

Implanon Discontinuation Rate and Associated Factors among Women who ever Used Implanon in the Last Three Years in Debre Markos Town, Northwest Ethiopia, 2016, Cross Sectional Study

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Abstract:

Introduction: Contraceptive discontinuations contribute substantially to the total fertility rate, unwanted pregnancies and induced abortions. In developing countries, contraceptive discontinuation rate is very common. While the Ethiopian government emphasizes on the provision of long-acting contraceptive methods, women who start to use the method were discontinuing it and the rate of discontinuation is understudied.

Objective: To assess Implanon discontinuation rate and associated factors among women who ever used Implanon from January 09/2013 to October 11/2015 in Debre Markos town, northwest Ethiopia: 2016.

Methodology: The community based cross-sectional study was conducted from January 10 to February 10/2016 through face to face interview. A total of 348 women were selected by simple random sampling technique. Epi-data version 3.1 and statistical software package for social science (SPSS) version 20 were used for data entry and analysis respectively. Factors associated with Implanon discontinuations were analyzed using binary and multivariable logistic regression, p -value < 0.05 were considered statistically significant.

Result: The overall discontinuation rate in the last three years was 46.5% with a rate of 10.5%, 23.9%, 38.2% and 46.5% at 6, 12, 24 and 36 months respectively. Attending college and above level education (AOR = 2.2, CI = (1.16, 4.16)), no history of pregnancy (AOR = 3.06, CI = (1.63-5.76)), lack of pre-insertion counseling (AOR = 1.2, CI = (1.02, 3.89)), perceived not satisfied with service provided (AOR = 4.86, CI = (2.66, 8.91)) and experience of side effect (AOR = 3.14, CI = (1.7, 5.54)) were significantly associated with Implanon discontinuation.

Conclusion and Recommendation: The discontinuation rate of Implanon in this study was high. Quality family planning service is essential to reduce discontinuation rate.

Keywords: Implanon, Discontinuation, progestin-only, Implant, Ethiopia

1. BACKGROUND

Implanon is one of the long-term and reversible sub-dermal contraceptive implants. It is a single rod, containing 68mg of Etonogestrel to offer contraception for three years[1]. Contraceptive discontinuations contribute substantially to the total fertility rate, unwanted pregnancies, and induced abortions [2, 3]. An estimated 13% of maternal mortality from unsafe abortion is due to unintended pregnancy [4]. 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[5].

Even though Implanon is believed to be safe and effective, its discontinuation rate even in the developed country reaches up to 50% before three years of insertion[6]. Besides its low utilization, the discontinuation rate is common in African countries [7], due to different reasons. Changes in

menstrual bleeding patterns were the common reasons for discontinuation described in various works of literatures [8, 9]. Other reasons mentioned for the discontinuation of the Implanon includes mood swings, headaches and weight gain [10].

In Ethiopia, contraceptive prevalence rate is 29% for all women and 42% for currently married women, where the implants account only 5% [11] and many of the women have negative attitude about long-acting contraceptives [12]. To address these problems, the Ethiopian Federal Ministry of Health (FMOH) developed a plan to expand contraceptive method mix by providing Implanon at community level since 2009 [13-15] in collaboration with generous donors support, nongovernmental organizations and public-private partnerships. Despite these all effort, still there is low utilization in general, and even those who have started to use the method are discontinuing it. The discontinuation rate and factors associated with discontinuation are understudied in Ethiopia as previous studies were done to assess early discontinuation rate in the first two years only. The result of those studies showed high discontinuation rate in Ethiopia [16] but there is no published data from this specific study area. Thus, this study was aimed to assess the rate of discontinuation and associated factors among women who ever used Implanon in the last three years in Debre Markos town, Northwest Ethiopia.

2. METHODOLOGY

Study Setting and Populations

Community-based cross sectional study was conducted in Debre Markos town, Northwest Ethiopia, from January to February 2016. Among 4867 Women for whom Implanon was inserted in the last three years, since January 09/2013 to October 11/2015 in Debre Markos town, 348 participants were selected. Simple random sampling technique was used to select study participants, and 264 women who took Implanon in the last three months prior to study period were excluded as at least one reference evaluation period of 90 days is required to assess bleeding patterns.

Data Collection Tools and Procedures

Data was collected through face to face interview using structured questionnaire adapted from related literatures. The questionnaire was first prepared in English and translated to Amharic version (local language) and then translated back to English by reproductive health professionals to keep its consistency. Data was collected by seven urban Health Extension Workers from their respective working kebeles.

