ISSN No. 2394-3971

Original Research Article

LONG ACTING REVERSIBLE CONTRACEPTIVE USE AND ASSOCIATED FACTORS AMONG CONTRACEPTIVE USERS IN AMHARA REGION, ETHIOPIA, 2016. A COMMUNITY BASED CROSS SECTIONAL STUDY

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Submitted on: August 2017
Accepted on: September 2017
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Abstract

Background: Ethiopia is the second populous country in Sub-Saharan Africa. Total Fertility Rate of Ethiopia is 4.1 children per women with a contraceptive prevalence rate of 41.8%. The World Health Organization (WHO) advises using LARCs for all women whereas the contraceptive choices of Ethiopian women are slanted to short term methods.

Objective: The aim of this study was to assess factors associated with utilization of long acting reversible contraceptive methods among married women in Bati town of Amhara region.

Methods: A cross sectional community-based survey was conducted from September 9-20, 2016. A sample size of 381 family planning users residing in Bati town was selected randomly. Systematic sampling technique was applied by using structured questionnaire. Binary descriptive statistics and multiple variable regressions were done

Result: The overall LARC prevalence was 29%. Being knowledgeable (AOR = 6.9, 95% CI of (1.06, 45.26), having positive attitude (AOR=6.91; 95%: CI = 3.01, 15.88), having primary education (AOR= 0.40; 95% CI= 0.17, 0.93) and women who want to have 3-4 ideal number of children (AOR= 0.32; 95% CI=0.15, 0.69) mothers who had wrong beliefs towards IUCD (AOR =0.24 CI=0.12,0.50) were found to be predictors of LARC utilization.

Conclusion and recommendations: the overall utilization of LARC is very low. Educational status, the ideal number of children, knowledge, and attitude were the determinant factors for LARC use. Health promotion activities on the benefit of LARC need to be undertaken to increase awareness and usage of long acting contraceptives.

Keywords: - Long acting reversible contraceptives, Bati town, Amhara, Ethiopia

Background

Family planning is fundamental to the health of women, their families, and community. Modern contraception is highly effective in preventing unintended pregnancy and reducing maternal mortality. Family

planning (FP) is a process that usually involves a discussion between a woman, a man, and a trained family planning service provider focusing on family health and the desires of the couple to either limit or space their family size [1].

There are different family planning methods and can be programmatically grouped into two categories. These are long-acting and permanent methods (intrauterine devices, implants, and sterilization) and short-term methods (pills, condoms, spermicidal, injectable, other modern methods and all traditional methods [2].

Long-acting reversible contraception (LARC) is methods of birth control that provide effective contraception for an extended period without requiring user action. LARC includes Intra-Uterine Device (IUCD) and the implants [3]. They prevent unwanted pregnancy at least for three years implants and for 12 years copper T IUCD, when removed, the return *of fertility is rapid* [4].

Long acting reversible contraceptives are over 99 percent effective. Specifically, in clinical trials, Para Grad had a failure rate ranging from between 0.6-1.0 percent and Implants had a failure rate of 0.05 percent [5].

American College of Obstetricians and Gynecologists (ACOG) guidelines revised in 2012 of advice that adolescents who are sexually active and at high risk of unintended pregnancy should be encouraged to consider LARCs as a contraceptive option [6].The World Health Organization (WHO) also supports the use of LARCs for women of all ages [7].

Long acting reversible contraceptives are also cost effective in terms of countries economy for its long term protection and professionals not supposed to refill in short period. Recent research has shown that one year after their initiation, the LARCs have a continuation rate of around 80%, compared with around 50% for depot medroxy progesterone acetate injections (DMPA) and the combined contraceptive pill [8].

Effective contraceptive like modern LARC method could prevent as many as one in every three maternal deaths by allowing women to space births, avoid unintended pregnancies and abortions, and stop childbearing when they have achieved their preferred family size [9].

