

2022-08-29

# Implanon Discontinuation and Associated Factors Among Women Who Requested Removal of Implanon in Dessie Town, Northeast Ethiopia, 2021

Mekdes, Alie

---

<http://ir.bdu.edu.et/handle/123456789/14914>

*Downloaded from DSpace Repository, DSpace Institution's institutional repository*



COLLEGE OF MEDICINE AND HEALTH SCIENCE SCHOOL OF  
PUBLIC HEALTH DEPARTMENT OF REPRODUCTIVE HEALTH  
AND POPULATION STUDIES

IMPLANON DISCONTINUATION AND ASSOCIATED FACTORS  
AMONG WOMEN WHO REQUESTED REMOVAL OF IMPLANON  
IN DESSIE TOWN, NORTH EAST ETHIOPIA, 2021

BY:  
MEKDES ALIE (BSc)

A THESIS SUBMITTED TO THE DEPARTMENT OF REPRODUCTIVE HEALTH  
AND POPULATION STUDIES SCHOOL OF PUBLIC HEALTH, COLLEGE OF  
MEDICINE AND HEALTH SCIENCES IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN  
REPRODUCTIVE HEALTH

AUGUST, 2022  
BAHIR DAR, ETHIOPIA

BAHIR DAR UNIVERSITY COLLEGE OF MEDICINE AND HEALTH  
SCIENCES, SCHOOL OF PUBLIC HEALTH DEPARTMENT OF  
REPRODUCTIVE HEALTH AND POPULATION STUDIES

IMPLANON DISCONTINUATION AND ASSOCIATED FACTORS  
AMONG WOMEN WHO REQUESTED REMOVAL OF IMPLANON  
IN DESSIE TOWN, NORTHEAST ETHIOPIA, 2021

BY

MEKDES ALIE (BSc)

Email: Mekdes 2030@gmail.com

ADVISORS:

- GEDEFAW ABEJE (PHD, ASSOCIATED PROF OF RH)  
(Abejedefaw@gmail.com)
- MEKONNEN MELKIE (MPH/RH)  
(Mek.meki18@gmail.com)

AUGUST, 2022  
BAHIR DAR, ETHIOPIA

## DECLARATION SHEET

I, the undersigned, declare that this is my original work, has never been presented in this or any other university and that all the resources and materials used for the research have been fully acknowledged.

### Approval of principal investigator

1. Merdes Aye [Signature] 13-12-2014 EC  
Principal investigator Signature Date

### Approval of advisors

1. Gedeyam Abeje [Signature] 13-12-2014 EC  
Advisor's name Signature Date

2. Mekonnen Melkie [Signature] 12-12-2014 EC  
Advisor's name Signature Date

### Approval of internal examiner

1. Girachew Woreku [Signature] 13-12-2014 EC  
Internal examiner name Signature Date



## **ACKNOWLEDGMENT**

First, I would like to thank Bahir Dar University, College of medicine and health science, school of public health for offering me the chance to carry out this study. Next, I would like to express my sincere thanks to my advisors Dr.Gedefaw Abeje and Mr. Mekonnen Melkie for their comfortable academic supervision with welcoming faces, critical comments and unreserved guidance. My gratitude is also extended to the Dessie health office for their cooperation during the data collection period. I am also very grateful to study participants for their time and valuable information. Last but not least I would like to thank my colleagues for their unconditional support.

## ABSTRACT

**Background:** Implanon is an effective single-rod progesterone-releasing contraceptive, preventing unwanted pregnancy within 3 years of use. Method discontinuation has a significant impact on overall fertility rates, unintended pregnancies and induced abortions. Therefore, this study is aimed to assess Implanon discontinuation and its associated factors among women who requested removal of Implanon in Dessie town, health institutions.

**Objective:** To assess Implanon discontinuation and its associated factors among women who requested removal of Implanon in Dessie town, Northeast Ethiopia, 2021.

**Methods:** A facility-based cross-sectional study was conducted among 340 women who were selected by systematic random sampling technique. Data were collected using an interviewer-administered questionnaire from February 25 to April 25, 2021. EpiData Version 4.6.0 and SPSS Version 25 were used for data entry and data analysis respectively. Both bi variable and multi variables logistic regression was done to identify factors associated with Implanon discontinuation and p-value < 0.05 and 95% confidence interval were considered statistically significant.

**Results:** A total of 29% (95% CI: 23.9, 34.0) of who requested removal of Implanon discontinued the method before the intended time period. Having history of chronic illness (AOR=2.78, 95% CI (1.325, 5.86) Parity (AOR =3.51, 95% CI (1.18, 10.46) and did not obtained counseling (AOR =6.74, 95% CI (2.461, 18.507) were found to be statistically significant factors with Implanon discontinuation.

**Conclusion and Recommendation:** Implanon discontinuation among women who requested removal of Implanon was relatively low as compared to those reported by other investigators. But it is still a public health problem. Therefore, to improve Implanon retention, strengthening the family planning counseling service and screening of chronic illness as well as giving appropriate care and treatment for these women with chronic medical condition are recommended.