Data Processing

After collected data was cleaned, coded and entered into Epi data version 3.1 and exported to SPSS version 20 software packages for analysis. Frequencies for all variables were run to identify missing values. Continuous data were checked for their normal distribution and coded. Cross-tabulation was done to determine variables with frequency of less than five. Variables with very few frequencies were recorded. Mean, median, standard deviation, proportions and rate were calculated for descriptive data and the results presented in tables, graphs and charts. Factors associated with Implanon discontinuation were first analyzed using binary logistic regression and variables with the p -value ≤ 0.2 were analyzed in multivariable logistic regression to check their effect on the outcome variable. In multivariate logistic regression, associations were analyzed at the confidence level of 95% with their respective odds ratio and the p -value of < 0.05 was considered statistically significant.

3. RESULTS

Socio-Demographic Characters

A total of 314 participants responded to the questionnaires making a response rate of 90.23% while 14 (4.02%) individuals were not volunteer to participate and 20 (5.75%) were not present in the study area. The age of the participants was between 18 and 45 years with the mean (\pm SD) age of 27.97 ± 5.45 years. Majority of the participants 263 (83.8%) were married, 297 (94.6%) were Orthodox, 308 (98.7%) were Amhara by ethnicity, 93 (29.6%) were homemaker and 124 (39.5%) have no formal Education. The average monthly income ranges from 00.00 (no steady income) to 9900 ETB with a median of 1600.00 ETB.

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Reproductive and Past Contraceptive History

Majority 230(73.2%) of the participants had a history of pregnancy at least once before they used Implanon. Among them, 217 (94.3%) had at least one alive child and 44(19.1%) had abortion history. The majority of the participants 244(77.7%) have a desire to be pregnant in the future. More than half of the participants, 205(65.3%) have used other contraceptives before taking Implanon. Among them, 143(69.8%) used injectable, 60 (29.3%) used pills and two participants had used Jadelle.

Table 1: Socio-demographic Status of women who ever used Implanon in the last three years in Debra Markos town (N=314), northwest Ethiopia, 2016.

		Number	Percent
Participant's Age	<21	37	11.8
	21-25	76	24.2
	26-30	112	35.7
	31-34	54	17.2
	>35	35	11.1
Women's Ethnicity	Amhara	308	98.1
	Oromo	4	1.3
	Tigre	2	0.6
Women's Religion	Orthodox	297	94.6
	Muslim	13	4.1
	protestant	4	1.3
Marital status	single	39	12.4
	Married	263	83.8
	divorced	12	3.8
Occupation	Gov't Employee	70	22.3
	Merchant	46	14.6
	Homeworkers	93	29.5
	Private Employee	27	8.6
	Daily laborer	51	16.2
	Others(farmer, student)	27	8.6
Average monthly Income	<750	79	25.2
	751-1600	79	25.2
	1601-3000	101	32.2
	>3000	55	17.5
Women's level of education			
	Noformal education	124	39.5
	Primary school	43	13.7
	Secondary school	54	17.2
	College and above	93	29.6

Pre-Insertion Counseling Service during Implanon Provision

Most of the participants, 248 (79%) got counseling service during Implanon provision with 213 (85.9%) individual and 35(14.1%) mass counseling. Among those who got counseling service, 219(88.3%) were counseled on the advantage of the method. However, 113 (45.6%) were not counseled on possible side effects of Implanon. Half of the participants 155(49.4%) had chosen the method by themselves but for 73 (23.2%) users Implanon was selected by service providers. The most common reason for choosing the method at the beginning was its cost-effectiveness in terms of its duration of protection. More than half of the participants 170 (54.1%) took the method from health center (**Table2**). In this study, none of the participants were appointed for check-up and of all users 97 (30.9%) reported that they were not satisfied with the service provision during Implanon insertion.

Table 2: Pre-insertion counseling service for women who ever used Implanon in the last three years in Debre Markos town (n=314), northwest Ethiopia, 2016

Character		Number	Percent
Got counseling service (n=314)	Yes	248	79
	No	66	21
Type of counseling (n=248)	Individual	213	85.9
	Mass counseling	35	14.1
Topics discussed during counseling (n=248)	Advantage	219	88.3
	Duration of action	190	76.6
	Effectiveness	131	52.8
	Side effect	135	54.4
Possible side effects counseled (n=135)	Bleeding disorder	107	79.3
	Headache	78	57.8
	Weight gain	44	32.6
Main decider to use the method	Myself	155	49.4
	My husband	12	3.8
	Method provider	73	23.2
	Discussion with husband	74	23.6
Reason for choosing the method	Duration of action	226	72
	No side effect	42	13.4
	Effective	46	14.6
Perceived Satisfied with service provided	Yes	217	69.1
	No	97	30.9
	Implanon providing site	Health Center	170
Hospital		52	16.6
Marie stops		41	13.1
FGAE		46	14.6
	Private clinics	5	1.6

Rate and Reasons for Implanon Discontinuation

The overall discontinuation rate of Implanon in the last three years was observed in 146(46.5%) of participants. The discontinuation of Implanon starts as early as two weeks and as long as 35 months. The median duration of use was 12 months with the first, second and third interquartile range of 7, 12 and 24 months respectively (**Table 3**). Among the discontinuers, 33(22.6%) discontinued within 6 months, 75(51.4%) within 12 months and 120(82.2%) within 24 months.

