Prevalence of Long-acting Reversible Contraceptive Methods and Factors Affecting their Use among Married Women in Akasta Town, North-East Ethiopia

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Authors' contributions

This work was carried out in collaboration among all authors. The data collection was undertaken by all authors. All authors contributed in the data analysis, design and preparation of the manuscript. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Background: Long acting contraception is a human right and is essential to women's empowerment. It is essential to reduce poverty, promote economic growth, raise female productivity, lower fertility and improve child survival and maternal health. Even though some long acting reversible contraceptive methods are the world's most prevalent form of reversible contraception, the utilization is very low in sub-Saharan Africa.
Study Aim: To assess the prevalence and factors affecting use of long acting contraceptive methods in Akasta Town, North East Ethiopia.
Methods: A community based cross-sectional study was conducted on 422 women of reproductive age between March and May 2016 to achieve study aim. The actual respondents were selected by systematic sampling method at household level. Pretested and structured questionnaires were used to collect data.
Result: The prevalence of use of long acting contraceptives in the study area was found to be 33.6% and implants were the most commonly used methods. One hundred thirty one (46.8%) of respondents did not use these methods because of inadequate information provided for them.

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Two hundred eighty one (66.6%) of respondents said that they knew at least one type of long acting methods and implants were widely known which accounts 139 (49.5%) of respondents. Age, husband's educational status, knowledge of long acting reversible contraceptives and attitude towards these methods were significantly associated with use of these contraceptives.

Conclusions: The study showed that the prevalence of long acting reversible contraceptives in the study area was low. Only 33.6% of respondents ever used any type of these methods in their life time and implants were the most commonly used method. In this study, age of women, husband's educational status, knowledge of long acting reversible contraceptives and attitude were found to be independent determinants for long acting reversible family planning use. As knowledge and practice of long acting contraceptives was low, extensive health information should be provided.

1. BACKGROUND

According to World Health Organization report (WHO) an estimated 358,000 maternal deaths occurred worldwide in 2008, developing countries account for 99% (355,000) of the deaths. Sub-Saharan Africa and South Asia accounted for 87% (313,000) of global maternal deaths. Ethiopia is one of the sub-Saharan African countries with highest maternal mortality rate which is 676 maternal deaths per 100,000 live births [1]. The vast majority of maternal and newborn deaths can be prevented with proven interventions to ensure that every pregnancy is wanted by using the most effective long acting reversible contraceptive methods and by making every birth safe [2].

Long acting reversible contraceptives are family planning methods that prevent unwanted pregnancy for at least three years and when removed return of fertility is prompt. It includes the intrauterine contraceptive devices and the sub dermal implants. Extensive health information should be provided [3]. Long acting reversible contraception methods are convenient for users and effectively prevent pregnancy and also cost effective for programs overtime [4]. Family planning has the power to save lives, yet today, more than 200 million women in the developing world do not want to be pregnant but are not using modern contraception. Long acting family planning methods such as implants, despite of meet their needs, can dramatically improve the health and well-being of women, families, and communities [5].

Worldwide the contraceptive prevalence rate has been rising in a fast momentum, with the developing countries at the spotlight. Women's education opportunity and awareness creation programs in different Medias play an important role. Likewise, the utilization of long acting reversible contraceptive is increasing in some parts of the world. Although some long acting reversible contraceptive methods are the world's most prevalent form of reversible contraception, most people in Sub-Saharan Africa have limited knowledge, poor attitude (perception of poor efficacy and perception of high side effects) and low practice of it [6]. As a part of sub-Saharan Africa, Ethiopia and its different regional states account low prevalence. Despite their great advantage and effectiveness, the acceptability of long acting reversible contraceptive methods is very low in some countries of the world including in more advanced countries [7].

In Ethiopia, knowledge of contraception is nearly universal. Currently, 28.6% married women are using modern contraception methods. In 2011, an Ethiopian demographic health survey (EDHS) showed that the utilization of intrauterine device and implants was as low as 2.1% and 3.4% respectively [7].

In the 2014 mini Ethiopian DHS report, the utilization of intrauterine device and implant is still low, 1% and 4.9% respectively. In Amhara region, the utilization of long acting reversible contraceptive is 0.2% for intrauterine device and 7.7% for implants. When the two reports are compared, there is improvement in implants use but even decrease in intrauterine device use [8].

