



## Modern Contraceptive Method Mix and Factors Affecting Utilization of Modern Contraceptives among Married Women in Adigrat Town, Tigray, Northern Ethiopia

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### Abstract

**Background:** In Ethiopia the prevalence of contraceptive use among currently married women has increased nearly six fold in the last 20 years, from 5 percent in the 1990 to 29 percent in the 2011 Ethiopia Demographic Health Survey. The contraceptive method mix is dominated by short term methods like pills and injectables. This study was conducted to assess the contraceptive method mix and factors associated with modern contraceptive use among currently married women in Adigrat town.

**Methods:** A community based cross sectional study design was conducted in three selected Kebeles of Adigrat town. A total of 594 study subjects were interviewed. Systematic random sampling method was used to select study subjects. Factors associated with modern contraceptive use were identified using logistic regression.

**Results:** The current modern contraceptive prevalence was 51.3% (95%CI= 47.2, 55.4). The most preferred method was Depo-Provera, 207(68.3%), followed by pills, 35(11.6%). Thirty one (10.2%), 16 (5.3%), 12 (4%) of participants have found with implants, intra uterine device (IUD), and tubal ligation, respectively. None of the participants had reported vasectomy. The main source of the current method was government health centers (71.3%) and hospital (20.8%). Various reasons were given for not using modern contraception. The main reasons stated were desire to be pregnant (38.9%) and exclusive breastfeeding (25%). The result of multiple logistic regression revealed that couples' education status, desire to have child within two years or soon, discussion on family planning with partner and ever use of modern contraceptives were found significantly associated with modern contraceptive use.

**Conclusions:** The magnitude of modern contraceptive use in the town is almost comparable with the national demographic health survey 2011 and other urban based studies. But the contraceptive method mix is poor, dominated by short term contraceptives. Therefore, couples discussion on family planning and husbands' involvement in family planning programs should be encouraged.

**Keywords:** Method mix; Modern contraceptive use; Adigrat town; Tigray; Ethiopia

### Background

Contraceptive use has increased worldwide over the last decade [1]. Yet, Africa has high unmet need of family planning (FP). Approximately 25% of women and couples in Sub-Saharan Africa (SSA) who want to space or limit their births are not using any type of contraception [2].

In Ethiopia the prevalence of contraceptive use among currently married women has increased nearly six fold in the last 20 years, from 5 percent in the 1990 to 29 percent in the 2011 Ethiopia Demographic Health Survey (DHS) [3]. The Ethiopian ministry of health has planned to increase the contraceptive utilization to 66% by 2015 and is working on the provision of all FP methods [4]. The prevalence of modern contraceptive use among married women was 46.9% [5]. The contraceptive method mix is dominated by short term methods like

pills and injectables [3,5-8]. The modern contraceptive prevalence rate among currently married women in Tigray, Northern Ethiopia was 21.2%. It account implants 5.6%, female sterilization 0.3%, and none of them were using intra uterine contraceptive device (IUD) [9].

The need for more children, husband approve, couple's discussion about family planning issues, monthly family income and number of living children were significantly associated with the use of modern contraceptives [5]. Use of modern contraceptive was limited by lack of knowledge, obstacles to access and concern over side effects, especially fear of infertility [10].

In a country with rapidly increasing acceptance of contraception [3] and past documented abortion mortality [11], local area assessments of contraception may be useful in improving policies, programs and services. Identifying the contraceptive method mix and factors affecting modern contraceptives use is essential to evaluate the success and identify barriers for further promoting modern contraceptive use. It is, therefore, essential to examine the contraceptive method mix, magnitude of modern contraceptive use and identify the factors

affecting modern contraceptive use in the study area, Adigrat town, which will have greater input for evaluating their progress and further promote modern contraceptive use.