**Keywords:** Discontinuation, Implanon, Dessie, Ethiopia

## ACRONYMS

AOR	Adjusted odds ratio
CI	Confidence Interval
COR	Crude odds ratio
CPR	Contraceptive Prevalence Rate
DHI	Dessie Health Institution
DHS	Demographic Health Survey
EDHS	Ethiopia Demographic and Health Survey
EMDHS	Ethiopia Mini Demographic and Health Survey
FMoH	Federal Ministry of Health
HC	Health Center
HEWs	Health Extension Workers
IFHP	Integrated Family Health Program
IUD	Intrauterine Device
LARCs	Long-Acting Reversible Contraceptive
MCPR	Modern Contraceptive Prevalence Rate
OCP	Oral Contraceptive Pills
SDGs	Sustainable Development Goals
UN	United Nation
WHO	World Health Organization

## TABLE OF CONTENTS

ACKNOWLEDGMENT .....	i
ABSTRACT .....	ii
ACRONYMS .....	iii
TABLE OF CONTENTS .....	iv
1. INTRODUCTION.....	1
1.1. Background .....	1
1.2. Statement of the problem .....	2
1.3. Significance of the study .....	3
2. LITERATURE REVIEW.....	4
2.1. Proportion of Implanon Discontinuation.....	4
2.2. Factors affecting Implanon discontinuation.....	5
2.2.1. Socio-demographic factors.....	5
2.2.2. Obstetrics related factors .....	5
2.2.3. Health service and client related factors .....	6
2.2.4. Method related factors.....	6
3. Conceptual Framework .....	7
4. OBJECTIVES .....	8
4.1. General Objective.....	8
4.2. Specific Objectives.....	8
5. METHODS AND MATERIALS .....	9
5.1. Study area.....	9
5.2. Study design and period .....	9
5.2.1. Source population.....	9
5.2.2. Study population .....	9
5.3. Inclusion criteria.....	9
5.4. Study Variables .....	9
5.5. Operational definitions .....	10
5.6. Sample size determination .....	10
5.7. Data collection tool and techniques .....	13
5.8. Data quality assurance.....	13
5.9. Data management and Analysis .....	13
5.10. Ethical consideration .....	14
5.11. Plan for dissemination of the result.....	14
6. RESULTS.....	15
6.1. Socio-demographic characteristics of respondents .....	15



6.2.	Obstetrics related characteristics .....	16
6.3.	Health Facility and client related characteristics.....	16
6.4.	Method-related characteristics .....	17
6.5.	Implanon Discontinuation .....	18
6.5.1.	Implanon discontinuation by selected characteristics .....	18
6.6.	Factors associated with Implanon Discontinuation.....	19
7.	DISCUSSION .....	21
8.	LIMITATION AND STRENGTH.....	23
8.1.	Limitation of the study .....	23
9.	CONCLUSION AND RECOMMENDATION .....	24
9.1.	Conclusion.....	24
9.2.	Recommendations .....	24
10.	REFERENCE .....	25
11.	APPENDIXES .....	28

## LIST OF TABLES

Table 1: Sample size determination for the second objective from factors having significant association with Implanon discontinuation .....	10
Table 2: Socio demographic characteristics of women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317). .....	15
Table 3: Health Service and client characteristics of women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317). .....	16
Table 4: Method-related characteristics of women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317). .....	17
Table 5: Implanon discontinuation by selected characteristics of women who requested removal of Implanon in Dessie town, Northeast Ethiopia 2021 (n = 317) .....	18

## LIST OF FIGURES

Figure 1: conceptual framework to identify factors associated with Implanon discontinuation in Dessie town, Amhara region, north east Ethiopia, 2021.....	7
Figure 2: Schematic presentation of the sampling procedure for Implanon discontinuation and its associated factors among who requested removal of Implanon in Dessie town, Northeast Ethiopia, 2021. ....	12
Figure 3: the main side effects of Implanon the women experienced among who requested removal of Implanon in Dessie town administration health facilities, Northeast Ethiopia 2021. ....	17

## LIST OF APPENDEXES

11.1. Appendix I:Information sheet (English Version).....	28
11.2. Appendix II: Consent form (English Version).....	29
11.3. Appendix III:Questionnaire (English version).....	30
11.4. Appendix IV:Information sheet (Amharic Version) .....	35
11.5. Appendix V:Consent form (Amharic Version) .....	36
11.6. Appendix VI :Questionnaire (Amharic Version).....	36

# 1. INTRODUCTION

## 1.1. Background

Implants provide long-lasting contraception by suppressing ovulation, impeding sperm transit by thickening the cervical mucus and altering the endometrial structure, the length of contraceptive protection varies depending on the brand: Implanon effective in preventing unwanted pregnancy for three years, Sino-implant (II) is effective for four years and Jadelle is for five years(1).

Implanon is best suited for women who desire a user-independent contraceptive method for birth spacing and limiting, it doesn't require frequent resupply visits and is reversible with a rapid return to fertility upon removal. This has the potential to enhance mother and child health by reducing the risk of maternal morbidity and death from pregnancy-related issues, unsafe abortions and delivery(2).

Expanding access to contraception and ensuring that demand for family planning is essential for achieving universal access to reproductive health-care services and crucial in reducing rapid population growth. So, it is a fundamental to achieve agenda for sustainable development goals (SDGs). SDG is strongly related to women empowerment, poverty reduction, gender equality, human rights, healthier birth spacing and reducing maternal morbidity and mortality associated with pregnancy (3). Besides, access to family planning reduced approximately 44% of maternal death and 21% child death (4).

The Ethiopian Federal Ministry of Health (FMOH) in collaboration with non-governmental organizations, and public-private partnerships, initiated an Implanon scale up program in 2009 to increase women's access to Implanon methods through trained Health Extension Workers for insertion(5). Implanon use among married or in-union women increased from less than 3.4% in 2011 to 9% in 2019, implying that the scale-up program was some what successful in accessing communities (6).

