

## Utilization of Long Acting Reversible Contraceptive Methods and Associated Factors among Women Aged 15-24 Years in Mekelle city, Tigray Region, Ethiopia

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### Abstract:

**Background:** Many young women have faced immense sexual and reproductive health problems such as unwanted pregnancies, unsafe abortions, and sexually transmitted diseases. Promoting equitable access to the full range of modern contraceptive methods is essential for the health and empowerment of women, and the development of societies. The most effective methods of contraception including Long Acting Reversible Contraceptive methods are frequently the least available and utilized in Ethiopia.

**Objective:** This study aimed to assess the utilization of Long Acting Reversible Contraceptive methods and associated factors among women aged 15-24 years of age attending Youth Friendly Services in Mekelle city.

**Methods:** A facility based cross-sectional study was conducted from March 10 to 22/2016. The study was conducted in four Youth Friendly Service implementing health centers in Mekelle city. Data collection was simultaneously started in four of the study health centers and continued until the desired sample was satisfied. The sample size was determined to be 231 based on single population proportion formula. A pre-tested and structured questionnaire was used to collect the data and entered using Epi info Version 7.1.3.5 and analyzed using SPSS version 21 software.

**Results:** The majority (85.3%) of the respondents reported to have ever heard of Long Acting Reversible Contraceptive methods, of which everyone heard implants while nearly three-quarters of them heard about Intra Uterine Devices. Overall, 48.2% of youths had positive attitude towards LARC methods. The utilization of Long Acting Reversible Contraceptive methods was 19(8.2%) and implants were the most common used 18 (94.7%) methods. Multivariable logistic regression analysis showed the odd of Long Acting Reversible Contraceptive use were 6 times more likely to be among youths who had positive attitude towards Long Acting Reversible Contraceptive methods compared to those who had negative attitude (AOR=6.471, 95%CI (1.755-23.858)).

**Conclusions:** Youth positive attitude towards Long Acting Reversible Contraceptive methods is the main determinant of Long Acting Reversible Contraceptive methods use. Therefore, effective information, education and communication service to youth is needed.

**Keywords:** Long Acting Reversible Contraceptive, Youth Friendly Service, Utilization, Ethiopia

## **Introduction**

According to World Health Organization, young refers to persons aged 10–24 years [1]. These age groups currently account for the largest in history. Young people have the potential to lift their families and nations out of poverty and contribute to sustained economic growth and security. But, to realize their potential, young people must be provided with opportunities for education, employment and access to information and resources they need to adopt healthy sexual and reproductive behaviors and decision- making skills/capacity [2].

However, adolescents and youth around the world are confronting challenges to their health, especially their sexual and reproductive health [3]. Unintended pregnancy contributes significantly to maternal morbidity and mortality in the developing world [4,5]. More than half of all pregnancies are unintended, and globally, large disparities exist in access to the most effective methods of contraception [6]. The risk of maternal morbidity and mortality is much higher when pregnancy is unintended while most pregnancies to young girls in sub-Saharan Africa are unintended or mistimed.

Many of adolescents and youth in Ethiopia are often less informed; less experienced and has less access to sexual and reproductive health information and services [7]. As a result, many young women have faced immense sexual and reproductive health problems such as unwanted pregnancies, unsafe abortions, sexually transmitted diseases. In Ethiopia, 28% of adolescent

girls aged 15–19 and 24% of young women aged 20–24 have had unintended pregnancies [7].

Family planning (FP) is a key investment in reducing the broader costs of health care and reducing risks associated with pregnancy and childbirth [6]. In addition, promoting equitable access to the full range of modern contraceptive methods is essential for the health and empowerment of women, and the development of societies. Long acting methods are among the most effective methods of contraceptives; however, they are not widely available. These long-acting contraceptive methods include the intrauterine device (IUD) and the progestogen implant, which are reversible and are referred to as long-acting reversible contraception (LARC) [8].

In Ethiopia the prevalence of LARC methods among married women aged 15-49 years was below one percent (0.4%) in 2005 but increased to five percent in 2011 and to six percent in 2014. Likewise, the LARC methods prevalence rate in Tigray region increased to eight percent in 2011 from 0.1% in 2005. However, it has remarkably decreased to 2.4% in 2014 in Tigray [9, 10, 11]. Similarly, the changes on the use of LARC methods by married women aged 20-24 had increased in 2014 but the use of LARC methods by married women aged 15-19 years remained low with little change from 2011. The prevalence of LARC methods among married women aged 15-19 years was at two percent in 2014. Implant was the most (73%) used LARC methods by

married women aged 15-24 years [9,11]. Therefore, the main purpose of this study was to explore the utilization status and determinant factors of LARC methods use in Mekelle city.