The aim of this study was to investigate the prevalence and factors affecting use of long acting contraceptive methods.

2. METHODS AND MATERIALS

2.1 Study Design and Period

A community based cross-sectional study was conducted on 422 women of reproductive age to

find out the prevalence and factors affecting use of long acting contraceptive methods in Akasta Town, North East Ethiopia, March to May 2016.

2.2 Sample Size Estimation

The sample size was computed by using single population proportion formula for finite population with 95% confidence level, prevalence of modern contraceptive use as 50% and standard deviation of 2%.

$$n= \frac{(Z\alpha_{/2})^2 P(1-P)}{e^2}$$

$$n= \frac{(1.96)^2 \times 0.5(1 - 0.5)}{(0.05)^2} = 384$$

Where, n= the required sample size, $Z\alpha_{/2}$= 95% confidence rate (1.96), p= the prevalence of long acting reversible contraceptives (LARCs) (p=0.5) and e= margin of error (0.05).

10% none response rate =38+384=422.

2.3 Sampling Technique

Labeling of households in the study area was done prior to the actual study to construct sampling frame and to determine the total number of households found in the study area. The actual respondents were selected by systematic sampling method at household level. There were 6568 households in the study area making ''K'' value approximately 16. The first household was selected by simple random sampling. Then every 16th house was taken until the sample size is reached.

2.4 Data Collection Instrument and Data Quality Control

Pretested and structured questionnaires were used and translation of instrument was made from English language to local Amharic language and back to English language. Questionnaires for each item were adapted from previously done similar studies. The questionnaire was adopted and re-constructed from similar study done in Debre Markos town, North-west Ethiopia [9]. The questionnaire was modified so that it can achieve the objectives of the study. The contents of the questionnaire include socio-demographic characteristics (6 questions), reproductive history (5 questions), family planning knowledge and practice (28 questions) and Attitude (6 questions). Data collectors were trained for one day on questions included in the questionnaire, on interviewing techniques and purpose of the study. Before conducting the main study, pretest was conducted on five percent of the total sample size (in Gimba town) which were not included in the main study. Gimba town is found 20 km from the study area and its population has similar characteristics regarding socio-economic background. After the pretest was done, some editorial errors and confusions on some questions were identified. So that data collectors were reoriented and the questionnaire was modified accordingly. The questionnaires were checked for completeness and consistency and entered and edited in the computer for statistical analysis. Closed ended questions were coded as ''yes=1'' and ''No=2''. The supervisors checked each questionnaire for any unfilled or improperly filled data before they accept it.

2.5 Data Entry and Analysis

Data were entered in to Epi Info version 3.5.1 database. Furthermore, the data editing and clearance was done on the same software. Finally, the data were taken to SPSS version 20.0 for the final analysis. Extreme observations and missing values were assessed and managed. The findings of the study were summarized and presented using tables, descriptive measures and statistical diagrams. Binary logistic regression was used to assess the independent effect of the predictors on the utilization of long acting reversible contraceptives. Statistical inferences were made by using chi-square test and the measure of association was the odds ratio. All covariates with nearly p≤0.2 in the bi-variable analysis or potential confounders were included in to the final model to obtain adjusted odds ratio (AOR) and their 95% confidence intervals. All statistical tests were two sided and was considered significant at α= 0.005 or less.

2.6 Ethical Consideration

The study was approved by the Ethical Review Board of Wollo University, College of Medicine and Health Sciences, Dessie, Ethiopia and a cooperation letter was obtained from Akasta district administrative office. Informed consent was obtained from each study participants.
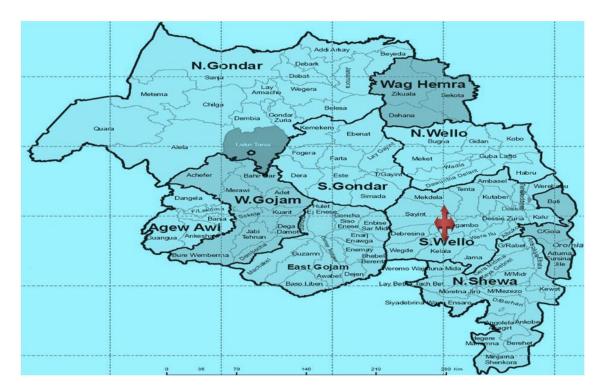
Fig. 1. Amhara regional state map
Key: 🔴 *= Study area*

3. RESULTS

3.1 Socio-demographic Characteristics of Respondents

A total of 422 currently married women were participated making the response rate of 100%. From the total respondents 225(53.3%) were in the age group of 20-34. The mean age of the participants was 29.699 (±9.1 SD) years with minimum of 16 years and maximum of 49 years. All questionnaires were completely filled and analyzable (Table 1).