Table 3: Implanon discontinuation rate among women who ever used Implanon in the last three years in Debre Markos town (n=314), northwest Ethiopia; 2016

Duration of use	Frequency	Percent
< 6 months	33	10.5
<12 months	75	23.9
<24 months	120	38.2
<35 months	146	46.5
Not discontinued	168	53.5
Total	314	100

Two third of the participants, 211 (67.2%), had faced side effect of the method. Among them 128(60.7%) faced menstrual disturbance, 76 (36%) faced headache, 40(19%) weight gain, 61(28.9%) arm pain and 12(5.7%) faced mood change. Among those who faced menstrual disturbances, 25(19.5%) faced heavy bleeding, 66(51.6%) prolonged bleeding, 18(14.1%) amenorrhea and 19(14.8%) faced spotting. The most commonly reported reasons for discontinuation were the presence

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of side effects 89(61%) and need to be pregnant 44(30.1%). The most commonly reported side effects causing Implanon discontinuations were menstrual disturbance 52(58.43%), Arm pain 23 (25.84%), weight gain 9% and headache 6.74%. In this study, nine participants out of 12 who developed mood change had already discontinued the method. Among participants who did not discontinue the method (168) during the study period, 31(18.5%) decided to discontinue it before completion of three years.

Factors Associated with Implanon Discontinuation

Variables like women's ethnicity, religion, knowledge of contraceptives, Implanon providing site, an appointment for check-up 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 experience of side effect were checked individually for the presence of association in binary logistic regression. Hence, women's age, the level of education, history of pregnancy, pre-insertion counseling service, perceived satisfaction with the service provided, main decision maker to use Implanon, the reason for preferring method at beginning and experience of side effect were associated with Implanon discontinuation at p-value ≤ 0.2 . However, in multivariate logistic regression, attending college and above level education (AOR =2.2, 95%CI= (1.16-4.16), no history of pregnancy [AOR = 3.06, 95%CI = (1.63, 76], no pre-insertion counseling service [AOR = 1.2, 95%CI = (1.02, 3.89)], perceived not satisfied with service provided [AOR =4.86, 95%CI = (2.66, 8.91)]and experience of side effect [AOR = 3.14, 95%CI = (1.7, 5.54)] were significantly associated with Implanon discontinuation (**Table4**).

Table 4: Factors Associated with Discontinuation of Implanon among women who ever used Implanon in the last three years in Debre Markos town, northwest Ethiopia, 2016

Variable		Implanon discontinued		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
		Yes	No			
	>35	19	16	0.57(0.22-1.48)		
Women's Age	31-35	14	40	0.17(0.07-0.42)	*	
	26-30	45	67	0.35(0.16-0.76)	*	
	21-25	41	35	0.56(0.25-1.28)		
	<21	25	12	1	1	
Level of education	College and above	56	37	2.1(1.21-3.62)	2.2(1.16-4.16)	0.016
	2dry school	22	32	0.95(0.5-1.82)	*	
	Primary school	16	27	0.82(0.41-1.68)	*	
	No formal education	52	72	1	1	
Ever been pregnant	No	53	31	2.52(1.5-4.2)	3.06(1.63-5.76)	0.001
	Yes	93	137	1	1	
Got counselling service	No	46	20	3.41(1.9-6.1)	1.2(1.02-3.89)	0.044
	Yes	100	148	1	1	
Reason for choosing method	Effectiveness	26	20	1.89(1-3.6)	*	
	No side effect	28	14	2.91(1.46-5.83)	*	
	Long term	92	134	1		
Perceived Satisfied	No	74	23	6.48(3.75-11.19)	4.86(2.66-8.91)	<0.001
	Yes	72	145	1		
Main decider	Others	57	28	2.97(1.71-5.18)	*	
	with husband	26	48	0.79(0.45-1.41)	*	
	Myself	63	92	1	1	
Ever faced side effects	Yes	115	96	2.78(1.69-4.59)	3.14(1.7-5.54)	<0.001
	No	31	72	1	1	