## **Methods and Materials**

### **Study Setting and Population**

The study was conducted in Mekelle City, the capital of the Regional State of Tigray from March 10-22, 2016. The city is administratively divided into seven sub-cities. The 2015-16 estimated population of the city is 340,850 of which the adolescent and youth population is estimated to comprise one-third of the total population. There are 12 public health institutions including two hospitals and nine health centers (HCs) under the regional government and others owned by federal government (the Mekelle university campus clinics and Ayder comprehensive specialized hospital), private and non-government organizations.

Four government health centers, namely Adi-shumdhun, Kassech, Mekelle and Semen were identified for the data collection since they have youth friendly service units and provide comprehensive family planning services including LARC methods. The participants in this study were those women aged 15-24 years who attended youth friendly service in the selected health centers during the study period.

### **Study Design and Sampling**

A facility based cross-sectional study design using both quantitative and qualitative data

collection methods were used. The sample size was determined using a single population proportion formula with the assumption of 95% confidence level, 5% margin of error, and 16.4% LARC methods taken from a recent study conducted in Mekelle City [12]. After considering 10% of non-response rate, the total sample size was estimated to be 231 youths.

### **Sampling Techniques**

First, four health centers which have youth friendly services were selected. The flow of youth women in the selected health centers were considered to allocate the sample to each health centers. Then, 78 youth women from Kassech HC, 63 from Mekelle HC, 29 from Semen HC and 61 from Adi-shumdhun HCs were taken. Youth woman aged 15-24 who took contraceptive during the working hours and days within the study period were included until the desired sample was reached.

### **Data Collection**

Data were collected using exit interview. A standard structured questionnaire was adapted from similar studies. It was developed in English and then translated to the local language (Tigrigna) and then to English to check for consistency. The questionnaire included enquires on socio-demographic and economic characteristics of respondents, current use of FP and types, reasons for preference, and future method use. The questionnaire was pretested in one of the excluded government HCs in Mekelle city.

Four graduate health officers were recruited as data collectors and one experienced nurse

with an educational level of first degree was recruited as a supervisor. Before data collection, training was provided for two days on purpose, data collection tools and interview techniques. During data collection, the filled questionnaires were checked for completeness by the supervisor on a daily basis and incomplete questionnaires were compensated by subsequent clients.

Moreover, two focus group discussions (FGDs) involving eight peer educators and two key informant in-depth interviews involving the YFS focal persons from Adishumdhun and Semen HCs were conducted to obtain qualitative data. Two key informant in-depth interviews were conducted involving the YFS focal persons from two HCs. The main aim of the qualitative data was to address issues on the level of preference of LARC methods, the attitude of service providers towards providing LARC, factors influencing the provision of LARC. The FGDs and key informant in-depth interview were conducted by the principal investigator and co-investigators who have adequate experience in gathering qualitative data, and exploring and understanding the opinions and perceptions of LARC method users. Audiotapes were used to record the opinions of the participants. .

### **Data Analysis**

The quantitative data were entered using Epi info 7.1.3.5 and exported to SPSS version 21 for analysis. The data were consistently checked to avoid errors. Descriptive analysis was done for Socio-demographic, reproductive history, knowledge, attitude

and LARC methods use. Bivariate logistic regression was used to determine the preliminary relationship between the dependent and independent variables. Those variables significant at bivariate logistic regression were entered to the multivariable logistic regression analysis. Odds ratio with 95% confidence interval were calculated. Data from the FGDs and IDIs were translated and transcribed to English and categorized accordingly to main thematic areas manually. The findings were presented in narratives and triangulated with the quantitative results.

### **Ethical considerations**

Ethical clearance was obtained from the Institutional Review Board of College of Health Science, Mekelle University. Moreover, informed verbal consent was obtained from each study participant, service provider and peer educators. In addition, the purpose of the study was communicated with the study participants. To ensure confidentiality, the names of study participants were not included in the questionnaire.

### **Results**

#### **Socio-demographic Characteristics**

A total of 231 young women were participated in this study. Most, 183(79.2%) of the study participants were found in the age groups range from 20-24 years and the mean age was 21.2 ( $\pm 1.9$  SD) years. The majority (92.2%) of the respondents were Tigrians and Orthodox Christian followers (93.9%). More than 91% of the respondents had joined formal school and 84% were married.

The average family monthly income of all respondents was 3,136 Ethiopian birr. About 50 and 61.5% of the study participants responded have television and radio in their

families, respectively. More than half of the study participants were housewives while nearly 40% were engaged in different employment schemes (**Table 1**).