Despite its numerous advantages, only 18.9% of LARC was utilized globally [10]. Unmet need for contraception was over 12.3% and total contraceptive prevalence was 63.2% [11]. Two hundred eight million births occur in the world annually of this total 41% is estimated to be unintended. Regarding Sub-Saharan Africa, any contraception method prevalence is 25.1%, any modern family planning method is 19.7%, nevertheless, LARC utilization is 1.8% and quite the opposite unmet need of this region is 25.3% [12].

According to CSA Ethiopia and ICF International, the population of Ethiopia is about 90 million [13]. According to Ethiopian Demographic and Health Survey (EDHS) 2011, Total Fertility Rate of Ethiopia was 4.8 children per women, population growth rate was estimated to be 2.7% per year and modern contraceptive prevalence rate was only 29% with LARC utilization of 6.1% [14].

The Ethiopian Ministry of Health has undertaken the initiative for measures to reduce maternal mortality through most importantly family planning at all levels of the health care system. The Ethiopian government also has set the goal to achieve a total fertility rate (TFR) of 2.1 and a contraceptive prevalence rate (CPR) of 55 percent by 2020 [15].

Ethiopia is the second most populous country in Africa with markedly high maternal mortality ratio of 676/100000 live birth [16].

According to the 2014 MEDHS, even if there is a growth in usage of any

contraceptive methods among currently married women from 3% in the 1990 National family and fertility survey (NFFS) to 40%, it was short term dependent particularly inject-able. Despite knowledge about IUD and implants has increased by 41% and 8%, respectively the prevalence of long acting reversible contraceptive methods is extremely low (6%) and the least known modern methods [17].

As a consequence of unmet need, 25% pregnancies and births are unplanned in Ethiopia. So reducing unmet need by improving LARC utilization would significantly reduce unintended pregnancies and abortions [18].

Amhara region is the second most populous regional state in Ethiopia with a total population of over 20 million [7]. In this region, women are now having 4.2 children on average and the use of contraception is 33.9%. In this region, 22% of married women have an unmet need for modern family planning methods and it has total demand for family planning in Amhara to 56% [15].

There is no study that documented factors associated with the very low use of LARCs in the region. As a result identifying associated factors is crucial in order to achieve improved maternal health. There for this study was intended to assess factors associated with utilization of long acting (Implant and IUCD) contraceptive methods among married women of reproductive age (15-49 years) in Bati town, Amhara region, Ethiopia.

Methods

Study setting and subjects

Amhara region is the second most populous regional state in Ethiopia with a total population of over 20 million. The study was conducted in Bati Town, Oromia Special Zone, Amhara Regional State, which is located 425 KM north east of Addis Ababa. Bati town was selected purposely for having high fertility rate among the towns of the region. The data was collected from September 9-20, 2016. Bati town is one of the seven woreda of Oromia special Zone in the Amhara Region. It is bordered with Bati rural woreda to the southwest, Kalu woreda and Argobba special woreda to the North West, and Afar Region to the east.

Based on CSA 2014 the total population of Bati town was projected to be 34,480 of whom 16,930 were men and 17,550 women; Reproductive age women accounts 8068 [7]. The town has 1 health center, 6 Health posts, and one district hospital.

Sample size and sampling

The sample size was determined by using single population proportion formula. Assuming 19.5% LARC utilization (similar study done at Debremarkos town), 95% CI, 4% margin of error and 2% non-response rate were taken as assumptions to calculate the sample size. The final sample size was estimated to be **385**.

Systematic sampling technique was employed to select the study participants, first three Kebeles were selected from a total of 6 kebelles using lottery method, households were taken from the log book of urban health extension workers of respective Kebeles, and a total of 3468 households were listed. Systematic random sampling was implemented to select the households to be involved in the study. Every 9th households in the Kebele were included in the study (i.e. by dividing the total households (H) to the sample size (h)) using the first selected household as a reference. In cases of selected household with more than one eligible respondent, only one respondent was chosen by lottery method. In cases where no eligible participant identified in the selected household, the data collectors have gone to the next household to the right direction until they got eligible women for an exit interview.

