

# Premature Implanon Discontinuation and Associated Factors Among Implanon User Women in Ambo town, Central Ethiopia, 2018

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## Abstract

**Introduction:** Contraception have an important role in preventing unwanted and high risk pregnancies, abortions and thereby decreases maternal morbidity and mortality.

**Objective:** To assess premature discontinuation of Implanon and associated factors among Implanon user women in Ambo town, Central Ethiopia, 2018.

**Methodology:** Community based cross-sectional study was conducted from May 25 to September 20/2018. A total of 335 women were selected by simple random sampling technique. The collected data were entered using Epi Info™ version 7 and transferred to statistical software package for social science (SPSS) version 25 for analysis. Binary logistic regression were utilized to get the odds ratio, 95% confidence interval and p-value to detect statistical association. P-values of  $\leq 0.05$  was used to declare significant association and, multiple logistic regression was used to control for confounding.

**Result:** The overall premature discontinuation of Implanon was 38.2%. Higher Level of education (AOR =2.2, CI (1.16, 4.16), pre insertion counseling (AOR = 1.2, CI = (1.02, 3.89)), and experiencing side effects (AOR = 3.14, CI = (1.7, 5.54)) were factors significantly associated with premature Implanon discontinuation.

**Conclusion and recommendation:** Premature discontinuation of Implanon was found to be high in the study area.

**Keywords:** Implanon, premature Discontinuation, Implants, contraception

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## Background

Contraceptive implants are inserted sub-dermally under the skin in the upper arm. Implanon is a single-rod progestogen-only contraceptive implant with length of 40 mm and diameter of 2 mm containing 68 mg of etonogestrel (ENG) dispersed in a membrane of ethylene vinyl acetate. It delivers ENG at a dose sufficient to suppress ovulation in every cycle throughout the 3 years of use [1-3]. Implanon is one of the long-term and reversible sub-dermal contraceptive implants. [4].

Contraceptive discontinuations contribute substantially to the total fertility rate, unwanted pregnancies, and induced abortions [4, 5]. An estimated 13% of maternal mortality from unsafe abortion is due to un intended pregnancy[6]. Contraceptive discontinuation in developing countries in the first year of use is common (18 - 63 %), and that the majority of these discontinuations are among women who are still in need of contraception[7].

Implanon is believed to be an effective and safe method; however its discontinuation has been reported to be as much 50% as high in the developed world [8]. The developing world has low utilization and very high discontinuation due to different reported reasons like changes in menstrual bleeding patterns, mood swings, headaches and weight gain, which could all be addressed during service provision through counselling [9,10, 11,12].

Despite the development of a plan to expand contraception by providing at the community level since 2009 by the Federal Ministry of Health of Ethiopia (FMoH), utilization of long acting family planning method (LAFP) is low and high number of premature discontinuations were reported[13-16]. Since risk factors are varied across settings, the current study was designed to identify factors associated with premature discontinuation of Implanon in Ambo town, Central Ethiopia.

## METHODOLOGY

### Study setting

Community based cross sectional study was conducted in Ambo town, Central Ethiopia, from May 2015 to September 2018. The town found 112Km away to the west of the capital Addis Ababa and it is the capital city of West Shoa Zone. According to the 2007 national census reported the total population of Ambo town was 48,171, of whom 24,634 were men and 23,537 were women. The city has one referral hospital, one general hospital and two health centers [33].

**Source population**

All women who are Implanon users in Ambo Town.

**Study Population**

All women to whom Implanon was inserted two and half years prior to the data collection period in Ambo town are the study population.

**Sample size determination**

Sample size was determined using single population proportion formula considering over all discontinuation rate of 16% (5), and non-response rate of 10% at 95% confidence level and marginal error of 4%, and the required minimum sample size is 356.

**Sampling procedures**

Women for whom Implanon was inserted in the last three years, three years were identified first from the family planning registration book obtained from health extension workers of the city. Then the list of users name were assigned a code for each and 356 participants were selected using simple random sampling technique.