**Table 1: Socio-demographic characteristics of the study participants attending Youth Friendly Services in Mekelle city, Tigray, Ethiopia, 2016 (n=231).**

Socio-demographic characteristics		Number	Percent
Age, years	15-19	48	20.8
	20-24	183	79.2
	Mean age	21.2 ( $\pm 1.9$ SD)	
Ethnicity	Tigrayan	214	92.6
	Amhara	17	7.4
Place of birth	Urban	63	27.3
	Rural	168	72.7
Religion	Orthodox	217	93.9
	Muslim	13	5.6
	Protestant	1	0.4
Marital status	Unmarried	35	15.2
	Married	194	84.0
	Divorced	1	0.4
	Cohabiting	1	0.4
Educational level	Un educated	20	8.7
	Grade 1-4 <sup>th</sup>	22	9.5
	Grade 5-8 <sup>th</sup>	80	34.6
	Grade 9-12 <sup>th</sup>	85	36.8
	College and above	24	10.4
Employment status	Employed	218	94.4
	Unemployed	1	0.4
	Student	12	5.2
Occupation (n = 218)	Household duties	128	58.7
	Government employee	14	6.4
	Private employee	43	19.7
	Daily laborer	8	3.7
	Merchant	25	11.5
Monthly income	Up to 1000 ETB	39	16.9
	>1000 ETB	192	83.1
	Average income	3136 ( $\pm 2203$ SD)	
Availability of television	Yes	115	49.8
	No	116	50.2
Availability of radio	Yes	142	61.5
	No	89	38.5

### Reproductive history

The mean age at first marriage and first birth of respondents was 18.5 ( $\pm 1.9$  SD) and 19.7 ( $\pm 1.9$  SD) years, respectively. Of all the respondents, 163 (70.6%) had at least one

live birth. Of those who had already at least one child, 162 (99.4%) wanted to have on average 2.7 ( $\pm 1$  SD) more children. About 87.7% of women preferred to avoid having another child within two years period. More than 10% of all the respondents had history

of abortion. The average number of children wanted by all women was 3.8 ( $\pm 1$  SD) children. Most (86.1%) of the respondents believed that the decision for the number of children in a family is jointly decided by both husband and wife. More than 96% married women reported to have had a discussion with their husbands on methods of family planning (**Table 2**).

**Table 2: Reproductive characteristics of the study participants attending Youth Friendly Services in Mekelle city, Tigray, Ethiopia, 2016.**

Reproductive history		Number	Percent (%)
Age at first marriage (n = 195)	< 18	52	26.7
	$\geq 18$	143	73.3
	Mean age at first marriage	18.5 $\pm 1.9$ SD	
Ever gave birth (n=231)	Yes	163	70.6
	No	68	29.4
Age at first birth (n=163)	< 18	20	12.3
	$\geq 18$	143	87.7
	Mean age at first birth	19.7 ( $\pm 1.9$ SD)	
Age of last child (n=162)	Below 6 months	37	22.8
	6-11 months	27	16.7
	12-23 months	46	28.4
	24-59 months	48	29.6
	60+ months	4	2.5
Wanted child within two years (n=163)	Yes	20	12.3
	No	143	87.7
Number of children wanted in life (n=231)	1-2	22	9.5
	3-4	164	71.0
	5 and above	45	19.5
	Average number of children	3.8 ( $\pm 1$ SD)	
Decision made on number of children to have (n=231)	Husband	17	7.4
	Wife	15	6.5
	Both husband and wife	199	86.1
Ever had abortion (n=231)	Yes	24	10.4
	No	207	89.6
Discussion made with husband on FP issues (n=194)	Yes	187	96.4
	No	7	3.6

### Knowledge about LARC Methods

The majority (85.3%) of women reported to have heard about the LARC methods.

Nearly three-quarter of them heard of both implants and IUD.

The most frequent sources of information for LARC methods were government health facilities (30%), friends (28%), and mass media (26%).

One-third of the respondents believe that LARCs are harmful and the most common perceived harmful effects of LARC methods mentioned included infertility/sterility (47.4%), delay fertility return (10.3%), ill health or discomfort (10.3%) and excessive bleeding (7.7%).

Participants in the in-depth interview share a common concern that there is low awareness level to LARC methods. One of the key informants said, *“Family planning clients usually come pre-occupied with single method without detailed information in all the methods available. They don’t consider the benefits of LARC methods; rather they magnify the misconceptions or side effects”*.

### Attitude towards LARC Methods

About, 95 (48.2%) of respondents disagreed with the idea that use of LARC methods would result in harming woman’s womb.