3.2 Reproductive Characteristics of Respondents

From all 422 currently married women 337(79.9%) of them give at least one birth. Eighty five (20.1%) of the participants had never given birth. Two hundred twenty seven (53.8%) of respondents had experienced unwanted pregnancy while 46.2% had never experienced it. Regarding history of abortion the majority of respondents (72.2%) said that they did not experienced abortion while the rest (26.8%) had experienced it (Table 2).

3.3 Knowledge and Practice of Respondents on Modern Contraceptive Methods

From the total of 422 respondents, the majority of them, 365(86.5%) knew at least one method of short acting modern contraceptives, while the rest (13.5%) did not know of any method. 336(79.6%) of respondents ever used one type of modern short acting contraceptives at least once in their life time.

Two hundred eighty one (66.6%) of respondents said that they knew at least one type of long acting contraceptives methods while the rest 141(33.4%) did not know any of these long acting methods. From the two types of long acting modern contraceptives, implants were known by 139 (49.5%) of respondents. Regarding practice of long acting modern contraceptives, only 142(33.6%) ever used any type of these methods in their life time and implants were the most commonly used method.

3.4 Factors Associated with Use of Long Acting Reversible Contraceptives

All independent variables were regressed to examine whether they have association with the

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use of long acting reversible contraceptives or not.

Multivariable logistic regression analyses showed that age, husband's educational status, age at first sex, giving birth, number of children wish to have, history of unwanted pregnancy, history of abortion, occupation, knowledge of long acting modern contraceptives and attitude towards these methods were significantly associated with use of long acting reversible contraceptives.

4. DISCUSSION

The prevalence of use of long acting contraceptives in the study area was found to be 33.6% and implants were the most commonly used methods. One hundred thirty one (46.8%) of respondents did not use these methods because of inadequate information provided for them.

Age, husband's educational status, knowledge of long acting reversible contraceptives and attitude towards these methods were significantly associated with use of these contraceptives.

Two hundred eighty one (66.6%) of respondents said that they knew at least one type of long acting reversible contraceptive (LARC) methods while the rest 141(33.4%) did not know any of these methods. This finding is by far higher than the result from mini EDHS report of 2014 which showed that only 2 percent of currently married women have heard of this method. In contrary, the finding of this study is lower than the study conducted in Debre Markos, North west Ethiopia which showed that 91.4% of respondents were aware of at least one type of LARCs [8,9]. The difference in these findings may be due difference in study time frame. Because of the current spread of awareness creation programs through mass media.

In this study, implants were the most known LARC method which is in line with the study conducted in Debre Markos, North west Ethiopia. This study was also similar with the study done by Alemayehu Shimeka and Abebach Asmamaw [9,10]. But the magnitude of respondents who know implants was less in this study. This may be because of less exposure of respondents to mass media as the study area is rural comparatively.

The study showed that from the total 422 respondents only 142(33.6%) ever used any type of these methods in their life time and implants were the most commonly used methods. This study is higher than the study done in Ethiopia by Alemayehu Shimeka and Abebech Asmamaw which showed that prevalence of LARCs was 59(19.5%) [10]. This may be because of the time difference when the two studies were conducted. In other ways the finding of this study is less than the study conducted in Debre Markos, north west Ethiopia and Adigrat town, Northern Ethiopia, which is 48% &48.4% respectively [9,11]. The possible justification may be because of the socio-cultural difference of the respondents which influence their awareness of LARCs.

Age was found to be significantly associated with use of LARCs, high use at early age and decreases gradually. In this study women in the age group of 15-19 years were 2.9 times more likely to use long acting contraceptives when compared to those in the age group of 35-49 years [AOR at 95% CI= 2.9(2.25, 3.37). Those in the age group of 20-34 years were less likely to use LARCs when compared to those in the age group of 15-19 years. This finding is similar with the study done in Debre Markos which indicated that Women's at age 30 - 34 years were less likely to use long acting reversible contraceptive methods as compared to women with age group of 20-24 [AOR (95%CI) = 0.345(0.143, 0.833)]. Another study in china also revealed that use of IUCD decreased with increasing age [9,12]. The possible explanation for decreasing LARCs use with increased age may be because women want to give birth in the age range of 20-35 years.