However, contraceptive discontinuation contributes substantially to unplanned pregnancy, unwanted births and high numbers of women become exposed to the risk of conception at three months after discontinuation, in Kenya 51%, in United Republic of Tanzania 56% and 42% in Ethiopia (7). Additionally, every year about one-third of the 182 million pregnancies occurring worldwide are unplanned (8). Therefore, Implanon removal time may be indicated a missed opportunity to promote and sustain contraceptive use and it can be used to measure the effectiveness of family planning services. Despite the above fact, contraceptive discontinuation is becoming a public health concern. This contraceptive discontinuation might be related to irregular bleeding patterns, desire for having children to the future and other socio-economical factors (9).

## **1.2. Statement of the problem**

In sub-Saharan Africa countries, even though contraceptive use is rising, contraceptive discontinuation rate remains high (10). According to surveys conducted in 36 developing nations in 2015, over 25% of women of reproductive age women discontinued using contraceptives (11). Similarly, a demographic and health survey conducted in 60 nations showed that 38% and 64% of Implanon discontinued by the 12th and 36th month, respectively (7). In Ethiopia, contraceptive use has shown a tremendous increase in the last decades, following the launching of the health extension program. Although nearly one-third of women still prefer to delay their next birth for at least 2 years, only a small number of women are currently using long-acting reversible contraceptive methods (12). In Ethiopia, the magnitude of Implanon discontinuation varies: 25% in Arsi, Oromia region Ethiopia(13), 46.5% in Debre Markos (13) and 62% in Mekelle, Ethiopia (14).

Hence, Implanon discontinuation is a growing public health concern. This has a multi-dimension implication at individual and policy level. At individual level it prone to unplanned pregnancy, abortion and unplanned birth. At policy level, discontinuation of family planning leading to high fertility rates and maternal and child deaths (7). Furthermore, factors that lead to discontinuation of Implanon may relate to personal behavior, culture specific contexts and clinical condition as well as method related side effects. However, Generating this local evidence is required for context-based decision making and allows crafting appropriate specific interventions to prolong the use and efficacy of Implanon contraceptive.

Therefore, this study aimed to asses discontinuation of Implanon and to identify its determinants among women who requested removal of Implanon at Dessie health institutions.

### **1.3. Significance of the study**

The study will help the health professionals to understand the extent of Implanon discontinuation. The finding would also be helpful to managers, planners and other stakeholders engaged in family planning to develop strategies based on the identified factors to improve discontinuation of Implanon in the community.

Furthermore; the findings of this study can serve as a source of information for other researchers to further investigate various aspects of the problem which are not fully addressed by this specific study.

## **2. LITERATURE REVIEW**

### **2.1. Proportion of Implanon Discontinuation**

A retrospective study conducted at the medical university of South Carolina, 16% of women discontinue Implanon within one year (15). While another study conducted in Colombia, 10.3 % of women discontinue Implanon prior to 12 month with a mean duration of utilization was 7.5 months (16). The result in Australia and a demographic and health survey conducted in 60 nations showed that discontinuation rates of Implanon within three years was 47% and 64% respectively (7, 17).

A study in democratic republic of Congo (DRC), showed that discontinuation of Implanon within 6 months, at 12 months and within 24 months were 5.5%, 8.4% and 20% respectively (18). a cross-sectional study done in Andabet district north-west Ethiopia, showed that the discontinuation of Implanon was 85.9% before 24 months among who discontinued the method (19). Whereas, Across-sectional Study conducted in Kersa district, south western Ethiopia, showed that a discontinuation rate of Implanon were 8.4% at 12 months, 20% within 24 months and 23.2% before 29 months (18).

A case control study conducted in Debre tabor, Ethiopia, showed that the discontinuation rate of Implanon before two and half year was 65%(20) .

Moreover, A study conducted in Arsi, in Debre Markos, in Ambo and Mekele, Ethiopia, showed that discontinuation rates of Implanon within three years was 25%, 46.5%, 62% and 46.3% respectively (13, 21-23).



## 2.2. Factors affecting Implanon discontinuation

### 2.2.1. Socio-demographic factors

A study conducted in Myanmar from 2015–2016, in Bangladesh, in Dale District, Hawassa and in Mekele, Ethiopia showed that age of women was having significantly associated with Implanon discontinuation and younger women had a higher rate of Implanon discontinuation (8, 14, 24-26).

A study was done in Mekele, in Hawassa and in Bahir Dar, Ethiopia showed that the educational status of the women was having significantly associated with discontinuation of Implanon (23, 27, 28). Whereas, Institutional-based cross-sectional study in Debre tabor, Ethiopia showed that women with a level of education was not associated with Implanon discontinuation(23).

A Cohort study in Democratic Republic of Congo (DRC), Africa showed that, residence of the women living in rural were having significant association with the discontinuation of Implanon (18). Similarly, studies conducted in Kampala Uganda, Senegal and in Guraghe zone Southern Ethiopia, residence was having associated with Implanon discontinuation (29-31).

A community based cross-sectional study conducted in Arsi zone, Oromia region, women occupation was having significantly associated with Implanon discontinuation and women who were daily laborer were more likely associated with Implanon discontinuation (13). Whereas, study conducted in Hawassa, in Mekelle, in Debre Tabor and in Bahir Dar, Ethiopia occupation was not having association with Implanon discontinuation (20, 23, 26, 32).