Data collection instruments and procedures: The data were collected through face to face exit interview by using

interviewer administered questionnaire. The questionnaire was adopted and developed with modification from similar previous related studies [3, 15]. Data was collected by 4 female nurses who have ample experience in family planning service and 2 midwives were supervisors. A structured questionnaire was prepared in English and translated to Amharic and back to English by experts and checked for its consistency. The data collectors, supervisors, and principal investigator have made a discussion on data collection process. The final questionnaire was pretested at Gerba town on 19 family planning users. After the pretest some questions were modified. The interview was conducted in a place where the woman feels free to express her feelings and ideas. Moreover, in occasions where the sampled women were not accessed for absence, up to three attempts were being endeavored for interviewing to lessen the nonresponse rate. The questionnaires were checked by the supervisors on daily basis for completeness.

Data analysis

A cleaned data was entered into Epi info version 7 and the advanced analysis was done by SPSS version 20. Data were checked for completeness and consistency before starting the actual analysis. Bivariate logistic regression was done for each independent variable with outcome variables to estimate the crude odds. All variables with p value <0.2 were considered for the final multivariate model. Multivariable logistic regression method was used to assess the independent effect of different variables after simultaneously controlling for the effect of confounding factors.

Finally, variables which show significant ass ociation in the multivariable analysis with a p value less than 0.05 were reported as Adjusted Odds Ratio (AOR) with 95 percent confidence interval. Descriptive statistics were summarized using frequencies and percentages. Tables and figures were used to describe the study population.

Ethical Considerations

Ethical clearance was obtained from an institutional review board of Mekele University, College of health sciences. And after discussing the ultimate purpose and method of the study, a written permission letter was received from Oromia special Zonal health department, Bati town health office. Study Participants were informed about aim, benefits, risk, and duration of the interview. Only volunteer participants were interviewed. Confidentiality was maintained throughout the study.

Results

Socio-demographic and reproductive characteristics of the respondent

A total of 381 married women in the reproductive age were responded to the study making the response rate of 99%. Majority of women, 209 (54.8%) were in the age group of 25–34 years. 169 (44.4%) have no formal education. Only 50 (13.1%) had attended higher education. Majority of the respondents were Amhara by ethnicity and Muslim by religion. 105 (27.6%) of women have a monthly income which is in the lowest quintile. Nearly 66% of the study participants were house wives. More than 60% of women had the desire to have five and more children in the future. Out of the total short term family planning users, 28.5% have the intention to use LARC (Table 1).

Modern contraceptive and LARC utilization of respondents

From all respondents 70.9% of women used short term method, inject able 240(90%), pills 23(8.5%), condom 7(1.5%). 111 (29.1%) were using LARCs consisting 91(82%) implants and 20 (18%) IUCD

Knowledge, Attitude, and Practice towards LARC use

Two hundred forty-two (63.5%) women currently on family planning have heard about LARC. One hundred ninthly One

(50%) of respondents had a negative attitude towards LARC. One hundred seventy (46%) of participants who heard about LARC know IUCD where us 239 (62.7%) participants know implants. One hundred twenty-four (51.23%) of women participated in the study had low knowledge about LARC. The majority (70.4%) agreed that IUCD can prevent pregnancy for 10-12years. Nearly 80% of the respondents were aware of immediate removal of LARC turns fertility. Above half of the women who ever heard about LARC disagree that IUCD is not appropriate for women with untreated STI (Table 2).

More than fifty percent of study participant reported that insertion and removal of IUCD were highly painful. One hundred twenty-seven (52.9%) participants agreed that IUCD insertion is shameful and privacy will not be kept. More than 40% of the study participant agreed that to utilize LARC good nutrition and rest is needed (Table 2).

