

Early discontinuation of implanon and its associated factors among women who ever used implanon in Ofla District, Tigray, Northern Ethiopia

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ABSTRACT

Background: Contraceptive use plays an important role in minimizing unintended pregnancies, reduce maternal mortality, and improve child survival. Hence family planning programmes must motivate women to begin using contraception and must encourage women who are already using family planning not to discontinue. The decision to continue or discontinue use of a contraceptive involves multiple factors.

Objective: The objective of the study was to determine early discontinuation rate of Implanon and to identify its associated factors among women who ever used implanon in 2012/2013 in Northern part of Ethiopia.

Methods: a community based cross sectional study was conducted in 244 participants from January 20-March 09, 2014. All women who ever used implanon in 2012/2013 were included in the study .The data was entered and cleaned in Epi Info and analyzed using SPSS. Multivariate logistic regression was used to identify factors associated with early discontinuation of implanon.

Result: The overall early implanon discontinuation rate was 16% .the mean (\pm SD) duration of implanon use in months was 6.6 ± 2.8 . The main reason for early discontinuation was health concerns followed by desire to have more children. Women who have developed side effects, who were not appointed for follow up and who were not satisfied by the service given during the implanon insertion were the predictors of early implanon discontinuation.

Conclusions: Early implanon discontinuation rate was considerable and a health concern was the main reason for discontinuation. Pre insertion counseling, close monitoring and follow up of implanon users should be made to increase implanon continuation rate.

Key words; Implanon, discontinuation rate, Tigray, Ethiopia

Introduction

Early implanon discontinuation is defined as discontinuation at less than 2.5 years after insertion of implanon¹.

Contraceptive use, as proximate determinant of fertility, plays an important role in minimize unintended pregnancies, reduce maternal mortality, and improve child survival. Hence family planning programmes must motivate women to begin using contraception and must encourage women who are already using family planning not to discontinue. Quality of family planning services is an important determinant of contraceptive use because it is likely to affect contraceptive adoption and, more significantly, contraceptive continuation²⁻³. The decision to continue or discontinue use of a contraceptive involves multiple factors. High rates of contraceptive discontinuation for reasons other than the desire for pregnancy are a public health concern because of their association with negative reproductive health outcomes⁴.

Many experts believed implanon to have higher continuation rates as compared to other methods of contraceptives but evidences from different studies indicated that implanon discontinuation rates within the first one year of use ranges from 2% in Nigeria to 23% in UK, Malaysia, Australia and Egypt^{1, 5-7} and despite well tolerance and effectiveness, many women discontinue implanon use within one year of initiating a method. The major reasons that women discontinue use of implanon method are side effects, and health concerns, and a desire to become pregnant. Menstrual disturbance is the most common reason for discontinuation of implanon use. Other less frequent reasons also include, spouse disapproval, and switching to another method⁸⁻¹⁰. Early discontinuation of the implant heightens the risk of unintended pregnancy that end in miscarriage, stillbirth or abortion¹¹⁻¹².

Despite its proven safety, and effectiveness, the sub dermal implant is not widely used in Ethiopia .Only 3.4% of women who were taking contraceptives between the ages of 15 -49 years used Implants¹³. Early discontinuation and reasons of discontinuation among women's of Implanon users in Ethiopia has received little study.

The purpose of this study was to assess early discontinuation rate of implanon and identify its determinants. The findings of the study would help health managers to understand the extent of the early implanon discontinuation and hence improve future national family planning programs in Ethiopia in general, in Ofla Tigray in particularly.

METHODS AND MATERIALS

A community based cross-sectional study design was conducted from January to March, 2014 in Ofla district. Based on the 2007 National Census conducted by Central Statistical Agency of Ethiopia (CSA), projection the district has a total population of 144,217 of whom 70, 666 (49%) male and 73,550 (51%) women. 96.6% of the population of the district is Orthodox Christians', and 3.38% Muslim. The district has 6 Health centers, 22 Health post with 47 Health Extension Workers (HEW).

Review of family planning registration book of health institutions revealed that 264 women used implanon in the period July 8, 2012 to July 07, 2013.