Socio-demographic characteristics	Frequency (n)	Percentage (%)
<b>Age group of participants</b>		
15-19	10	1.7
20-24	128	21.6
25-29	172	29.0
30-34	103	17.4
35-39	113	19.1
40-44	40	6.8
45-49	26	4.4
Religion	536	90.5
Orthodox	22	3.7
Muslim	34	5.8
Catholic	92	15.5
Educational level of participants	189	31.9
No education	217	36.7
Primary (1-8th)	94	15.9
Secondary (9-12th)	54	9.1
Higher education	142	24.0
Educational level of their partner	215	36.3
No education	181	30.6
Primary (1-8th)	53	9.0
Secondary (9-12th)	283	47.8
Higher education	256	43.2
Family size	345	58.3
2	158	26.7
3-4	59	10.0
>5	30	5.0
Occupation of participants	344	58.1
Housewife	209	35.3
Employed (government & private)	39	6.6
Daily labourer	143	24.1
Merchants	306	51.7
Occupation of their partners	143	24.2
Employed (government & private)		
Daily labourer		
Merchants		
*Family monthly income (ETB)		
<600		
600-2000		
>2000		

**Table 1:** Socio-demographic characteristics of married women in the reproductive age group, Adigrat town, January 2012 (n=592), \*income was categorized based on quartiles, ETB-Ethiopian birr

## Methods

The details of the methods for this survey have been described elsewhere [12]. Briefly, during January 2012, a community based cross sectional study was conducted in Adigrat town, Northern Ethiopia. A sample of 594 currently married women aged 15-49 years were included in the study. Out of the total 6 administrative Kebeles in Adigrat town, 3 Kebeles were selected by lottery method. The total sample size was allocated by using proportional allocation to size to the total number of House Hold (HH) in the selected Kebeles. The study subjects were selected by systematic random sampling. Eligibility criterion was currently married women of aged 15-49 years who were resident in the selected Kebeles of the town at least for 6 months.

The questionnaire was adopted and developed with modification from related studies [9,13]. It was prepared first in English then translated to the local language (Tigrigna). To check consistency of the translation; retranslation to English was done by other translator. Questionnaire was pre-tested on 5% of the same source population other than the sampled population of the town. Based on the pretest, questions were revised, edited, and those found to be unclear or confusing were modified. Finally, structured closed ended Tigrigna version questionnaire was used for data collection. Five Tigrigna speaker females who had a minimum 12th grade completed were collected the data. Two diploma nurses supervised the data collectors. They have been trained for two days on the study instrument and data collection procedures. Data were collected through face-to-face interview with the study subjects. Filled questionnaires were checked daily for completeness, legibility and consistency.

Cleaned data were analyzed by Statistical Package for Social Sciences (SPSS) version 16.0. Descriptive statistics were computed and presented in the form of texts and tables. A binary outcome variable indicating no use of modern contraceptive (MC) as "0" and use of MC coded as "1" was used as the dependent variable. Bi-variate analysis was used to determine the association between different factors and the outcome variable. Multivariable logistic regression was used to identify the relative importance of each predictor to the dependent variable by controlling for the effects of other variables. Those variables which were significant on bi-variate analysis (P-value < 0.05) were entered to multivariable logistic regression analysis [7,8,14,15]. The association between dependent and independent variables was determined using odds ratio (OR) with 95% confidence interval (CI). The level of significance was taken at  $\alpha = 0.05$ . Ethical clearance was obtained from Research and Ethics Committee of the School of Public Health, College of Health Sciences of Addis Ababa University (AAU). Written permission letter was also obtained from Tigray Regional Health Bureau, and then Adigrat Woreda Health Office. Oral informed consent was obtained from the study participants. Confidentiality of the participants was kept throughout the study.

## Results

### Socio-demographic characteristics of the participants

A total of 592 married women in the reproductive age were interviewed. The response rate was 99.5%. The mean age of the participants was 30 ( $\pm 6.9$  standard deviation) years. The mean family size of the participants was 4.5(+1.8 SD). Out of the total participants, 426(72.0%) and 300 (50.7%) had television and radio, respectively (Table 1).