**Operational definition**

**Premature Implanon discontinuation:** removal of Implanon before two and half years

**Data collection tools and procedures**

Data were collected using a face to face interview using structured questionnaire adapted from references. The questionnaire was first prepared in English and translated to Afan Oromo (local language). Six data collectors who are midwives by profession and two supervisors who are Master of Science holders were participated in the study.

**Data quality control**

The Questionnaires were prepared in English and translated to local language (Afan Oromo). The questionnaires were pretested using 5% (18) of the study participants two weeks ahead of the actual study period. By doing so, the reaction of the respondents to the research procedure, the need of revising the format or presentation of the questionnaire, the successfulness of data collectors' training, appropriateness of the amount of time allowed for different activities and generally inconsistent and confusing matters were evaluated and corrected accordingly. The completeness of the questionnaire was checked by supervisor daily and the principal investigator also rechecked it for its completeness before data entry.

**Data processing and analysis**

The univariate analysis such as proportions, percentages, frequency distributions and appropriate graphic presentations besides measures of central tendency and measures of dispersion were used for data presentation. Data collected were analyzed using SPSS version 25 statistical software. Binary logistic regression were utilized to get the odds ratio, 95% confidence interval and p-value to detect statistical association. P-values of  $\leq 0.05$  was used to declare significant association and, multiple logistic regression was used to control for confounding.

**Ethical clearance**

Ethical approval was obtained from the Ethical Committee of Ambo University Research and Publication Office. **The purpose and importance of the research was explained to each of the study participants and the data was collected after a full informed verbal consent was obtained.**

**RESULTS****Socio demographic characters of the study participants**

Three hundred thirty five (n=335) participants had responded to the questionnaire making a response rate of 94.1%. Their ages lie in the age range of 18 and 46 years with the mean ( $\pm$  SD) age of  $27.97 \pm 5.45$  years. Majority of the study participants (71.8%) identified themselves as Oromo for ethnicity. A little more than half of the study participants (52.2%) were Orthodox Christianity followers followed by Protestantism. The average monthly income ranges from 00.00 (no constant income) to 9900 ETB with a median of 1600.00 ETB (Table 1).

		Number	Percent
<b>Participant's Age</b>	≤20	35	10.5
	21-25	80	23.9
	26-30	120	35.8
	31-34	58	17.3
	>35	42	12.5
<b>Women's Ethnicity</b>	Oromo	241	71.8
	Amhara	55	16.4
	Gurage	23	6.8
	Others	17	5.0
<b>Women's Religion</b>	Orthodox	175	52.2
	Protestant	138	41.2
	Muslim	22	6.6
<b>Marital status</b>	Single	48	13.3
	Married	243	72.5
	Divorced	44	13.1
<b>Occupation</b>	Gov't Employee	94	28.1
	House wife	86	25.7
	Merchant	46	13.7
	Private Employee	45	13.4
	Daily laborer	42	12.5
	Others	22	6.6
	<750	82	24.5
<b>Average monthly Income</b>	751-1600	91	27.2
	1601-3000	98	29.2
	>3000	64	19.1
<b>Women's level of education</b>	Non formal education	97	28.9
	Primary school	74	22.1
	Secondary school	84	25.1
	Above Secondary school	80	23.9
<b>Total</b>		335	100

Table 1: Socio demographic Status of women who used Implanon in the last three years in Ambo town, 2018.

### Reproductive and past contraceptive history

Majority 245 (73.1%) of the participants have history of pregnancy at least once before they use implanon. Among them 231(94.3%) has at least one alive child. Majority of the participants 260 (77.6%) have a desire to be pregnant in the future (Table 2).

Character		Number	Percent
Ever get pregnant	Yes	245	73.1
	No	90	26.9
Have alive children(n=245)	Yes	231	94.3
	No	14	5.7
History of abortion (n=245)	Yes	47	19.2
	No	198	80.8
Need to get pregnant	Yes	260	77.6
	No	75	22.4
When did you plan for pregnancy (n=260)	<i>From now on</i>	57	21.9
	After 1 year	43	16.5
	After 2 years	54	20.8
	After 3 years	106	40.8

Table 2: Implanon discontinuation among women who ever used Implanon in Ambo town, 2018.