*= Not associated on forward stepwise (Wald) test

4. DISCUSSIONS

In this study, the overall discontinuation rate of implanon was 46.5% (95%CI=40.4%-52.3%) with the median duration of use 12 months. This rate is consistent with the study conducted in Australia where 47% [17] of women using the implant discontinued within three years. However, it is higher than the study conducted in Nigeria, Egypt and Malaysia where the overall Implanon discontinuation rates were 26.1%, 28% and 22.86% respectively [7, 18, 19]. Similarly, the rates of discontinuation at 6 months, 12 months and 24 months were 10.5%, 23.9% and 38.2% which is higher than discontinuation rate observed in the above studies. The difference might be own to lack of counseling service during Implanon provision and follow-up service after method provision as 45.6% were not counseled on possible side effects in the current study. Effective counseling, close monitoring and follow up service enable women to cope with minor disorders.

Among the discontinuers, 33(22.6%) discontinued within 6 months, 75(51.4%) within 12 months, 120(82.2%) within 24 months and 146(100%) within 35 months. The rate of discontinuation at 6 month and one year were less than discontinuation rate observed in Ofla woreda, Tigray where the discontinuation were 53.8% and 97.4% at 6 months and one year respectively [16]. The difference could be due to the difference in the denominator since the denominator in the previous study was Implanon users in the last One and half years preceding study. However, the denominator in this study was Implanon users in the last three years. The rate of discontinuation in 24 months was higher than discontinuation rate observed in Egypt where only 55% discontinued before two years [19]. The difference could be due to follow up service provision after Implanon insertion in Egypt as 55% of Implanon users had follow up service but no one was appointed for checkup in this study.

Unlike in other studies, this result showed that the odds of Implanon discontinuation among women who attended college and above level of education were two times higher than odds in those who have no formal education [AOR=2.2, 95% CI=1.16, 4.16]. This might be due to different reasons. One reason might be due to the fact that early seeking care is common when there is some change (disturbance) among women who are more educated. Women who were more educated have the ability to early recognize any disturbance from normal physiology. Secondly, why the result is different from other studies could be due to difference in educational status of study participants. Studies conducted in Ofla district of Tigray region and Arsi zone of Oromia region, Ethiopia, were carried out in rural areas and majority of the participants (70%) have no formal education, and the remaining 30% were primary and secondary school [16, 29]. On the other hand, studies conducted in Nigeria, Malaysia, America and Australia indicated that the majority of the participants (66%) were college and above while only a few of them were illiterate [6, 7, 18, 27]. However, the participants of this study have different educational levels which range from no formal education (39.5%) to college and above levels (29.6%).

The odds of Implanon discontinuation among women who had never been pregnant before Implanon use were three times higher than the odds in women who were pregnant at least once [AOR = 3.06, 95%CI=1.63, 5.76, p=0.001]. This finding is supported by the study conducted in St. Louis County, America [22]. However, it is different from the study conducted in Arsi zone, Oromia, Ethiopia where there is no association between a history of pregnancy and Implanon removal [29]. This might be due to the difference in gravidity of study participants as 93% of participants in previous study had at least one pregnancy. Women who have not been pregnant have more desire for future fertility compared to others.

The odds of Implanon discontinuation among women who did not get counseling service before insertion was 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 were informed on the possible side effect of the method will tolerate minor changes (side effects), but those who were not informed will seek removal of the method.

The odds of Implanon discontinuation among women who perceived not satisfied with the service provided during Implanon insertion was 4.86 times higher than the odds in women who perceived satisfied (AOR=4.86, 95% CI =2.66, 8.91, p < 0.001). This is similar with study conducted in Ofla woreda, Tigray, northern Ethiopia [16]. This might be because of women who were not interested in method choice and who were not well counseled will remove Implanon as 113 (45.6%) of users were not counseled on side effects and Implanon use was decided by method providers for 73 (23.2%) of users in this study.

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Moreover, the odds of Implanon discontinuation among women who experienced a side effect of the method was 3.07 times higher than the odds in women who did not experience side effects (AOR=3.07, 95% CI =1.7, 5.54, $p < 0.001$). This is similar with the study conducted in ofla district, Tigray (16). This might be own to women's intolerance for minor side effects. Secondly, it could be own to unexpected change in menstrual bleeding due to the nature of the method.

5. CONCLUSION

In this study, Implanon discontinuation rate was high. Quality family planning service is essential to reduce discontinuation rate.

Limitations

The non-response rate was relatively high as study participants were not permanent residents in this study area. Moreover, the severity of side effect was not diagnosed.

Author's Contribution

MS conceived the study and was involved in the study design, reviewed the article, analysis, report writing and drafted the manuscript. ZM, MA & HK participated in the study design, analysis and drafted the manuscript. All authors read and approved the final manuscript

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