Summary from review, Socio demographic variables like educational status, occupational status, age, residence and marital status are contribution for Implanon discontinuation.

### 2.2.2. Obstetrics related factors

In a study conducted in Bangladesh, in DigunaFango, in Mekelle and Debre Tabor Ethiopia showed that women who had no living children were more likely to discontinue the Implanon (20, 23, 33). A study conducted in Nigeria, in DigunaFango and in Hawassa showed that women who had desire for having children to the future were having associated with discontinuation of Implanon (28, 33, 34).

A study conducted in DigunaFango and Debretabor, Ethiopia showed that women who had Parity was having significant association with discontinuation of Implanon (20, 33). Summary from review, substantial studies shows that parity and desire for having children to the future had contribution for Implanon discontinuation.

### 2.2.3. Health service and client related factors

A study conducted in Nigeria, in DigunaFango, Andabet district, North East Ethiopia, in Bahir Dar and in Debre Markos, Ethiopia counseling was having significantly associated with discontinuation of Implanon and women who did not received counseling prior to insertion were more likely associated with side effects(19-21, 32, 33, 35). Another Study conducted in Bangladesh and Bahir Dar Ethiopia showed that discussion with partner was having associated with discontinuation of Implanon (8, 27). Whereas, A study conducted in Nigeria, in DigunaFango, in Andabet District North East Ethiopia, in Mekelle, in Bahir Dar and Debre tabor, Ethiopia women who had follow up after insertion were having significantly associated with discontinuation of Implanon(19, 20, 27, 32, 35).

Summary from review, studies showed that counseling, counseling regarding side effects and follow up after insertion were contributed for discontinuation of Implanon.

### 2.2.4. Method related factors

According to Evidence from 60 country DHS analysis, in Bangladesh, in Nigeria, in DigunaFango, in Andabet District, in Bahir Dar and Debre tabor, Ethiopia women who had side effects (menstrual disturbance, pain on the insertion site and weight gain) were more likely associated with Implanon discontinuation (8, 19, 27, 32, 35). While a research carried out in Kinsha and Bahir Dar, Ethiopia, found that women who had previously taken contraceptives had significantly associated with discontinuation of Implanon(18, 27).

Summary from review, studies showed previous contraceptive used and side effect like menstrual disturbance, weight gain, pain on the insertion site and head ache were contributed for discontinuation of Implanon.