### Pre insertion counseling service during Implanon provision

Majority of the participants claimed that they have got counselling service from their providers 256 (76.4%), from which most of them have received an individual counselling 228 (89.1%). The most common topics of counselling were advantage and duration of action of Implanon, where 229 (89.4%) and 226 (88.3%) has reported that they have been counseled on. 116 (34.6%) women reported that they were not satisfied with the service provided [Table 3]

Character	Response	Number	Percent
<b>Got counseling service (n=335)</b>	Yes	256	76.4
	No	79	23.4
<b>Type of counseling (n=256)</b>	Individual	228	89.1
	Group counseling	28	10.9
<b>Topics discussed during counseling (n=256)</b>	Advantage of Implanon	229	89.4
	Duration of action of ”	226	88.3
	Effectiveness of ”	186	72.6
	Side effect of ”	174	67.9
	Bleeding disorder	151	81.2
<b>Possible side effects counseled (n=174)</b>	Headache	107	57.5
	Weight gain	75	40.3
	Myself	189	56.4
<b>Main decider to use the method (n=335)</b>	Discussion with husband	69	20.6
	Method provider	61	18.2
	My husband	16	4.8
<b>Reason for choosing the method (n=335)</b>	Duration of action	249	74.3
	Effectiveness	47	14.1
	No side effect	39	11.6
<b>Perceived Satisfaction with service provided (n=335)</b>	Yes	219	65.4
	No	116	34.6
<b>Site of Implanon provision</b>	Health center	180	53.7
	Hospital	60	18.1
	Marie stops	45	13.5
	FGAE	41	12.1
	Private clinics	9	2.6

The most commonly reported reasons for discontinuation were presence of side effect 96(62%) need to get pregnant 46 (29.7%), spouse death 7, husband disapproval 4, and failed method two (Figure 1).

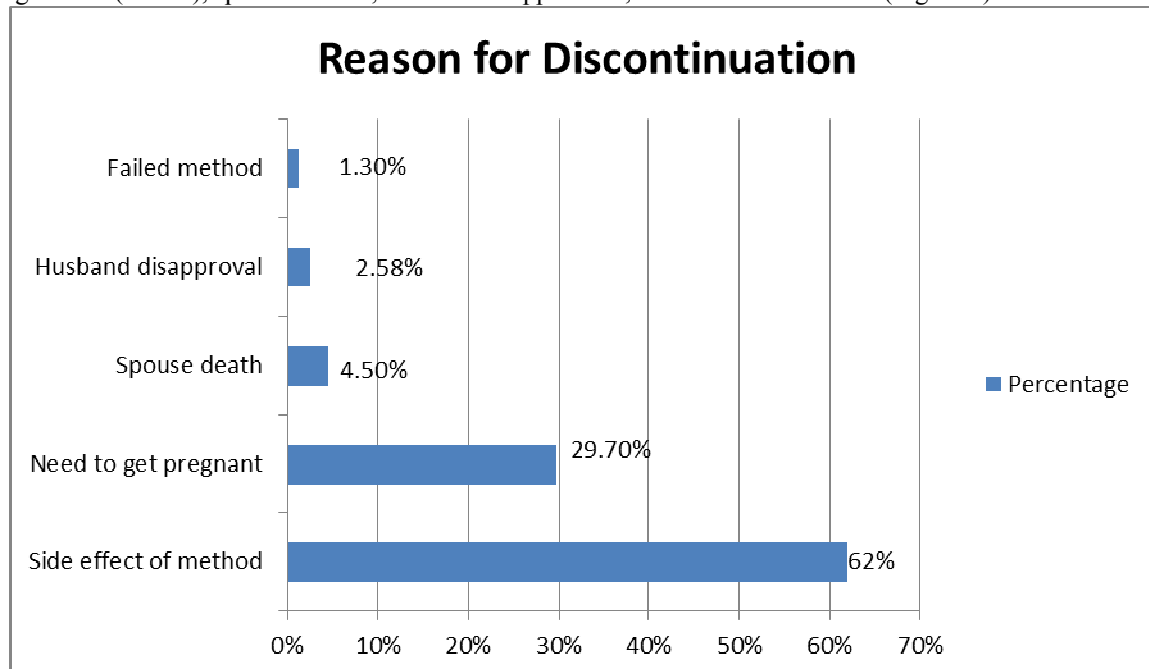


Figure 1: Reasons for discontinuation of Implanon among women who ever used the method in Ambo town, 2018