Educational status was other important predictors of LARCs use. Respondents who have completed secondary education and above were 2 times more likely to use LARCs [AOR at 95% CI= 2.11(2.02, 3.27)]. Educational status of husbands was also significantly affects use of LARCs by their wives. Women whose husbands completed secondary education and above were 2.9 times more likely to use LARCs when compared to those whose husbands were unable to read and write [AOR at 95% CI=2.9(1.52, 6.42)]. This finding is similar with the study done among Reproductive Age Women in Ethiopia which showed that women who had secondary and above level of education were 3 times [AOR (95%CI) = 3 (1.5, 5.0)] more likely to use LACRs than non-educated women [13]. The possible reason may be education increase women's level of understanding about benefits of LARCs and can get information from printed materials.

Sex initiation before the age of 18 years was significantly associated with LARCs use [AOR=2.8, (1.59, 4.3)]. Women who gave birth were more likely to use LARCs than those who didn't gave birth [AOR=7.5(4.32, 12.78)]. Women who did not wish to have any more children were more likely to use LARCs than who wish to have 5 or more children. This finding is similar with the study done in Adigrat, Northern Ethiopia which concluded that Women who did not desire additional children within the next two years were more likely to intend to use LARCs. Another study in Ethiopia also revealed that Women who have more than four children were 5.8 times [AOR (95%CI) =5.8 (2.7, 12.0)] more likely to use LARCs compared to women who have no children. Moreover, women who have no desire for next children were 2.5 times [AOR (95%CI) = 2.5 (2.0, 3.4)] more likely to use LARCs than women who want another children [13,14]. This may be because women who gave birth of four or more children has reached their limit of family size and preferred to use most effective long acting reversible methods.

Table 1. Socio-demographic characteristics of long acting contraceptive users, Akasta town, March to May, 2016

Variable		Number	Percent (%)
Age	15-19	87	20.6
Mean 29.7(±9.1)	20-34	225	53.3
Min: 16; max: 49	35-49	110	26.1
Range: 20-34	Total	422	100
Current occupation	House wife	196	46.5
	Merchant	85	20.1
	Government employee	83	19.7
	Student	58	13.7
	Total	422	100
Women Educational status	Unable to read & write	141	33.4
	Primary school	113	26.8
	Secondary and above	168	39.8
	Total	422	100
Husband Educational status	Unable to read & write	54	12.8
	Primary school	172	40.8
	Secondary and above	196	46.4
	Total	422	100

Table 2. Reproductive characteristics of respondents, in Akasta town, March to May, 2016

Variables	Categories	Number	Percent
Age at first sex (n=422)	<18	198	46.9
	>18	224	53.1
	Total	422	100
Gave birth	Yes	337	79.9
	No	85	20.1
Age at first birth (n=337)	<18	85	25.2
	>18	252	74.8
	Total	337	100
No. of children wish to have in the future (n=422)	No need	57	13.5
	1-2	109	25.8
	3-4	170	40.3
	5 or more	86	20.4
	Total	422	100
History of unwanted pregnancy (n=422)	Yes	227	53.8
	No	195	46.2
History of induced abortion (n=422)	Yes	113	26.8
	No	309	73.2
	Total	422	100

Table 3. Knowledge of modern contraceptives among married women aged 15–49, in Akasta town, March to May, 2016

Variable	Responses	Number	Percent
Know at least one modern contraceptives (n=422)	Yes	365	86.5
	No	57	13.5
Type/s of modern contraceptives known by respondents (n=365)	Pills	139	38.1
	Injectables	116	31.8
	More than one type	110	30.1
Source of information (n=365)	Neighbors/friends	42	11.5
	Health institution	156	42.7
	Mass media	58	15.9
	School	27	7.4
	More than one source	82	22.5
Ever used modern contraceptives (n=422)	Yes	336	79.6
	No	86	20.4
Types of modern contraceptives ever used (n=336)	Pills	139	41.4
	Injectables	197	58.6
Know long acting modern contraceptives (n=422)	Yes	281	66.6
	No	141	33.4
Types of long acting modern contraceptives known (n=281)	Implants	139	49.5
	IUCD	56	19.9
	Both	86	30.6
Ever used long acting modern contraceptives (n=422)	Yes	142	33.6
	No	280	66.4
Types of long acting modern contraceptives used by respondents (n=142)	Implants	114	80.3
	IUCD	28	19.7
Duration of long acting modern contraceptives use (n=142)	Less than one year	56	39.4
	1-3 years	46	32.4
	More than 3 years	40	28.2
Shifted from long acting modern contraceptives to short acting's (n=142)	Yes	111	78.2
	No	31	21.8
Did your provider try to force you to choose long acting modern contraceptives method (n=422)?	Yes	28	6.6
	No	394	93.4

