rating on staffs' friendliness during FP services	Poor	8	2	3	P=0.676 x^2= 1.52
	Acceptable	43	4		
	Good	30	5		
	Very good	70	8		
All concerns addressed during FP clinic	No	19	2	1	P=0.797 x^2= 0.07
	Yes	132	17		
Mothers rating on provision of privacy during FP visit	Poor	66	2	3	P=0.001 x^2= 27.52
	Acceptable	57	3		
	Good	19	6		
	Very good	9	8		
Timeliness of services delivery	Extreme delay	59	1	3	P=0.001 x^2= 15.62
	Some delay	19	2		
	Average	57	7		
	Prompt	16	9		
Missed FP service in the facility	No	101	8	1	P=0.34 x^2= 4.51
	Yes	50	11		
Was given return date	No	86	5	1	P=0.012 x^2= 6.36
	Yes	65	14		
Overall rating of FP services	Neutral	73	8	1	P=0.608 x^2= .26
	Satisfied	78	11		
Distance to health facility	<5kms	136	12	1	P=0.004 x^2=10.84
	6-10 kms	15	7		
Means of transport	Walking	18	3	1	P=0.116 x^2= 4.30
	Car/bus	34	8		

Variable	Category	Uptake of LARC		df	P value, df Chi-square
		No	Yes		
	Motorbike	99	8		
How much do you pay for FP services in Kshs	<50	70	0	2	P=0.001 x^2= 170
	101-200	81	0		
	>200	0	19		

The findings in Table 4 demonstrate that the cost of family planning services, the distance to the medical facility, prompt service delivery, client privacy, and the availability of a return date were all highly correlated with the uptake of LARC. Following the addition of these variables to the binary logistic regression model, In the binary logistic regression, cost of the family planning services was not entered into the model since only those who got LARC services paid more than Kshs. 200 while all the others paid less than Kshs 200. This brought about a perfect match. Significant factors were entered into multivariate logistic regression to adjust for confounding factors. From the results in table 5, provision of privacy, timeliness in provision of services, giving a return date and distance to the facility were significantly associated with uptake of LARC. These factors were then entered into multivariate logistic regression stepwise to adjust for confounding factors.

Following the multivariate logistic regression results, it was found that acceptable and good privacy can determine clients' uptake of LARC. Also, it was found that timeliness provision of the services and distance to the facility of less than five kilometers determined the uptake of LARC. The other factors did not significantly determine the uptake of long-acting reversible contraceptives. Table 5 displays the outcomes.

Table 5: Logistic regression on health-related factors determining uptake of LARC

Variable	Category	B	Wald	df	Crude odds ratio COR	Adjusted odds ratio AOR	Lower boundary	Upper boundary
How the client rates provision of privacy during FP visit	Acceptable	-3.37	15.19	1	0.034	0.234	0.416	0.786
	Good	-2.83	13.61	1	0.059	0.259	0.513	0.966
	Very good	-1.04	2.35	1	0.355	0.455	0.785	1.431
	Poor	Reference category						
Timeliness in provision of FP services	Some delay	-3.50	10.3	1	0.03	0.43	0.214	0.466
	Average	-1.67	3.87	1	0.187	0.267	0.455	0.864
	Prompt	-1.52	6.93	1	0.218	0.328	0.371	0.878
	Extreme delay	Reference category						
Client was given return date	Yes	-1.31	5.75	1	0.27	0.37	0.093	7.88
	No	Reference category						
Distance to the health facility in kilometres	<5	1.66	9.24	1	5.28	3.28	1.807	15.47
	6-10	Reference category						

1.3 DISCUSSION

Use of long-acting reversible contraceptives has been proven to offer protection against pregnancy for a period between three to ten years [39]. The mothers are encouraged to use this method for spacing of their children. In the current study, it was found that only 11.2% (n = 19) of the mothers were using the LARC. Globally, the uptake of LARC is rated at 20.6% [40], meaning the population under study was way below the global rate. However, based on analysis done on the Kenya Demographic Health Survey report, Kungu *et al*., reported the uptake rate to be at 18% [23], which indicated a progressive increase since 2003.

A multilevel examination of LARC uptake in Sub-Saharan Africa revealed that the prevalence of LARC usage was 20.1% overall [41]. The present results are nearly identical to findings from Cape Town, South Africa [42], and Nigeria [43], where the uptake level was reported to be 9.4%. This similarity might be explained by common characteristics within the research populations.

In Uganda, the uptake level was estimated at 58.6%, which is higher than the global rate [44], while in Ethiopia it was estimated at 53.2% [45]. This was associated with a higher proportion of women who had a history of unplanned pregnancies and who were working in brothels. This population differs from the current study population, in which most of the mothers were either running small businesses or were housewives. This difference might have contributed to the disparities in uptake level. In Ethiopia, mothers reported that they had received counselling about LARC during antenatal care, had prior positive experience with LARC, and had a desire to space their children for more than two years. It is important to evaluate factors contributing to the higher uptake levels in Ethiopia that might be adapted to the Kenyan context.

Family planning services are provided at health facilities; therefore, access and uptake of these services can be associated with health-related factors [46]. The perspective of health professionals, personal attitudes and opinions towards some of the LARC methods play a vital role in determining the use of these methods [19]. The current study found that provision of privacy during family planning clinics, timeliness of service provision and the distance to the health facility were key in determining uptake of long-acting reversible contraceptives in Meru County, Kenya. The key informants mutually agreed that the facility provided adequate privacy in provision of family planning services.

Privacy of the information given by the clients and professionalism in inserting LARC methods were ranked as the highest determinants of reuse of LARC contraception. Moreover, low usage may have resulted from several factors, including the persistence of out-of-date information about side effects and patient compatibility, lack of skills and training for healthcare workers, and the high initial cost of implants and intrauterine devices (IUDs) for women [24]. This misinformation from healthcare service providers thus becomes a deterrent to using LARCs.

Research conducted in Australia among healthcare professionals identified several barriers to access, such as lengthy wait times for LARC, high upfront costs, and the distance—especially for individuals in rural areas—to a facility that provided LARC services [27]. Obstacles also included the cost of providing contraceptive treatment, concerns about permission and privacy among teenage patients, providers' attitudes and inadequate training, and patients' lack of knowledge. Although the findings were not statistically significant, key informants in the current study stated that occasionally mothers failed to use LARC due to insufficient supplies and staff members who were not properly trained to insert implants and IUCDs. In the United States, adolescents and young adults were reported to have limited access to full LARC services, since not all reproductive health facilities offered counselling, provision, management and removal of LARC methods [26].

The current study reported that the insertion of long-acting reversible contraceptives cost KES 600. Only mothers who could afford the cost were using the method, while the others opted for short-acting methods, which were cheaper. However, the cost of the services was not found to be significant. The key informants also reported that it took a healthcare provider 30–45 minutes to provide the service for one client, and having many clients in a day posed a challenge. Similar research conducted in Kenya concluded that challenges such as shortage of expertise or competencies among healthcare providers, low patient awareness, and high upfront costs should be addressed [33].

1.4 CONCLUSION

Based on the study findings, it is concluded that the factors that determine the uptake of long-acting reversible contraceptives are the timely provision of family planning services, the provision of acceptable privacy during family planning clinics, and accessibility of the health facility in terms of distance.

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1.6 DECLARATIONS

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