Variables	Frequency (n)	Percentage (%)
<b>Contraceptives ever use (n=591)</b>		
Yes	473	80.0
No	118	20.0
<b>Types of modern contraceptive ever used (n=473)</b>		
Depo-Provera	366	77.4
Pills	77	16.3
Implant	24	5.1
IUD	4	0.8
Tubal Ligation	1	0.2
Condom	1	0.2
Vasectomy	0	0.0
<b>Duration of contraceptive ever use (n=473)</b>		
<36	370	78.2
36-60	68	14.4
>60	35	7.4
<b>Method shifted (n=473)</b>		
Yes	107	22.6
No	366	77.4
<b>Reason for shifting (n=107)</b>		
Inconvenience of previous method	7	6.5
Convenience of the new method	19	17.8
Due to side effect	47	44.0
Need for long acting contraceptive	23	21.5
Provider advised	7	6.5
Others1	4	3.7
Others1	303	51.3
<b>Current use (n=591)</b>		
Yes	288	48.7
No	207	68.3
<b>Type of current Modern Contraceptive on use</b>		
Depo-Provera	35	11.6
Pills	16	5.3
Implant	12	4.0
IUD	2	0.7
Tubal Ligation	0	0
Condom	216	71.3
Vasectomy	63	20.8
<b>Source of current method (n=303)</b>		
Health center	9	3.0
Government hospital	10	3.3
Private clinic	5	1.6
Pharmacy (Drug vendor)	37	12.8
Others2	112	38.9
Others2	72	25.0
Others2	15	5.2
<b>Reasons of non-use (n=288)</b>		
Currently pregnant	35	12.2
To get pregnant	9	3.1
Currently on BF	8	2.8
Fear of side effect		

Partner is abroad		
Low risk of pregnancy		
Use traditional method		

**Table 2:** Modern contraceptive practice among married women in the reproductive age group, Adigrat town, January 2012, (<sup>1</sup>includes partner influence, and to give birth; <sup>2</sup>includes shop and friends/relatives)

### Modern contraceptive method mix

Eighty present (80.0%) of the participants have ever used at least one of the modern methods of contraception. The current modern contraceptive prevalence was 51.3% (95%CI= 47.2, 55.4). The most preferred method was Depo-Provera accounting 207 (68.3%) followed by pills 35(11.6%). The prevalence of Long Acting and Permanent Contraceptive Methods (LAPMs) among the women currently taking modern contraceptives was 59 (19.5%), with the highest contribution of implants 31 (10.2%). The median duration of modern contraceptive use of the participants was 24 months with one and hundred months minimum and maximum, respectively. Among the ever users, 107 (22.6%) have history of method shift due to different reasons. The main reasons was due to side effect (43.9%), need for long acting contraceptive methods (21.5%) and due to convenience of the new method (17.8%). The highest shift was from pill to injection accounting 59 (55.1%), followed by the shift from injection to pill 24 (22.4%). Only 16 (15%) has shifted to one of the LAPMs. The main source of the current method was government health centers (71.3%) and hospital (20.8%). Twenty one (6.9%) of the participants said that their partner does not approve the current contraceptive method they were taking. Various reasons were given for not using modern contraception. The main reasons stated were desire to be pregnant 112 (38.9%), followed by exclusive breastfeeding (25%) (Table 2).

### Factors associated with modern contraceptive use

Those variables which were significant on bi-variate analysis (P-value< 0.05) were entered to multiple logistic regression analysis to examine the effect of an independent variable to modern contraceptive use, while controlling other independent variables. The result of multiple logistic regression revealed that participants education, partners' education, desire to have a child within two years or soon, discussion on FP with partner and ever use of modern contraceptives were found significantly associated with modern contraceptive use (Table 3).

Women who had attended secondary education had higher odds of modern contraceptive use (AOR=2.4, 95%CI =1.10, 5.05) compared to those who had no attended school. Even though it is not linear, women whose partners' attended secondary (AOR=4.3, 95%CI =1.7, 10.61) and higher education (AOR=3.8, 95%CI =1.35, 10.42) were more likely to use modern contraceptives compared to those women whose partner did not attended school (Table 3).