Most commonly reported side effects causing Implanon discontinuations were menstrual disturbance 58(60.4%), and Arm pain 22(22.9%). Nine participants out of 12, who developed mood change, had already discontinued the method (Figure 2). Among participants who did not discontinued the method (180) during study period, 37(20.5%) of them decided to discontinue before completion of three years due to discomfort 28 (75.6%) and need to be pregnant is reported by six participants.

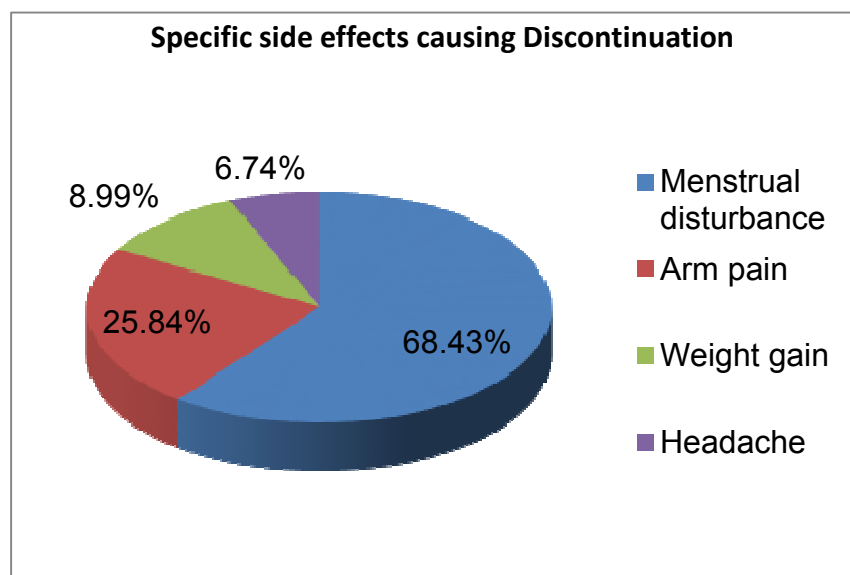


Figure 2: Specific Side effects causing Implanon Discontinuation among women who ever used implanon in the last three years in Ambo Town, Central Ethiopia, 2018.

#### Factors Associated with Premature Discontinuation of Implanon

Variables like women's ethnicity, information about contraceptive prior to Implanon use, Implanon provision site, checkup appointment, main decision maker to use the method and mood change were excluded from analysis for association due to low frequencies in one category when checked by cross tabulation. All other socio demographic characters, reproductive and obstetric factors, counseling service and method choice, and experience of side effect were checked individually for the presence of association in binary logistic regression and women's age, level of education, history of pregnancy, pre insertion counseling service, reason for preferring method, history of contraceptive use, and presence of side effect were significantly associated with Implanon discontinuation. However, in multiple logistic regression only variables like level of education above secondary school, pre insertion counseling service and experience of side effect were significantly associated with premature Implanon discontinuation. The result showed that the odds of discontinuation among women who had completed secondary school were more than 2 times higher than the odds in those who have no formal education (AOR=2.2, 95% CI= (1.16-4.16)P = 0.046). The odds of discontinuation in women who were not counseled on possible side effect of the method were 1.2 times higher than odds in those who were counseled on side effects (AOR = 1.2, 95%CI=(1.02-3.89), p = 0.002). The odds of Implanon discontinuation among women who ever faced side effect of the method were 3.14 times higher than odds in women who did not face side effects(AOR=3.14, 95% CI = (1.7-5.54), p=0.034)[Table 4].