Factors associated with LARC utilization

Attitude, educational level, knowledge, fertility desire, wrong perception on IUCD and Implants had shown statically significant association with LARC utilization. Women with primary education were 60% less likely to use LARC compared to those with secondary and higher education (AOR= 0.40; 95% CI= 0.17, 0.93). The odds women with the future desire of having a 3-4 ideal number of children were less likely to use LARC compared to those who want to have 1-2 children (AOR= 0.29; 95% CI=.13, 0.65).

Women with wrong perceptions like death with the presence of IUCD and Implants is forbidden or evil was 76% less likely to use LARC compared to counterparts (AOR=0.24 95%CI= 0.12, 0.50). Women with a positive attitude towards LARC use were 7 times more likely to utilize LARC than those who had a negative attitude (AOR=6.91; 95%: CI = 3.01, 15.89) (Table 3).

Discussion

This study intended to identify factors associated with low utilizations of LARC. Knowledge, Attitude, educational level, fertility desire and misconceptions towards IUCD and implants were found to be main determinants for LARC use. The overall prevalence of LARC use among reproductive age women in Bati town is 29%, which is low as compared to the national plan which is 45% [15].

In this study the prevalence of LARC utilization was high relative to previous studies conducted at Arbaminch town 13.1%, Mekele town 12.1%, Debrebrehan 19.5% and Debremarkos 19.5%, [3,19,20,21] respectively. This might be due support from Engender health international having mentorship, review meeting, outreach programs for IUCD and Implants insertion. Engender health international organized religion leaders' conference on misconceptions toward family planning methods.

This finding is lower compared to other findings in Egypt and China which revealed 36% and 41% respectively [22, 23]. It might be as result of social, economic, and cultural differences. These countries have better educational status and better access to family planning information.

Women with high knowledge about LARC had high odds of utilizing LARC which were similar to other studies conducted in Mekelle town and Arbaminch [3, 20]. Women who have good knowledge fairly balance the risks and benefits of using contraception. On other hand, knowledge is the predictor to utilized LARC in a timely and effective manner. Low educational achievement is negatively associated with LARC. This result agrees with the study conducted in Zimbabwe and Ethiopia EDHS 2014 [17]. The possible explanation might be due to less educated women have no better access to health care information, have no greater autonomy to make decisions

and have no greater ability to use quality health care services. And also women education is a key determinant of individual opportunities and economic status. It has also a strong effect on reproductive behavior, attitude, and awareness towards the use of LARC. Moreover, higher education allows women to better understanding the benefits and the side effects of LARC.

The attitude of a woman towards LARC was a determinant factor for LARC utilization. Positive attitude towards LARC had greater odds of LARC use. This finding is similar to studies done in Mekelle, Uganda and Colavita, found the same positive association between positive attitude towards LARC and LARC utilization [15, 20]. This might be due to attitude and practices have a direct support from one another.

This study exposes the desired number of children to be a predictor of LARC utilization. A woman who wants to have more children has lower odds of LARC use. This is in line with the study done in Arbaminch and Goba [3]. This might be due to mother demands for more children having a negative influence on LARC use. On the other hand, it might be due to they may have fear of fertility return after the use of long acting reversible contraceptive methods.

Women who believe the death of a mother with IUCD and Implants in place is sin were less likely to use LARC. This is might be due to these mothers had fears of being punished after death if they fail to remove it out of their body before death. But this finding is not congruent with previous studies done on myths and misconceptions of LARC.

Working status of women has no significant association with LARC utilization. This finding is similar to study conducted at Arbaminch town [3]. The possible explanation might be the majority of women participated in this study were house wives. Unlike other studies where women with employment were highly used LARC as compared to unemployed ones.