All those women in the district were included in the study and the data was collected house to house by taking the list of the women from the Family planning registration book of the respective health institutions.

A structured and pre- tested interview based questionnaire with both open ended and closed ended questions was used to collect the data. The questionnaire comprises socioeconomic and demographic, past contraception history and Knowledge on Implanon, partner involvement, counseling status, future intention and Information specific to the use of Implanon types of questions. The age, date of insertion and removal of implanon was taken from family planning registration book but again asked during the data collection process to ensure consistency data. The questionnaire was adopted from reviewing different literatures and scientific facts¹³. Questionnaire was first prepared in English and translated to Tigrigna by RH specialist local language speaker to make it understandable by the study participants and to check whether the translation was consistent with the English version. The questionnaire was back retranslated to English by another person.

Six female who have completed grade ten, as data collectors and two B.Sc Nurse as supervisors were recruited and trained on the objectives of the study, data collection tools and interview techniques for two days by the principal investigator. Before the actual data collection, the questionnaire was pre tested in 5 % of the total sample size. Based on the pretest, necessary modification was made on the questions.

Data was entered and cleaned in Epi- Info version 3.5.4 by the principal investigator then exported to Statistical package for social sciences (SPSS) version 20.0 for analysis.

Frequencies of the different variables were run to identify missing values.

Means, standard deviation and proportions for the different variables were calculated and the data was presented in tables and figures. Bivariate analyses were done for the independent variables with the outcome variable (early implanon discontinuation) to select candidate variables for the multivariate analyses. Variables with $P \leq 0.2$ on the bivariate analysis were entered to multivariate binary logistic regression model to identify their independent effects on the outcome variable. Their respective odds ratios (OR) associated with these potential factors was reported as a measure of strength, together with the respective 95% confidence intervals.

Ethical clearance was obtained from research and ethical committee (REC) of Addis Ababa University, School of Public Health. Permission for conducting the study was also obtained from the Tigray Regional Health Bureau and the Ofla district Health Office. Then official letter was written to each service delivery points. Information sheet that contains about the benefit and risk of participating of the respondents in this study with verbal informed consent was attached to each questionnaire. The study participants were asked after the data collectors explained the purpose of the study and obtaining verbal consent from each respondent

RESULT

Sociodemographic characteristics

A total of two hundred forty four (244) participants responded to the questionnaires making a response rate of 92.4%. The age of study participants were between 16 and 45 years with the mean (+SD) age 26.9±6.9 years. More than half of the participants 168(68.9%) were married, 219(89.8%) Orthodox Christians and 199(81.6%) were farmer by occupation. One hundred eighty eight (77%) of the women had living children between one and nine at the time of insertion with a mean (+SD) number of living children. More than half of the study participants 159 (65.2%) and more than three quarter of her husband's 116(79.1%) educational status were illiterate (**Table 1**).

Table 1 Sociodemographic status of women who used implanon in Ofla District, Tigray, Northern Ethiopia (n=244)

Characteristics		Number	%
Women's Age at the time of Implanon insertion	<20	39	16.0
	20-24	53	21.7
	25-29	62	25.4
	30-34	45	18.4
	35+	45	18.4
Women's marital status	Married	168	68.9
	Others(Widowed, Single, Divorced)	76	31.1
Religion	Orthodox	219	89.8
	Muslim	25	10.2
Women's Educational status	Illiterate	159	65.2
	Primary	62	25.4
	Secondary	23	9.4
Husband's Educational status(n=168)	Illiterate	116	69.0
	Primary	36	21.5
	Secondary	16	9.5
History abortion	Yes	51	20.9
	No	193	79.1
Women's Occupation	Farmer	199	81.6
	Others(merchant,G.employ ee)	45	18.4

Past Contraceptive history and Counseling status during Implanon insertion

One hundred sixty nine (69.3%) of participant have ever heard about contraceptives before inserting Implanon. Among those 153(90.5%) women have ever heard about Injectable followed by Pills 105(62.1%) and only 73(43.2%) have ever heard about Implanon.

More than half of the participants, 143(58.6%), didn't use any type of modern contraceptive before inserting Implanon (i.e. Implanon was used for the first time).The rest 101(41.4%) had used modern methods of contraceptives, and were only switching over to Implanon. Pills and Injectables were the only two modern contraceptive which were used by the women in 18 (17.8%) and 83(82.2%) respectively.