The majority, 92 (62.6%) and 79 (53.7%) of the respondents, agreed that insertion of IUD does not lead to loss of privacy. About half of them agreed that insertion of IUD does not restrict daily activities.

### Practice of Modern Contraceptives

The majority, 162 (70.1%), of women reported to have received injectable followed by 49 (21.2%) pills and 18(7.8%) implants.

The overall current utilization of LARCs was 19 (8.2%) and women mainly 18 used (94.7%) implants. Twenty-nine (12.6%) of women reported to have ever used LARC methods (**Table 3**). The major reasons mentioned for not using LARC methods were feeling comfortable with the other methods in use (31.1%), low awareness on LARC methods (16.8%), short plan to have child (14.3%), and fear of side effects (10.7%).

Peer educator FGD discussant said, *“The demand of LARC methods is increasing. However, there are issues that need to be addressed. The continuous availability of trained health workers is critical. Trained health workers on LARC may be out of duty for several reasons including leave. Clients coming on those days for either insertion or removal of LARC methods are appointed after days or a week which has an effect and discourage others to use”*. Another discussant shared the idea and said, *“There is a problem in providing comprehensive counseling on contraceptive methods. The friendly approach of service providers is also important as clients that received bad treatment tend to tell others. These are lacking to some extent and should be corrected in an effort to improve the family planning service in general and LARC methods in particular”*.

**Table 3: Utilization of modern contraceptives by the study participants during the visit to the selected health centers, Mekelle, Ethiopia, 2016 (n = 231).**

Variables	Number	Percent
<b>Methods shift (n=231)</b>		
Yes	80	34.6
No	151	65.4
<b>LARC methods current use (n=231)</b>		
Yes	19	8.2
No	212	91.8
<b>LARC methods ever use (n=231)</b>		
Yes	29	12.6
No	202	87.4

### Determinants of LARC Methods Utilization

Bivariate and multivariable logistic regression was used to assess the predictors of LARC methods utilization. As a result,

attitude of the respondents towards LARC methods remained in the final model. Accordingly, respondents with positive attitude towards LARC methods were more likely to use LARC methods (AOR=6.471, 95%CI (1.755-23.858) (Table 4).

**Table 4: Predictors of LARC methods use among the study participants attending Youth Friendly Services in Mekelle city, Tigray, Ethiopia, 2016 (n=231).**

Variables	Using LARC methods		Crude OR OR(CI)	Adjusted OR OR(CI)
	Yes (%)	No (%)		
<b>Health center</b>				
Others	9(4.2%)	193(95.8%)	1	1
Semen	10(52.6%)	19(47.4%)	11.2(4.08-31.18)*	0.126(0.04-0.36)
<b>LARC harms Woman's uterus</b>				
Yes	3(2.9%)	99(97.1%)	1	1
No	16(16.8%)	79(83.2%)	8.97(2.53-31.18)	6.47(1.75-23.85)**

\*Statistically significant in the crude odds ratio \*\*statistically significant in both crude and adjusted odds ratio in the table.

### Intention to Use LARC Methods

Among all the respondents, 96 (41.6%) of them have an intention to use LARC in the future, of which 63 (65.6%) planned to use within the next 12 months and 59 (93.7%)

planned to use implants. The most frequent reasons for not intending to use LARC methods include not preferred method (41.5%), and fear of side effect (37%).



*“Many women intend to use LARC methods but there are uncertainties on its safety and much should be done on changing misconceptions and uncertainties through intensive health education on FP” [Peer educator FGD participant].*

### Determinants of LARC Methods Utilization

In the bivariate logistic regression analysis age at first marriage and the attitude towards LARC methods were found to be predictors of future intention to use LARC methods. Further analysis using the multivariable logistic regression showed that only the positive attitude towards LARC method remained as predictor of the intention to use LARC methods (**Table 5**).

**Table 5: Predictors of future intention to use LARC methods among the study participants attending Youth Friendly Services in Mekelle city, Tigray, Ethiopia, 2016 (n=231).**

Variables	Using LARC methods		Crude OR OR(CI)	Adjusted OR OR(CI)
	Yes (%)	No (%)		
<b>LARC harms Woman’s uterus</b>				
Yes	47(49.5%)	48(51.5%)	1	1
No	49(36.0%)	87(74.0%)	1.739(1.020-2.963)	1.875(1.040-.380)**
<b>Age at first marriage</b>				
< 18 years	15(28.8%)	37(71.2%)	1	1
≥18 years	64(44.8%)	79(55.2%)	1.998(1.008-3.962)*	0.535(0.268-1.071)

\*Statistically significant in the crude odds ratio \*\*statistically significant in both crude and adjusted odds ratio in the table.