Conclusion

The total demand and overall practice of LARCs in the town were higher when compared to the findings of other studies conducted in the country. Educational status, Knowledge of LARCs, fertility desire and attitude were statistically significant factors for utilization of LARC. Thus, the federal ministry of health and regional health bureau in combination with NGOs working on family planning have to work hard to increase accessibility and availability of LARCs is very essential. It is, therefore, working in collaboration with non-governmental organizations and local community organizations are important. Furthermore, further study should be conducted to produce better evidence focusing on the service providers, male partners, service delivering institutions and to identify factors influencing the utilization of LARCs.

Competing interests

The authors declare that they have no competing interests.

Acknowledgments

We thank Engender health international for providing financial assistance for the study. We would like to express our heart full appreciation to Oromia Special Zone and Bati woreda health office for their material and transport assistance. Last but not least, our deep appreciation goes to data collectors, supervisors', health extension workers and study participants.

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List of abbreviations used

AOR	Adjusted Odd
AIDS	Acquired Immune Deficiency Syndrome
ACOG	American College of Obstetricians and Gynecologists
ANC	Antenatal Care
BMC	Bio-Medical Central
CSA	Central Statistics Authority
CI	Confidence Interval
CPR	Contraceptive Prevalence Rate
DHS	Demography and Health Survey
EDHS	Ethiopian Demographic and Health Survey
FMOH	Federal Ministry of Health
FP	Family Planning
HIV	Human Immunodeficiency Virus
HSDPS	Health Sector Development Program
IMR	Infant Mortality Rate
IUCD	Intrauterine Contraceptive Device
LAPM	Long Acting and Permanent Method
LARC	Long acting reversible contraceptive
MMR	Maternal Mortality Ratio
MDG	Millennium Development Goal
MEDHS	Mini Ethiopian Demographic and Health Survey
NMR	Neonatal Mortality Rate
PNC	Postnatal Care
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
WHO	World Health Organization

Table 1: Socio-demographic and reproductive characteristics of family Planning users in Bati town, September 2016 (N=381)

Variables	Frequency	Percent
Age of Women		
15-24	101	26.5
25-34	209	54.9
35-49	71	18.6
Educational Status of women		
No Education	169	44.4
Primary	104	27.3
Secondary	58	15.2
Collage and above	50	13.1
Educational Status of Husband		
No Education	159	41.7
Primary	78	20.5
Secondary	77	20.2
Collage and above	67	17.6
Ethnicity		
Oromo	172	45.1

Amhara	193	50.7
Others(Afar and Tigre)	16	4.2
Religion of Women		
Muslim	330	86.6
Christians	51	13.4
Occupations of Women		
House wife	255	66.9
Employed	126	33.1
Monthly income		
Low	105	27.6
Middle	87	22.8
High	98	25.7
Highest	91	23.9
Ideal number of children		
1-2	15	3.9
3-4	126	33.1
>=5	240	63.0
Number of living children		
No living children	27	7.1
1-2 children	181	47.5
3-4 children	109	28.6
>=5children	64	16.8
Total number of pregnancy		
0	22	5.8
1-2	163	42.8
3-4	118	31.0
>=5	78	20.5
History of abortion		
Yes	50	13.1
No	331	86.9
Intention to use LARC		
Yes	77	28.5
No	193	71.5
Source of family planning information		
Health extension workers	67	17.6
Health Facility	247	64.8
radio & TV	42	11.0
Others	25	6.6
Discussion with husbands		
Yes	341	89.5
No	40	10.5

Table 2:- Knowledge, Attitude, and Practice of LARC use among family planning users in Bati town, September, 2016

Variables	Number	Percent
Knowledge of mothers on LARC(n=381)		
Low knowledge	124	51.24
Moderate knowledge	102	42.16
High knowledge	16	6.6
Attitude of mother to LARC (n=381)		
Negative attitude	191	50.1
Positive attitude	190	49.9
Mothers heard about LARC (n=381)		
Yes	242	63.5
Mothers who know about IUCD (n=381)		
Yes	170	44.62
Mothers who utilize IUCD (n=381)		
Yes	20	5.2
Mothers know about Implants (n=381)		
Yes	239	62.73
Mothers who utilize implants (n=381)		
Yes	91	23.9
Knowledge Score of Respondents		
High	16	6.6
Moderate	102	42.16
Low	124	51.24
Attitude Score towards LARC		
Positive Attitude	191	50.1
Negative Attitude	190	49.9