Nearly three quarter of the participants (71.7%) got counseling service during inserting implanon

Among these, 145(59.4%) were counseled about implanon benefit, 94(38.5%) about its effectiveness and 91(37.3%) about its duration of action and only 22(9.0%) of participants received counseling about side effects of Implanon (**Table 2**).

Table 2: Past Contraceptive history, counseling status of women who ever used implanon in Ofla District, Tigray, Northern Ethiopia

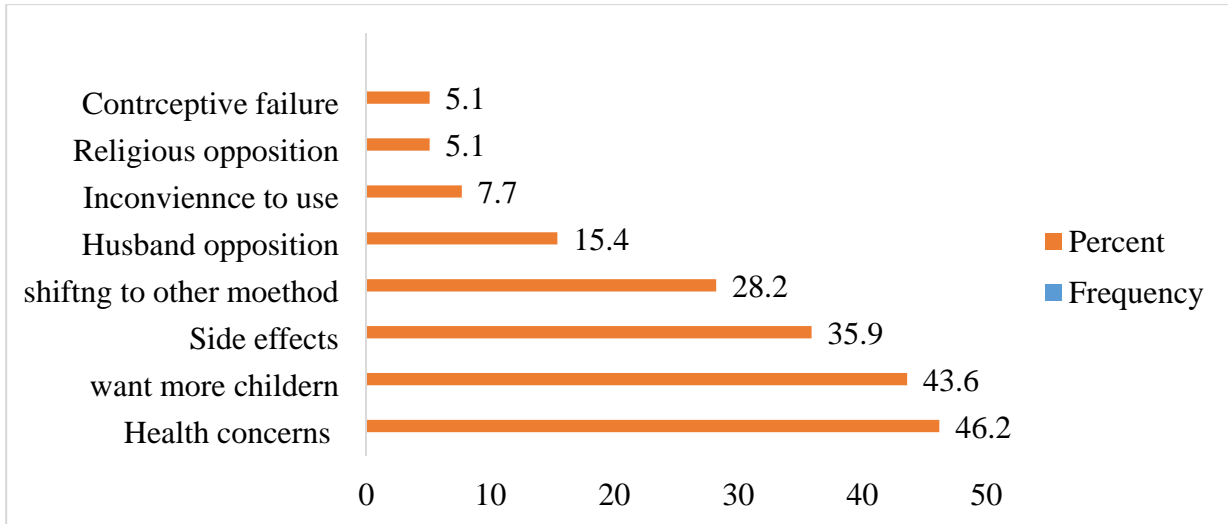
		Frequency	Percent
Ever heard about any contraception before using Implanon (n=244)	Ever heard	169	69.3
	Not ever heard	75	30.7
Type of information they know about implanon before inserting(n=169 , some clients had more than one response)	Benefit	55	75.3
	Duration of action	45	61.6
	Effectiveness	35	47.9
	Side effects	10	13.7
	Others	4	5.5
Ever used any contraceptive before using Implanon (n=244)	Yes	101	41.4
	No	143	58.6
Type of contraceptive they used before inserting Implanon (last method ,n =101)	Injectables	83	82.2
	Pills	18	17.8
Counseling service during inserting implanon	Yes	175	71.7
	No	69	28.3
Reasons for choosing Implanon	Safety	153	62.7
	convent to use	145	59.4
	Effectiveness	119	48.8
	others(long-term protection, reduce appointment)	37	15.2
	chosen by HP	33	13.5
	I know only this method	5	2

One hundred forty five (59.4%) and 99 (40.6%) of the participants have inserted implanon in the Health Center and Health Posts respectively.

Almost three in ten women have developed side effects after inserting implanon. Of the women who reported perceived side effects, 49(70%) Headache, 35(50%) abnormal vaginal bleeding, 5(7.1%) weight gain, 3(4.3%) acne and 13(18.6%) also others like abdominal pain, abdominal distention, and fatigue. Even though 153(62.7%) of the participants were not appointed at a specific time for follow up after implanon insertion, 178(73%) were satisfied by the service given during the insertion.