*IUCD: Intrauterine contraceptive devices

Table 4. Knowledge of modern contraceptives among married women aged 15–49, in Akasta town, March to May, 2016

Variable	Responses	Number	Percent
Reasons for not using long acting modern contraceptives (n=280)	Not my first choice	97	34.6
	Have severe side effects	52	18.6
	Lack of adequate information about LARCs	131	46.8
Reasons to shift (n=111)	Method is inconvenient	28	25.2
	Due to fear of side effect	55	49.6
	Partner influenced me	28	25.2
Who chooses the method you are using? (n=422)	By my self	194	46.0
	The provider	28	6.6
	My husband	169	40.0
	My family	31	7.4
Reasons for using any modern family planning methods (n=336)?	For spacing	85	25.3
	For limiting no of children	114	33.9
	Prevent unwanted pregnancy	137	40.8

Table 5. Bi-variable and multivariable logistic regression analyses of selected factors affecting use of long acting modern contraceptives among married women, Akasta town, April 2016

Variable	Category	Number	COR(95% CI)	AOR(95% CI)
Age	15-19	87(20.6%)	2.348(1.386, 3.979)	2.9(2.25, 3.37)***
	20-34	225(53.3%)	1.732(0.415, 1.912)	1.26(1.07, 2.43)*
	35-49	110(26.1%)	1.00(ref.)	1.00
Religion	Muslim	265(62.8%)	6.312(2.149, 18.542)	2.42(0.344, 7.29)
	Orthodox	140(33.2%)	3.495(1.167, 10.461)	0.186(0.14, 2.55)
	Others(protestant, catholic)	17(4.0%)	1.00(ref)	1.00
Women Educational status	Unable to read & write	141(33.4%)	1.00(ref)	1.00
	Primary school	113(26.8%)	1.6 (0.63, 2.43)	1.52(0.3, 2.13)
	Secondary and above	168(39.8%)	2.16 (1.05, 3.44)	2.11(2.02, 3.27)***
Husband Educational status	Unable to read & write	54(12.8%)	1.0(ref)	1.00
	Primary school	172(40.8%)	1.24 (0.6, 2.51)	1.26(.77, 2.64)
	Secondary and above	196(46.4%)	3.31 (1.070, 5.75)	2.9(1.52, 6.42)**
Age at first sex(n=422)	≥18	224(53.1%)	1.0(ref)	1.00
	<18	198(46.9%)	2.79 (1.531, 4.192)	2.8(1.59, 4.30)***
Give birth(n=422)	Yes	337(79.9%)	8.033(4.708, 13.706)	7.58(4.32, 12.78)**
	No	85(20.1%)	1.0(ref)	1.00
No. of children wish to have in the future	No need	57(13.5%)	4.021(1.86, 7.54)	3.89(1.98, 7.43)**
	1-2	109(25.8%)	2.4(0.89, 3.99)	2.23(0.79, 3.85)*
	3-4	170(40.3%)	1.54(0.57, 3.54)	1.42(0.53, 3.52)
	5 or more	86(20.4%)	1.00(ref)	1.00
History of unwanted pregnancy(n=338)	Yes	227(53.8%)	2.635(1.738, 3.993)	2.5(1.59, 3.88)***
	No	195(46.2%)	1.00(ref)	1.00
History of abortion ?(n=156)	Yes	113(26.8%)	3.057(1.669,4.671)	2.87(1.544, 4.62)***
	No	309(73.2%)	1.00(ref)	1.00
Current occupation	House wife	196(46.5%)	1.00(ref)	1.00
	Merchant	85(20.1%)	2.122 (1.069, 4.218)	1.9(0.993, 3.88)*
	Government employee	83(19.7%)	2.147 (1.078, 4.278)	2.1(0.854, 4.23)**
	Student	58(13.7%)	4.332 (1.669, 6.652)	3.7(1.53, 6.45)***
Knowledge of long acting modern contraceptives	Yes	281(66.6%)	7.70(3.992, 10.202)	6.39(2.76, 9.98)***
	No	141(33.4%)	1.0(ref)	1.00
Attitude towards long acting modern contraceptives	Positive attitude	217.125(51.5%)	4.299(1.201, 4.404)	4.936(1.67,7.84)***
	Negative attitude	137.5(32.6%)	1.0(ref)	1.00
	Neutral	67.375(15.9%)	1.215 (0.776, 1.901)	1.3(0.69, 1.81)