### 3. Conceptual Framework

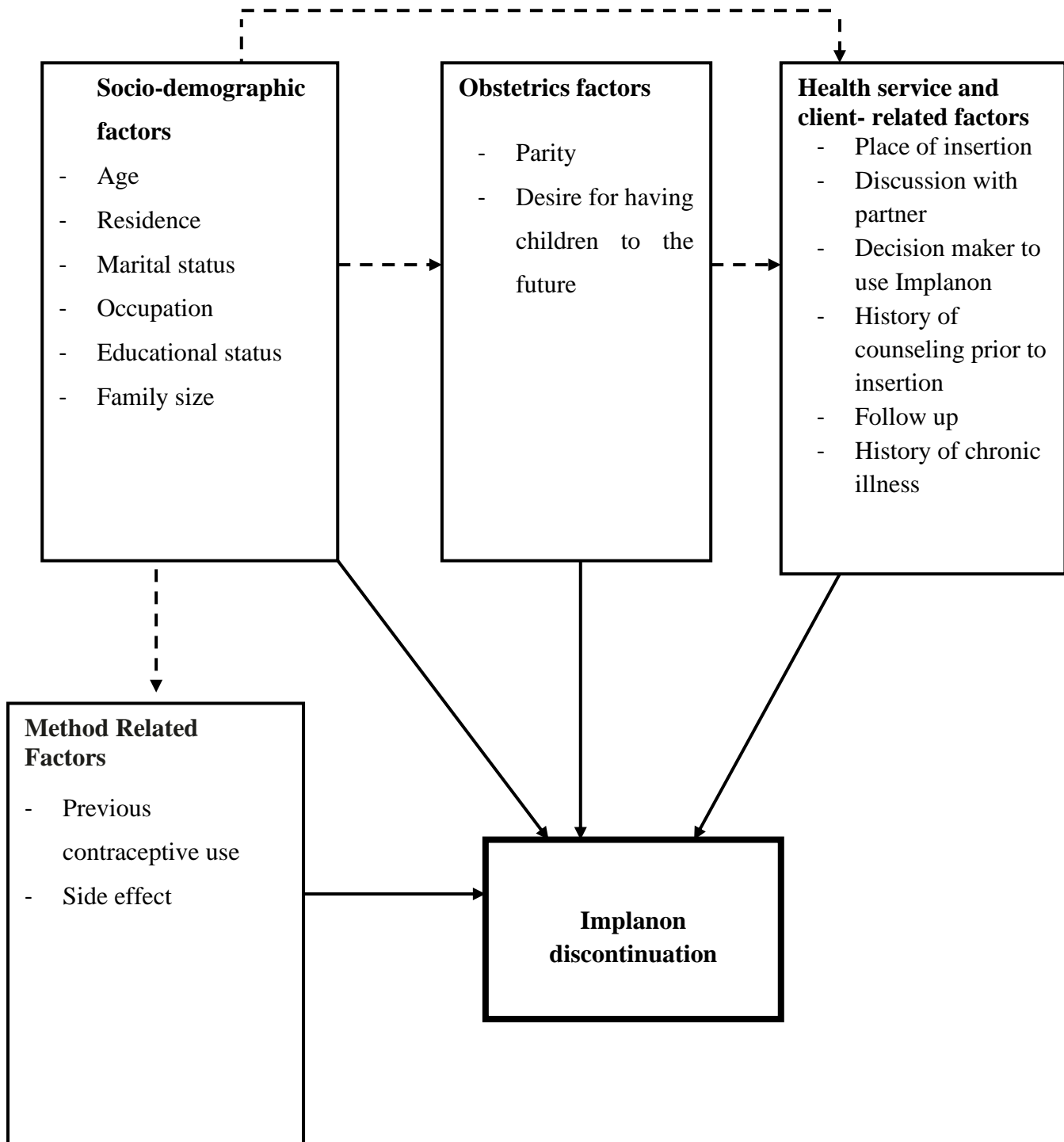


Figure 1: conceptual framework to identify factors associated with Implanon discontinuation in Dessie town, Amhara region, north east Ethiopia, 2021(20, 26, 33).

## **4. OBJECTIVES**

### **4.1. General Objective**

- To assess Implanon discontinuation and its associated factors among who requested removal of Implanon in Dessie town, Northeast Ethiopia, 2021.

### **4.2. Specific Objectives**

- To determine the proportion of Implanon discontinuation among who requested removal of Implanon in Dessie town, Northeast Ethiopia, 2021.
- To identify factors associated with Implanon discontinuation among women in Dessie town, Northeast Ethiopia, 2021.

## 5. METHODS AND MATERIALS

### 5.1. Study area

Dessie town administration found in South Wollo Zone, Amhara regional state of Ethiopia. According to Dessie town administration office report, the town administration has 5 sub-cities. The town is categorized into 18 urban and 8 rural kebeles. Based on the 2014G.C Ethiopian population projection, Dessie town had a total population of 212,436 of whom 83.6% (177,688) lived in urban areas (36) and it has 52,362 women in the reproductive age group (15–49 years). There are seven health centers, six health posts and one governmental general hospital.

### 5.2. Study design and period

An Institutional-based cross-sectional study was conducted at Dessie town administration, public and NGO health facilities from February 25 to April 25, 2021.

#### 5.2.1. Source population

All women who requested removal of Implanon in Public and NGO health facilities of Dessie town administration.

#### 5.2.2. Study population

All women who requested removal of Implanon in Public and NGO health facilities of Dessie town administration during the study period.

### 5.3. Inclusion criteria

All women who get Implanon removal service during the study period.

### 5.4. Study Variables

Dependent Variable: Implanon Discontinuation

Independent Variables:

- **Socio-demographic characteristics:** age, residence, education status, marital status, occupational status and family size
- **Method related factors:** side effect, previous contraceptive use
- **Health service and client related factors:** place of insertion, counseling, follow up, discussion with partner, decision maker to use Implanon and history of chronic illness.
- **Obstetrics related factors:** Parity and desire for having children to the future

## 5.5. Operational definitions

**Implanon discontinuation:** is the removal of Implanon by healthcare providers before 36 months of insertion.

**Side effects:** If the women reported that the development of at least one of the following conditions like menstrual disruption, pain on insertion site, headache and weight gain.

**Counselling:** If the women reported that she obtained information at least one of the following; about its advantage of the method, duration of action and side effects due to insertion and removal of Implanon were considered as counselling.

**History of chronic disease:** If the women reported that she had one of a known diagnosed chronic disease (DM, Hypertension, HIV, TB, CKD or CLD) were considered as having chronic diseases.

## 5.6. Sample size determination

A sample of 340 women was considered in this study, which was determined by using a single population proportion formula by taking 16% discontinuation rate from a study conducted in Ofla district (37), 95% level of confidence, 4% expected margin of error and 5% non-response rate.

$$n = (Z_{\alpha/2})^2 pq / w^2$$

Based on this,  $n = (1.96)^2 (0.16) (0.84) / (0.04)^2 = 323$ , then by adding 5% (17) non response rate 340 samples were considered as a final sample size for this study.

For the second objective sample size was calculated using Epi- info from factors having significant association with Implanon discontinuation from a study conducted in Bahir Dar town (27) and considering the following statistical Assumptions; two-sided significant level: 95%, power (1-Beta):80% and ratio of sample size: 1. After adding a 5% non-response rate, the final sample size was 150 and 154 were respectively. obtained which are not larger than the sample size calculated for the first objective(Table1).

Table1:Sample size determination for the second objective from factors having significant association with Implanon discontinuation (27).

Factors	Outcome in unexposed	Odds ratio	CI	Power	Calculated sample size	5 % non-response rate	Total sample size
having children	21.02	2.8	95	80	142	7.1	150
discussion with partner	18.99	2.87	95	80	146	7.3	154

## Sampling procedures

Participants were selected by using a systematic random sampling method in ten public health facilities. First, in each facility, a two-month average daily number of women who will come for Implanon removal were secured by reviewing previous two-month client registration logbooks. Then, based on the number of patient loads, samples were proportionally allocated to each health facility. Finally, using systematic random sampling method, the sample participants were recruited in every two intervals while the clients came for removal of Implanon.

Public and NGO health facilities that provide the service in Dessie town administration includes Dessie compressive specialized Hospital (DCSH), NGO clinics (Family guidance association of Ethiopia and Mariestopes), Hota Health Center (HHC), Banebaweha Health Center (BHC), Gerardo Health Center (GHC), Kurikuri Health Center (KHC), Tita Health Center (THC), Segnogebeya Health Center (SGHC) and Boruselasa Health Center (BHC) were included in the study.