Early Implanon Discontinuation

Of the 244 who ever used implanon in the last one year, 39(16%) of women discontinued. These women who discontinued had used implanon for the duration of between 2 and 14 months with a mean of 6.6 ± 2.8 months. Almost all (97.4%) of the discontinuers had used implanon only for duration of less than year, following for less than 6 months (53.8%) and 14 months (2.6%).



N.B some women gave more than one response

Figure 1: The main reasons for early discontinuation of implanon among women who used implanon in Ofla District, Tigray, Northern Ethiopia.

The common side effects for discontinuation of implanon were 11(78.6%) Menstrual disruption& headache each and 5 (35.7%) weight gain. Among the women who had discontinued by shifting to other methods, 10(90.9%) and 1(9.1%) were shifted in to Injectable and pill respectively. Among the women who are using implanon, more than half (56.6%) has intended to continue implanon use until three years but 42(20.5%) planed to discontinue at any time before three years whereas 22.9% of them didn't decide yet whether to continue or discontinue . The main reasons for not to continue implanon until three years were 20(9.8%) health concerns/issues ,18(8.8%) side effects, 18(8.8%) want of more children but only 6(2.9%) of the participants planed to shift to other methods of contraceptives.

Factors associated with Early Implanon discontinuation

All the socio demographic factors and counseling relating factors were assessed for the presence of association with early discontinuation rate of implanon.

The result of multivariable binary logistic regression analysis showed that developing of side effect after the insertion of implanon, appointment for follow up, and satisfaction by the service given during implanon insertion were found to have statistically significant association with early discontinuation of implanon but early discontinuation of Implanon was not significantly related to age, marital status, parity, educational level, or socioeconomic variables.

The results demonstrated that women who developed side effects were more than 2 times, women who weren't appointed for follow up were 3 times, and women who weren't satisfied by the service given during the insertion of implanon were more than 3 times more likely discontinue implanon as compared their counter parts(**Table 3**).

Table 3: Factors associated with early implanon discontinuation among women who ever used implanon in 2012/2013 in Ofla District, Tigray, Northern Ethiopia, 2014

Variables	Continuation of implanon		Crude OR (95 % C.I.)	Adjusted OR (95% C.I)
	Yes (%)	No (%)		
Religion				
Orthodox	187(85.4)	32(14.6)	1	1
Muslim	18(72)	7(28)	2.27(0.88-5.88)	3.33(0.93-11.9)
Living children				
Yes	162(86.2)	26(13.8)	1	1
No	43(76.8)	13(23.2)	1.88(0.89-3.97)	1.61(0.67-3.88)
Counseling about benefit				
No	76(76.8)	23(23.2)	2.44(1.21-4.90)*	0.92(0.30-2.78)
Yes	129(89.0)	16(11.0)	1	1
Counseling about effectiveness				
No	120(80)	30(20)	2.36(1.07-5.23)*	1.45(0.43-4.93)
Yes	35(90.4)	9(9.6)	1	1
Place of insertion				
HC	117(80.7)	28(19.3)	1	1
HP	88(89.9)	11(11.1)	0.52(0.25-1.1)	0.54(0.22-1.33)
Presence of side effects				
Yes	50(71.4)	20(28.6)	3.26(1.61-6.60)*	2.79(1.10-7.07)**
No	150(89.1)	19(10.9)	1	1
Abnormal vaginal bleeding				
No				
Yes	180(86.1)	29(13.9)	1	1
Weight gain				
No	203(84.9)	36(15.1)	1	1
Yes	2(40)	3(60)	8.46(1.37-52.40)*	4.23(1.48-37.61)
Headache				
No	167(85.6)	28(14.4)	1	1
Yes	38(77.6)	11(22.4)	1.73(0.79-3.77)	0.31(0.08-1.26)
Appointment for follow up				
Yes	140(91.5)	13(8.5)	1	1
No	65(71.4)	26(28.6)	4.31(2.08-8.92)*	3.23(1.17-8.93)**
Satisfaction				
Yes	160(89.9)	18(10.1)	1	1
No	45(68.2)	21(31.8)	4.15(2.04-8.45)*	3.40(1.32-8.76)**