Women who want to delay or space their birth were 4.5 times more likely to use modern contraceptive compared to their counterparts (AOR=4.5, 95%CI =2.78, 7.35). Women who discuss on FP with their husband had 3.2 times higher odds of modern contraceptive use (AOR=3.2, 95%CI=1.45, 7.09). Participants who had history of modern contraceptive use were 3 times more likely to use modern contraceptives (AOR=2.8, 95%CI=1.56, 5.15) (Table 3).

Variables	Total (n)	MC Use		COR(95%CI)	AOR(95%CI)
		Yes, n (%)	No, n (%)		
<b>Participant education</b>	92	35(38.0)	57(62.0)	1.0(ref.)	1.2(0.57, 2.30)
No education	189	92(48.2)	97(51.3)	1.5(0.93, 2.57)	2.4(1.09, 5.05)*
Primary (1-8th)	217	128(59.0)	89(41.0)	2.3(1.42, 3.86)	1.6(0.58, 4.30)
Secondary (9-12th)	94	48(51.1)	46(48.9)	1.7(0.95, 3.05)	
Higher education					
<b>Partner's education</b>	54	14(25.9)	40(74.1)	1.0(ref.)	2.5(1.02, 6.11)*
No education	142	59(41.5)	83(58.5)	2.0(1.01, 4.06)	4.3(1.71, 10.61)**
Primary (1-8th)	215	130(60.5)	85(39.5)	4.4(2.24, 8.51)	3.8(1.35, 10.42)*
Secondary (9-12th)	181	100(55.2)	81(44.8)	3.5(1.79, 6.93)	
Higher education					
<b>Participant occupation</b>	345	172(49.9)	173(50.1)	1.00(ref.)	0.8(0.49, 1.58)
Housewife	158	83(52.3)	75(47.5)	1.1(0.76, 1.62)	1.3(0.65, 2.71)
Employed	59	35(59.3)	24(40.7)	1.5(0.83, 2.57)	0.5(0.20, 1.22)
Daily labourer	30	3(43.3)	17(56.7)	0.5(0.36, 1.63)	0.7(0.53, 1.14)
Merchants	592	303(51.2)	289(48.8)	1.2(1.05, 1.26)	0.9(0.55, 1.60)
<b>Family Size</b>	426	232(54.5)	194(45.5)	1.6(1.11, 2.29)	1.4(0.94, 2.12)
<b>Have TV</b>	166	71(42.8)	95(57.2)	1.0(ref.)	0.9(0.80, 1.19)
Yes	545	288(52.8)	257(47.2)	1.1(1.02, 1.24)	
No	545	288(52.8)	257(47.2)	0.76(0.67, 0.87)	
<b>Number of alive children</b>					
<b>Number of additional children wanted</b>					
<b>Wants more child with in 2 years</b>	233	74(31.8)	159(68.2)	1.0(ref.)	1.0(ref.)
Yes	358	229(64.0)	129(36.0)	3.8(2.68, 5.41)	4.5(2.78, 7.35)***
No					
Discussion on FP	<b>522</b>	<b>290(55.6)</b>	<b>232(44.4)</b>	<b>5.4(2.87, 10.08)</b>	<b>3.2(1.45, 7.09)**</b>
<b>Yes</b>	<b>69</b>	<b>13(18.8)</b>	<b>56(81.2)</b>	<b>1.0(ref.)</b>	<b>1.0(ref.)</b>
<b>No</b>	<b>488</b>	<b>265(54.3)</b>	<b>223(45.7)</b>	<b>2.0(1.21, 3.45)</b>	<b>1.5(0.72, 2.95)</b>
Exposure to MC message	<b>68</b>	<b>25(36.8)</b>	<b>43(63.2)</b>	<b>1.0(ref.)</b>	<b>2.8(1.56, 5.15)**</b>
<b>Yes</b>	<b>473</b>	<b>276(58.4)</b>	<b>197(41.6)</b>	<b>4.7(2.96, 7.53)</b>	
<b>No</b>	<b>118</b>	<b>27(22.9)</b>	<b>91(77.1)</b>	<b>1.0(ref.)</b>	
Ever use					
<b>Yes</b>					
<b>No</b>					