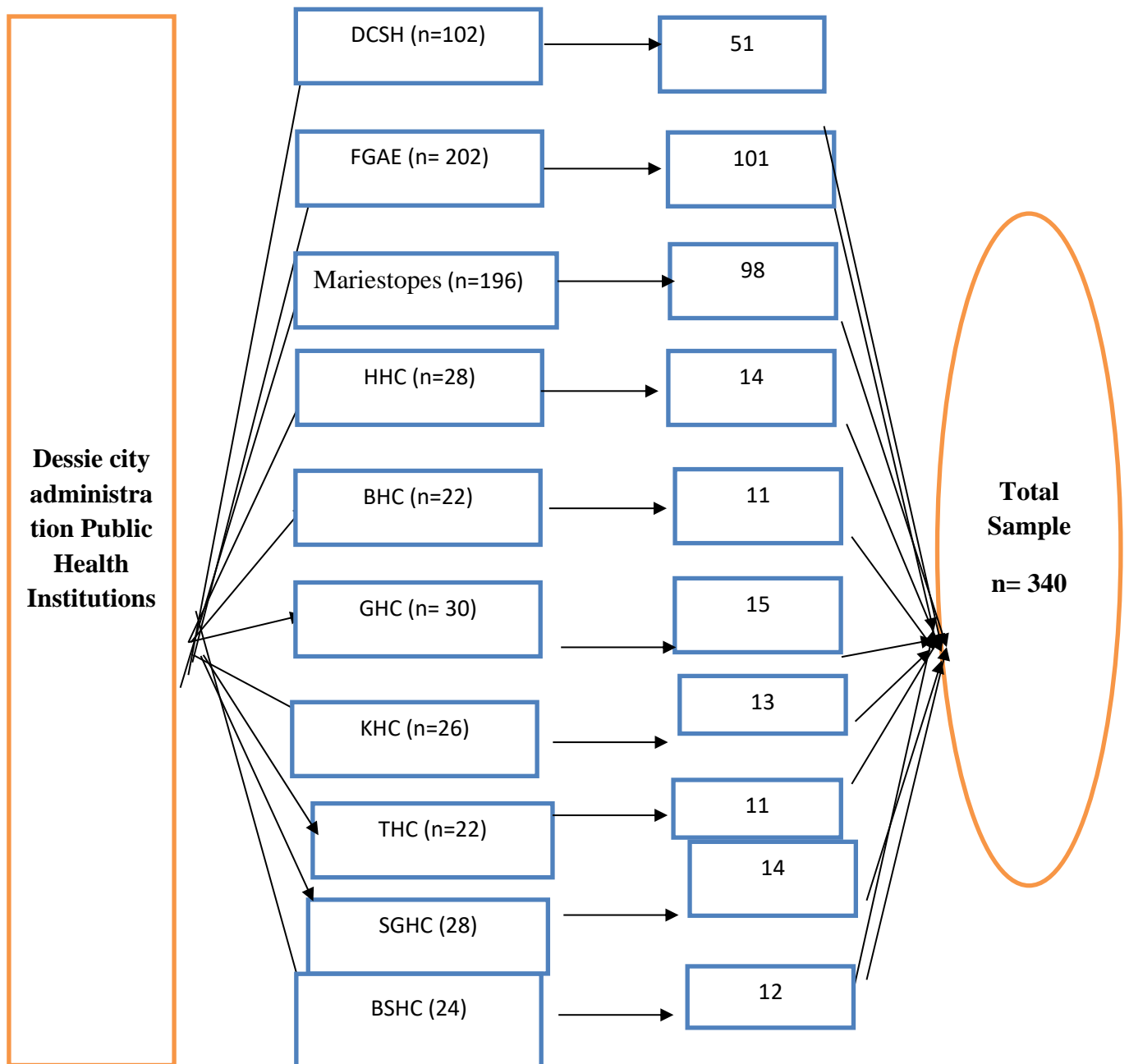


Figure 2: Schematic presentation of the sampling procedure for Implanon discontinuation and its associated factors among who requested removal of Implanon in Dessie town, Northeast Ethiopia, 2021.

**Note:** DCSH= Dessie compressive specialized Hospital, FGAE= Family guidance association of Ethiopia, HHC= Hota Health Center, BHC=Banebaweha Health Center, GHC= Gerardo Health Center, KHC=Kurikuri Health Center, THC=Tita Health Center, SGHC= Segnogebeya Health Center and BHC = Boruselasa Health Center



### 5.7. Data collection tool and techniques

Data were collected using a structured interviewer-administered questionnaire, which was adapted from previous literatures (20, 26, 33) and from Family planning registration logbook. Data were collected by ten data collectors; one in each facility and supervised by two Bsc Nurses. Then, data collection carried out by face-face interview by trained provider. To determine the duration of Implanon removal time, the date of insertion was secured from the appointment card or family planning registration logbooks.

### 5.8. Data quality assurance

The interview questionnaire was prepared in English and translated into Amharic language. One-day training for data collectors and supervisors was given before one week of the actual data collection. A pre-test was done on 5% of the sample at Kombolcha health center. Regular supervision was made while data collection. Finally, the questionnaires were checked for completeness on daily basis by the supervisor.