NB **=Statistical significant at $p < 0.05$

DISCUSSION

This community based study assessed discontinuation of implanon among women who lived in rural Ofla district. The early discontinuation rate of implanon among women who used implanon in the previous one year before the survey was 16% with a mean duration of 6.6 ± 2.8 months. This is higher than the studies conducted in Nigeria, Malaysia and Thailand^{6, 14-16} but lower than the studies in Egypt, Australia, and UK^{1, 5, 7} which were conducted in rural and urban setting. This could be because of different reasons. One might be due to the educational status of the study participant's as majority women in the other studies^{6, 14-16} were literate compare to the current study. The other possible reason might also be due to age level. Because women of the current study were a younger age than the previous studies^{6, 14-16} and being young has high probability desire to have more children which intern this leads to high discontinuation rate. The third reason might due to inadequate pre insertion counseling particularly about the expected side effects of the method .finally, it might be due to study setting as the current study was conducted in rural whereas the others were either in urban or in both urban and rural.

Main reasons cited by the women for early discontinuation of implanon were health concerns followed by desire to have more children and side effects. The most common side effects of implanon were menstrual disruption and Headach. This is consistent with other studies conducted in Nigeria, Egypt, Thailand and Malaysia^{7, 14-15}.

¹⁷.Although, menstrual disruption have no serious effects on health but can interfere with daily activities, especially interfere with their sexual relationships with their husbands. Women who had removed implanon due to side effects could be because of to lack of prior information on the expected side effects of the method and intolerance of the side effects. Women with lack of prior information and had not used any form of contraception before may be also more concerned about vaginal bleeding and would want the implanon removed in order not to interfere with their sexual relationships with their husbands. In a follow up study of contraceptive discontinuation in Niger and the Gambia, researchers found that approximately 30% of family planning users discontinued use within the first eight months of acceptance, primarily because of side effects, spousal disapproval or a desire to become pregnant. The rate of discontinuation was higher among women who reported that they had not been adequately counseled about side effects¹⁸. Providing counseling about the possible side effects of the method and support by the service providers may be the most important way to help women continue on implanon contraception. Husband's opposition of the method was the reason for discontinuation in 15.4% of the women. This requires that the male involvement should be incorporated in counseling issues regarding the implanon.

As to the independent associated factors presence of side effects, appointment for follow up and satisfaction by the services during insertion of implanon were the predictors of early discontinuation.

Women who have developed side effects after inserting implanon were 2.8 times more likely to discontinue as compared to women who did not developed side effects which is similar with study conducted in Egypt⁷.This might be related to the fact that inadequate pre insertion counseling about the possible side effects during the insertion of implanon by service providers and intolerance of the side effects of the method.

The odds of early discontinuation rate among those who were not appointed for follow up were 3.23 times more than who appointed. This may be due to the inadequate pre insertion counseling on the expected side effects specific to implanon

Lastly, women who were not satisfied by the service given during the insertion of implanon were 3.4 times more likely to discontinue implanon as compared to those who were satisfied by the service given during insertion of implanon. This is because women who were not interested by the method choice, privacy, explanation of the service provider and other service provision during insertion of implanon may remove their method early.

Being community based was taken as strength. However, despite its strength, the study was not without limitations. The study did not assure causality due to the nature of the design. Besides, there a question of inference as some of the women who ever used implanon in 2012/2013 outside of the district was excluded from the study.

CONCLUSIONS

Early implanon discontinuation rate in this study is relatively high (16%). In addition, a high number of women planned to discontinue before 3 years.

The main reasons for early discontinuation of implanon were health concerns, desire to have more children and side effects. Generally, more than 90% of the causes of early implanon discontinuation were related to unsatisfactory quality of counseling (side effects, desire for pregnancy, desire to use another method).

Women who have developed side effects while using of implanon, women who were not appointed for follow up and women who were not satisfied by the service given during the implanon insertion were the predictors of early implanon discontinuation.