	Agree		Disagree	
Knowledge of LARC	No	%	No	%
IUCD can prevent pregnancy for 10-12 years	169	70.4	71	29.6
IUCD is not appropriate for women with un treated STI	109	45.4	131	54.5
IUCD has no interference with sexual intercourse	111	46.2	129	53.7
LARC is immediately reversible when removed	190	79.1	50	20.8
Implants can prevent pregnancy for 3-5 years	222	92.5	18	7.5
Implant needs miner surgical procedure	105	43.7	135	56.3

Attitude statements of women utilizing family planning on LARC	Agree		Disagree	
	No	%	No	%
Using Implants causes heavy irregular monthly bleeding	71	29.6	169	70.4
Using LARC needs rest and good nutrition	116	48.4	124	51.6
Insertion and removal of IUCD is highly painful	129	53.7	111	46.2
Implants stored blood in the abdomen	60	25	180	75
IUCD insertion is shameful and losing privacy	127	52.9	113	47.1
LARC restrict normal daily activity	72	30	168	70

Table 3: Factors associated with LARC use among family planning users in Bati town North East Ethiopia, September 2016 (n=381)

	LARC Utilization			
Variables	**Yes%**	**No%**	**COR (95% CI)**	**AOR (95%CI)**
Age of Women				
15-24	29.9	71.28	1.81(0.857,3.766)	0.36(0.21, 1.62)
25-34	33	66.98	2.42(1.222,4.808)*	0.46(0.31, 1.06)
35-49	18.3	81.69	1.0	1.0
Women level of Education				
No Education	23.67	76.33	0.46(0.22, 1.56)	0.51(0.32-0.84)
Primary	21.15	78.85	0.86(0.49,1.55)	0.40(0.17,0.967)*
Secondary	29.31	70.69	1.0	1.0
Husband level of Education				
No Education	22.01	77.99	0.37(0.37, 1.05)	0.37(0.33, 1.05)
Primary	21.79	78.21	0.98(0.52, 1.90)	0.88(0.52, 1.91)
Secondary	28.57	71.45	1.0	1.0
Ethnicity				
Amhara	32.12	67.88	1.0	1.0
Oromo	26.74	73.26	.37(0.49, 1.23)	0.57(0.43, 1.15)
Religion of Women				
Muslim	28.18	71.82	1.0	1.0
Christians	35.29	64.71	1.39(0.75,2.59)	1.9(0.45,2.59)
Occupations of Women				
Not Working	21.18	78.82	1.0	1.0
Currently Working	45.24	54.76	3.07(1.937.4.879)***	0.65(0.56, 1.71)
Number of living children				
No living children	18.15	81.48	1.0	1.0
1-2 children	33.15	66.85	2.18(0.78,6.05)	0.47(0.37, 1.05)
3-4 children	26.61	73.39	1.59(0.53,4.63)	0.86(0.56, 1.71)
>=5children	26.56	73.44	1.59(0.50, 4.89)	1.37(0.66, 5.66)
Knowledge of mother				
Low knowledge	18.63	81.37	1.0	1.0
Moderate knowledge	51.96	48.04	5.04 (3.059,8.30)***	2.25(1.06,4.80)*
High knowledge	56.25	43.75	5.76 (2.043,16.23)**	6.93(1.06,15.62)**
Attitude of mother				
Negative attitude	6.28	93.72	1.0	1.0

Positive attitude	52.11	47.89	1.98(1.706,2.29)***	6.91(3.082,15.88)***
Wrong misconception				
Yes	9.36	90.64	0.09(0.085,0.17)***	0.24(0.12,0.50)***
No	51.68	48.31	1.0	1.0