### 5.9. Data management and Analysis

The data were entered into Epi Data version 4.6.0 and exported to SPSS version 25 for further analysis. For categorical variables, frequency (%) was utilized, while for normal and skewed distributed continuous variables, mean with standard deviation and median (interquartile range, IQR) were employed, respectively.

A logistic regression model was computed to identify factors associated with Implanon discontinuation. First, bivariable logistic regression analysis was done for each explanatory variable and variables having P-value less than 0.25 were imported to the multivariable logistic regression model. In the multivariable logistic regression model, variables having P-value  $<0.05$  were considered as statistically significant and the effect size (odds ratio) was presented using 95% CI. Furthermore, multicollinearity was also checked using VIF and all variables have VIF value less than 10 and confirm no multicollinearity. The model good fit was also checked using Hosmer and Lemeshow statistical test and it indicated the model was well fitted with p-value of 0.88.

#### 5.10. Ethical consideration

Ethical approval was obtained from the Bahir Dar University School of Medicine and Health Sciences ethical review committee. Letter of permission was secured from the Dessie town health office and administrations of each health institution. The purpose and significance of the study were explained to the participants and each one gave informed written consent before data were collected.

#### 5.11. Plan for dissemination of the result

Findings will first be presented to the school of public health at Bahir Dar University. Then, it will be disseminated to concerned bodies including the Dessie town administration health office, South Wollo zone health department and Dessie town Health facility. Finally, an attempt will be made to publish the result on peer review journals.

## 6. RESULTS

### 6.1. Socio-demographic characteristics of respondents

Out of three hundred forty participants, three hundred seventeen were fully responded, which gives a response rate of 93.24%. Two hundred fifty-seven (81.07%) of participants were married and 220 (69.4%) of the respondents were living in urban areas. In terms of education level, 116 (36.5%) of the participants were attended primary school. A total of 163(51.4%) respondents had below five family members and the Respondent's mean ages were  $29.76 \pm 7.59$  years (Table 2).

Table 2: Socio demographic characteristics of women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317).

Variables	Category	Frequency (N)	Percent (%)
Age of mothers	15-24 years	85	26.81
	25- 34 years	185	43.53
	35 & above	94	29.65
Marital status	Married	257	81.07
	Currently not married	60	18.93
Residence	Urban	220	69.4
	Rural	97	30.6
Family size	<5 family size	163	51.4
	$\geq 5$ family size	154	48.6
Women's educational level	Not formally educated	85	26.81
	Primary education	116	36.59
	Secondary education	69	21.77
	College and above	47	14.83
Women's occupational status:	Farmer	167	52.68
	Merchant	57	17.98
	Civil servant	44	13.88
	House wife	37	11.67
	Student	12	3.79
Partner educational status (n=257)	Not formally educated	78	30.35
	Primary education	106	41.44
	Secondary education	28	10.89
	College and above	45	17.50
Partner occupational status (n=257)	Farmer	112	43.57
	Merchant	70	27.23
	Civil servant	40	15.56
	Daily laborer	5	1.94
	Student	30	11.67

## 6.2. Obstetrics related characteristics

Regarding parity, 276 (87.0%) of respondents had given below five birth. Out of the total respondents, 238 (75.1%) of them had a desire to have more children in the near future. From respondents who desire to have a child, 157 (66%) of them reported desire to have a child after two years and 81 (34%) of them reported desire to have a child with two years.

## 6.3. Health Facility and client related characteristics

Regarding the place of insertion of Implanon, 193 (60.88%) of respondents received the Implanon insertion service from NGO clinics. 257 (81.07%) participants were deciding by own to insert the current Implanon. Concerning the reason of chooses Implanon method, 261 (55.5%) of respondents reported reason for choosing Implanon was due to long term protection (Table 3).

Table 3: Health Service and client characteristics of women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317).

Variables	Category	Frequency(N)	Percent (%)
Place of Implanon insertion	Hospital	49	15.5
	Health centers	75	23.7
	Family Guidance Association	97	30.6
	Marie stops	96	30.3
Decision maker for insertion of Implanon	Own choice	257	81.07
	My Partner	23	7.26
	Health professional	37	11.67
Reason for choosing Implanon (some clients had more than one response)	Safety	79	24.9
	Long protection	261	82.3
	Can be removed at any time	130	41.0
Discussed with Partner to use Implanon	Yes	195	75.87
	No	62	24.1
Obtained counseling prior to insertion	Yes	297	93.69
	No	20	6.31
Information obtained during counselling (some clients had more than one response)	Advantage of the method	135	42.5
	Duration of action	244	76.9
	A side effect of the method	186	58.7
Type of counseling	Individual	253	85.19
	Mass	27	9.09
	With Partner	17	5.72
Had followed up	Yes	21	6.62

	No	296	93.38
History of Chronic illness	Yes	37	11.7
	No	280	88.3

#### 6.4. Method-related characteristics

Out of 317, 263 (83%) respondents had used contraceptives before the current Implanon use. From those, 154 (48.6%) used injectable followed by Implanon 74 (23.3%), (Table 4).

Table 4: Method-related characteristics of women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317).

Variables	Category	Frequency(n)	Percent (%)
Type of contraceptive they used just before current Implanon	OCP	26	8.2
	Injectable	154	48.6
	Implanon	74	23.3
	Jadle	9	2.8
	Not used any contraceptive	54	17
Developed contraceptive side effect	Yes	183	57.7
	No	134	42.3
Reason for removal of current Implanon	Method expired	225	71.0
	Desire for having children to the future	41	13
	Method shifting	38	12
	Side effects	40	12.6
	Partner lives away	8	3.1
	Divorce	6	1.9

Regarding reasons of Implanon removal side effects were 40 (12.6%). Among women who developed side effects, menstrual disturbance was the major 20 (50%).