RECOMMENATIONS

Based on the findings, the following recommendations are made

- A great effort should be made to address women's perceptions and understanding through mass media and health education programs in order to increase the continuation rate of implanon use.
- Health care providers should also give appropriate pre insertion counseling based on manual to the clients by giving emphasize on side effects.
- Close monitoring and follow up of implanon users should be made to increase implanon continuation rate.
- Further research should be done on large scale sampling supported by qualitative data in order to identify determinants of early implanon discontinuation.

Competing interests

The authors declare that they have no competing interests.

Authors' Contributions

KB was involved in the design of study, data collection and analysis, and drafting of the manuscript. SH and MF were involved in design of the study, analysis of the data, preparing and critically reviewing the manuscript. All authors read and approved the final manuscript.

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References

- [1] Harvey Caroline, Seib Charlotte, Lucke Jayne. Continuation rates and reasons for removal among Implanon® users accessing two family planning clinics in Queensland, Australia. *Contraception*. In. Queensland: School of Nursing, Queensland University of Technology, School of Population Health, The University of Queensland; 2009.
- [2] Jain AK. Fertility reduction and the quality of family planning services *Fam Planning* 1989;20(1):1-16.
- [3] Bruce J. Fundamental elements of the quality of care: a simple framework *Stud Fam Plann*. 1990;21(2):61-91.
- [4] Blanc A, Curtis S, T C. Monitoring contraceptive continuation: links to fertility outcomes and quality of care. *Fam Plann* 2002;33(2):127-40.
- [5] Agrawal Anjali, Robinson Christine. An assessment of the first 3 years' use of Implanon® in Luton. *J Fam Plann Reprod Health Care* 2005;31(4):310-312.
- [6] Mastor Asmah, Khaing si Lay, Omar siti Zawiah. Users' perspectives on implanon in Malaysia, a multicultural Asian country. *Open Access Journal of Contraception* 2011;2:79-84.
- [7] Mohamed Abdel-Razik Madiha Said. Implanon Use Pattern among Ministry of Health and Population Clients: 2008-2012. In. Cairo: Faculty of Medicine, Cairo University; December, 2012.
- [8] Affandi B. An integrated analysis of vaginal bleeding patterns in clinical trials of Implanon. *Contraception* 1998;58(6 Suppl):99S-107S.
- [9] Croxatto HB, Urbancsek J, Massai R, Coelingh Bennink H, van Beek A. A multicentre efficacy and safety study of the single contraceptive implant Implanon. *Hum Reprod* 1999;14(4):976-81.
- [10] Lakha F, Glasier AF. Continuation rates of Implanon in the UK: data from an observational study in a clinical setting *Contraception* 2006;74(4):287-9.
- [11] Belsey EM. The association between vaginal bleeding patterns and reasons for discontinuation of contraceptive use *Contraception*. 1988;38(2):207-25.
- [12] Frost JJ, Singh S, Finer LB. U.S. women's one-year contraceptive-use patterns, 2004 *Perspect Sex Reprod Health* 2007;38-55.
- [13] Central Statistical Authority and ICF International. Ethiopia Demographic and Health Survey 2011. In. Addis Ababa, Ethiopia 2012.
- [14] Chaovitsaree Somsak, Piyamongkol Wirawit, Pongsatha Saipin, Morakote Nuntana, Noium Suprancee, Soonthornlinsiri Nuchanart. One Year Study of Implanon on the Adverse Events and Discontinuation. *J Med Assoc Thai* 2005; 88(33):314-317.
- [15] Mutihir JT, DD N. One-year experience with implanon sub-dermal implants in Jos, Nigeria. *Nigerian Journal of Clinical Practice* March 2010;13(1):28-31.
- [16] Ojule J. D, Oranu E.O, Enyindah C.E. Experience with Implanon in Southern Nigeria. *Journal of Medicine and Medical Sciences* 2012;3(11):710-714.
- [17] Mutihir j.t, Nyango d.d. Indications for removal of etonogestrel implant within two years of use in Jos, Nigeria. *East African Medical Journal* November 2010; 87 11
- [18] RamaRao Saumya, Lacuesta Marlina, Costello Marilou, Pangolibay Blesilda, Jones Heidi. The Link Between Quality of Care and Contraceptive Use. *International Family Planning Perspectives* 2003;29(2):76-83.