*NB: *Significant at P < 0.05, **significant at P < 0.01, ***significant at P < 0.001.*
COR: Crude odds ratio; AOR: Adjusted odds ratio

Having history of unwanted pregnancy and induced abortion were positively associated with LARC s use [AOR at 95% CI=2.5(1.59, 3.88), AOR=2.87(1.544, 4.62)] respectively. This may be explained that women could deeply understand consequence of unwanted pregnancy and induced abortion so that they may preferably use LARCs not to repeat their previous fault.

Concerning occupation students, government employees and merchants were more likely to use LARCs than house wives [AOR at 95% CI=3.7(1.53, 6.45), 2.1(0.854, 4.23) and 1.9(0.993, 3.88)] respectively. Students, employees and merchants were 3.7, 2.1 and 1.9 times more likely to use LARCs than house wives respectively. The finding of this study was in line with the study done in Debre Markos which showed that Occupation of women was found to be significantly associated with long acting contraceptive use. It showed that students were 6.09 time more likely to use LARCM than House wife, 8.13 times more likely to use LARCM than Merchants, 3.09 times more likely to use LARCM than daily workers & 2.77 times more likely to use LARCM than employed workers. This could be justified that house wives had less exposure to many information sources and cannot easily understand the benefit of LARCs [9,15].

Those women having knowledge of long acting reversible contraceptives were by far more likely to use them [AOR at 95% CI=6.39(2.76, 9.98)]. Women who are knowledgeable were 6.4 times more likely to use LARCs. Similarly, study in Mekelle showed that mothers who had knowledge were more likely to use LARCs [16].

Having positive attitude towards LARCs was important predictor of LARCs use. Those women having Positive attitude towards LARCs was 4.9 times more likely to use LARCs than those having negative attitude [AOR at 95% CI=4.936(1.67, 7.84)]. This finding is similar with the study conducted in Ethiopia which showed that women who had a supportive attitude regarding LARC were 2 times more likely to accept LARC as compared with those who had non-supportive attitude (AOR=2. 094, 95% CI (1.109, 3.954)] [17,18].

5. CONCLUSION

The study showed that the prevalence of long acting reversible contraceptives in the study area

was low. From the total of 422 respondents, 281 (66.6%) of them said that they knew at least one type of long acting reversible contraceptive methods but only 142(33.6%) ever used any type of these methods in their life time and implants were the most commonly used methods.

Reasons for not using long acting modern contraceptives were also assessed. From two hundred eighty (280) respondents who never used these methods 131(46.8%) of them said that they did not use these methods because of inadequate information provided for them regarding advantages and effectiveness of this methods and 34.6% of them responded that it was not their first choice.

Multivariable logistic regression analyses showed that Age, women and their husband's educational status, age at first sex, giving birth, number of children wish to have, history of unwanted pregnancy, history of abortion, occupation, knowledge of LARCs and attitude towards these methods were significantly associated with use of long acting reversible contraceptives.

6. RECOMMENDATIONS

This study found that there was low prevalence of use of long acting contraceptives in the study area. Depending on the findings obtained from this study the author recommends that health workers in the study area should provide appropriate counseling about long acting reversible contraceptives for clients. As the knowledge of respondents regarding long acting contraceptives is still not enough (66%), Mass media should play its role in advertising the advantages of long acting contraceptives. In addition, the Woreda health office should organize community awareness programs to increase the knowledge of long acting contraceptives.

CONSENT

Informed consent was obtained from all individual participants included in the study. Participation was solely voluntary and no form of inducement was used to get people to participate in the study.

ETHICAL APPROVAL

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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