### DISCUSSION

The study assessed the level and factors affecting the utilization of long acting reversible contraceptives in health facilities in Mekelle. The result showed that the utilization of LARC methods was 8.2%, which is higher than the mini EDHS 2014 finding [13] but much lower as compared to similar studies conducted in Adama and Mekelle that revealed higher figures [13,14,18] which could be due to the difference in the study population where this study only focuses on the younger age of the population while the other studies targeted every woman within the reproductive age group. The higher proportion (95%) of the

LARC acceptors were implants and the remaining (5%) received IUD. This finding is supported by several studies in Ethiopia [13, 14, 18]. The low acceptors rate for IUD in this and other similar studies might be due to the cultural influence related to the procedure of IUD insertion and readiness of the HCs in terms of the provision of proper counseling and the procedure of IUD insertion that requires a considerable amount of staff time, and material availability.

In this study, 85.3 % reported to have ever heard of LARC methods, of which all of them heard implants and 25.4% of them heard of IUD, which is similar with findings from studies conducted in Mekelle and

Adama [13,14]. The knowledge on implants is better than IUD which is consistent with several studies conducted in Ethiopia and in Uganda [12, 13, 15] which could be due to the level of attention given by different stakeholders including government and at community/kebele level.

The knowledge varies across several specific LARC methods, only one-third of the women were aware that IUD has no influence on sexual intercourse to 90.4% who were aware that implant reverse pregnancy quickly upon removal. However, there are a considerable proportion (18.8%) of respondents who perceived LARC methods are harmful and the most common perceived harmful effects of LARC methods mentioned included infertility/sterility (47.4%), delays in fertility return (10.3%), ill health or discomfort (10.3%) and excessive bleeding (7.7%). This finding is similar with other studies [13,16,19]. Hence, there is a need of broadening health education on the methods by various outlets. Besides, such type of misperception can be improved by good quality counseling on the methods.

Concerning the level of attitudes, 95 (48.2%) of the respondents had positive attitude towards the effect of LARC methods on uterus. It is also revealed that about half of the respondents, to each specific attitude questions, had positive attitude but the proportion with those either with negative attitude or who had no clear stand towards LARC methods should not be neglected.

Despite the high knowledge on LARC methods among respondents, quite high proportion (92.2%) had declined to use LARC methods in this study. The most frequent reasons for not using the method in the past were convenience with the method in use and fear of side effects. This finding is consistent with similar studies in Ethiopia [13, 16]. There were also 16.8% among the respondents who mentioned their reasons for not using LARC methods to be low awareness.

Among all the respondents, 96 (41.6%) of them had the intention to use LARC methods in the future, of which 63 (65.6%) planned to use LARC methods within the next 12 months. This study revealed higher level of intention to use LARC methods in the future as compared to a study conducted in Western Ethiopia but is consistent with a study conducted in Adigrat [17, 20]. This reveals the increasing trend in demand to LARC methods.

In this study the only statistically significant finding is that study respondents with positive attitude were more likely to utilize LARC methods and nearly two times more likely intended to use LARC methods as compared with those who had negative attitude. This finding is consistent with studies done in Ethiopia [14, 21]. Broadening health education and improving counseling may be a key solution to avoid the negative attitude and misconception towards LARC methods. This may increase the acceptance rate of these methods.

The strength of this study could be that it considered all the YFS sites in Mekelle city which are providing family planning services as integrated part of the YFS. Moreover, qualitative information was obtained to triangulate with quantitative findings. The limitation could be that it only focused on women with the age range of 15-24 years and health facility based study which might not represent all women within the reproductive age group.

### **Conclusion**

The LARC methods utilization rate was low and there are wide discrepancies among the health centers. There are many respondents who have the intention to use LARC methods in the future. Positive attitude was the predictors to utilize LARC methods. The low acceptability of LARC methods mostly resulted from the negative attitude of family planning users towards LARC methods.

The knowledge of the study participants on LARC methods in general is very high; although there are misconceptions across different notions which reflect that mere hearing of LARC methods was not adequate to progress with LARC methods service utilization. Moreover, the negative attitude towards LARC methods is considerably high.

Hence, more emphasis should be given on attitudinal change by investing more on health education and behavioral change efforts in schools, private health institutions, and in families through the health extension program.

### **Author Contributions**

AZ conceived and designed the study, coordinated the data collection, developed the data collection tools, conducted data analysis, interpretation and write up of the draft manuscript. AG and ST reviewed and wrote the manuscript.

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