**Table 3:** Multivariate analyses of selected factors affecting modern contraceptive use among married women, Adigrat town, January 2012 (\*Significant at P<0.05, \*\*significant at P<0.01, \*\*\*significant at P<0.001 ref.=reference, COR= crude odds ratio, AOR= adjusted odds ratio)

## Discussion

The overall current prevalence of modern contraception in the town was 51.3%. This finding is almost comparable with the national DHS 2011 among urban currently married women (49.5%), urban areas of Gonder zones (48%) and Khartoum (51.4%) [3,16,17]. The prevalence of LAPMs among the participants who were currently using modern contraceptives was 59(19.5%). This is higher than the findings in DHS 2011 (4.2%), and Mekelle (12.3%) [3,8]. This could be due to the recent promotion of these methods through TV and radio. The method mix was dominated by short term contraceptives; Depo-

Provera (68.3%) followed by pills (11.6%). This is similar with the finding in Amhara, Ethiopia; Depo-Provera (62.9%) and pills (14%) [5]. Only twelve (4%) of participants have found with tubal ligation and none of the participants had used vasectomy. The main reason stated for not using any of the modern contraceptive was to get pregnancy (38.9%). This was also indicated in the study conducted in North Shoa, Ethiopia [5].

Even though it is not linear, participants attended secondary education had higher odds of modern contraceptive use. This finding is also obtained in Butajira district and Mojo town, Ethiopia [7,18].

The proportion of participants' contraceptive use increased with their husbands' education level. Wives whose husbands had primary, secondary and higher education level shown significant association with modern contraceptive use. These findings are also obtained in Butajira district [7]. Increasing education might help in discussion on modern contraceptive and would increase knowledge and utilization of modern FP methods.

Women who did not desire additional children within the next two years were 4.5 times higher to use modern contraceptives than those who desired child within the next two years or soon. Similarly, women who do not desire other children after two years were 5.71 times more likely to use modern contraceptive than those who desire another child within two years [5].

Participants' discuss on FP issues with their partner was significantly associated with modern contraceptive use. This is supported by the finding in the study conducted in North Shoa Zone, Butajira district, and Mojo town Ethiopia [5,7,18]. Therefore, policy makers responsible for national FP programs need to target husbands by constructing a message that encourages male participation in FP. Previous experience of modern contraceptive had shown significant positive effect in contraceptive use. Similarly to this study, women who had used oral contraceptives were more likely to have had a tubal ligation in Mexico [19].

Since this study examined the pattern of modern contraceptive use only among currently married women, these results may not be able to be generalized to all women in Adigrat town. Cause and effect relationship was difficult to establish for the factors dealt in the study since it is cross-sectional study. In addition, the study does not indicate whether staffs lack adequate experience and skills in using long acting reversible contraceptives methods or their acceptability in carefully designed and implemented service programs.

## Conclusion

Based on the findings of the research; it is concluded that the magnitude of modern contraceptive utilization in the study area is comparable with the other similar urban based studies. But the contraceptive method mix is highly dominated by short term contraceptives. The principal factors associated with modern contraceptive use were educational status of the couples, women's desire to have additional children within the next two years or soon, couples discussion about family planning, and ever use of any of the methods. Therefore, couples discussion on family planning and husbands' involvement in FP programs should be encouraged. Further detailed investigation of discontinuation rate of the methods, and providers experience and skills of providing all choices especially long acting reversible contraceptives should be conducted.

## Authors' Contributions

AG carried out the conception and designing the study, performed statistical analysis and wrote the manuscript. AA participated in designing the study, analysis, reviewing and editing the final draft of the manuscript. All authors read and approved the manuscript.

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