Variable	Implanon discontinued		Crude OR (95% CI)	Adjusted OR (95% CI)	P- value	
	Yes (%)	No (%)				
<b>Women's Age</b>	>35	24 ()	18 ()	0.48(0.22-1.48)		
	31-35	19	39	0.22(0.07-0.42)	*	
	26-30	48	72	0.30(0.16-0.76)	*	
	21-25	40	40	0.45(0.25-1.28)		
	<21	24	11	1	1	
<b>Level of education</b>	Above secondary school	49	31	<b>2.06(1.21-3.62)</b>	<b>2.2(1.16-4.16)</b>	<b>0.016</b>
	2dry school	38	46	1.08(0.5-1.82)	*	
	Primary school	26	48	0.7(0.41-1.68)	*	
	No formal education	42	55	<b>1</b>	<b>1</b>	
<b>Got counselling service</b>	No	55	24	<b>3.57(1.9-6.1)</b>	<b>1.2(1.02-3.89)</b>	<b>0.044</b>
	Yes	100	156	1	1	
<b>Reason for choosing method</b>	Effectiveness	28	19	2.15 (1-3.6)	*	
	No side effect	26	13	2.93 (1.46-5.83)	*	
	Long term	101	148	1		
<b>Ever faced side effects</b>	Yes	122	103	2.3(1.69-4.59)	<b>3.14(1.7-5.54)</b>	<b>&lt;0.001</b>
	No	37	73	<b>1</b>	<b>1</b>	

Table 4: Factors Associated with Discontinuation of Implanon among women who used Implanon in Ambo town, 2018.

## DISCUSSIONS

The overall premature discontinuation of implanon was 46.3% with median duration of use 12 months. This goes consistently with study conducted in Australia where 47% of women using implant has discontinued within three years [17]; however this study has shown that there is a high premature discontinuation compared to studies conducted in Nigeria, Egypt and Malaysia where discontinuation was 26.1%, 28% and 22.86% respectively [9, 18, 19]. The differences might stem from variations in study area, time of the study, sample size differences and also service provision approaches would have played their roles.

Incoherent to other studies in home [16, 29] and abroad [6, 7, 18, 27] and our expectations, the study found that women who have completed secondary school were two times more likely to prematurely discontinue implanon compared to those who have no formal education [AOR=2.2, 95% CI=1.16, 4.16]. This might explain the fact that early healthcare seeking is common when there is any disturbance from normal physiology among women who are more educated compared to women who are not. Moreover educational status of study participants may have contributed for the variability, in which; studies in the country has included more of participants with no formal education and others studies have included women with formal education.

The odds of Implanon discontinuation among women who were not counseled prior to insertion of implanon were 1.2 times higher than the odds in those who were counseled (AOR = 1.2, 95%CI=1.02, 3.89, p=0.044). This might be due to the fact that women who are informed well on possible side effect of the method will tolerate side effects but those who were not informed will seek removal of the method. Timely follow up and appropriate counseling helps the women to cope with side effects which ultimately prevents discontinuation.

In this study experiencing side effects was significantly associated with premature discontinuation of implanon, where women who had experienced method related side effects were 3 times (AOR=3.14, 95% CI =1.7, 5.54, p < 0.001) more likely to discontinue compared to women who hadn't experienced side effect which is in line with a study conducted in Tigray, Northern Ethiopia (16). This might be due to women's intolerance for minor side effects, particularly with no or inappropriate counselling. Unexpected changes in menstrual bleeding due to the nature of the the method by itself rarely may force women to seek for removal.

## Conclusion

In this study discontinuation of Implanon was high. Women's Age, Level of education, counselling service, experience of side effects were factors associated with discontinuation. Quality family planning service which incorporates thorough counseling on side effects is fundamental to minimize premature discontinuation.

### Limitations

There may be recall bias as some questions asks information on before three years. Moreover, severity of side effects was not diagnosed.

### Competing interests

The authors declared that they have no competing interests.

### Author's contribution

MS conceived the study and was involved in the study design, reviewed the article, analysis, report writing and drafted the manuscript. KM was involved in the study design, analysis and drafted the manuscript. The authors read and approved the final manuscript.

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