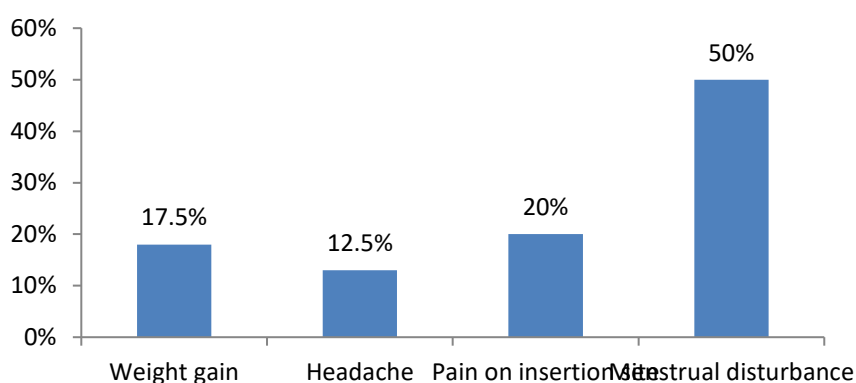


Figure 3: the main side effects of Implanon the women experienced among who requested removal of Implanon in Dessie town administration health facilities, Northeast Ethiopia 2021.

## 6.5. Implanon Discontinuation

Out of 317 respondents, women who participated in this study, the Implanon discontinuation rate was ninety two (29%) (95% CI: 23.9, 34.0) and they had used it for 6 to 35 months, with a median time of 24 months and Inter quartile range 7.75(26-18.25) months. The fifty seven (62%) of the discontinuers had used Implanon with in 24 months. The main reasons for the discontinuation were a desire for having children to the future forty one (44.6%), side effects forty (43.5%) and method shift thirty eight (41.3%).

### 6.5.1. Implanon discontinuation by selected characteristics

Among the discontinuers, fifty two (56.5%) were between the ages of 25 and 34 years. Additionally, seventy five (81.3%) of those who discontinued the Implanon were married, thirty one (33.7%) of them lived in rural areas (Table 5).

Table 5: Implanon discontinuation by selected characteristics of women who requested removal of Implanon in Dessie town, Northeast Ethiopia 2021 (n = 317)

Variables	Category	Implanon discontinuation	
		Yes (%)	No (%)
Age	15-24	18 (19.6%)	67(29.8%)
	25-34	52(56.5%)	86 (38.2%)
	>34	22(23.9%)	72(32.0%)
Marital status	Married	75(81.5%)	182(80.9%)
	Currently not married	17(18.5%)	43(19.1%)
Family size	<5	49(53.3%)	115(51.1%)
	≥5	43(46.7%)	110(48.9%)
Residence	Urban	61(63.8%)	159(70.7%)
	Rural	31(33.7%)	66(29.3%)
Decision maker	My own	75(81.5%)	182(80.9%)
	Others	17(18.5.3%)	43(19.1%)
Discussed with partner	Yes	56(60.9%)	139(61.8%)
	No	36(39.1%)	86(38.2%)

## 6.6. Factors associated with Implanon Discontinuation

Factors were assessed for the presence of association with the discontinuation of Implanon in bi-variable analysis. Hence, women education level, parity, history of chronic disease and counseled during insertion were the candidate variables for the final model using p-value less than 0.25 as the cut of points. Then, multivariable logistic regression analysis was done and found that counseled during insertion, parity and history of chronic disease were statistically significant at p-value <0.05.

Women who had history of chronic illness were 2.78 times discontinue the Implanon than those who had no history of chronic disease (AOR=2.78, 95%CI (1.32, 5.86)). The odds of discontinue Implanon among women who had below five parity were 3.5 times discontinue than those who had above five giving birth (AOR = 3.51, 95% CI (1.18, 10.46)) Similarly, women who didn't obtained counseling during Implanon insertion were 6.7 times discontinue than those who were counseled (AOR =6.74, 95% CI (2.46, 18.50)) (Table 6).

Table 6: Factors associated with Implanon discontinuation among women who requested removal of Implanon in Dessie town administration public and NGO health facilities, Northeast Ethiopia 2021 (n = 317).

Variables		Implanon discontinuation		COR (95% CI)	AOR(95%CI)
		Yes	No		
Educational status	Not Educated	22(26%)	63(74%)	1.02 (0.45 - 2.30)	1.37(0.57- 3.32)
	Primary	43(37%)	73(63%)	1.72 (0.81 - 3.66)	1.96 (0.86 - 4.47)
	Secondary	15(21.7%)	54(78.2%)	0.81 (0.34 - 1.93)	1.04 (0.40 -2.65 )
	12+ grade	12(25.5%)	35(74.5%)	1	1
Parity	< 5	88(31.9%)	188(68.1%)	4.33 (1.50-12.52)	<b>3.51 (1.18 - 10.46)*</b>
	> =5	4(10%)	37(90%)	1	1
History of chronic disease	Yes	20(54%)	17(46%)	3.40 (1.69 -6.84)	<b>2.78( 1.32 - 5.86)*</b>
	No	72(25.7%)	208(74.3%)	1	1
Obtained Counseling	No	16(72.7%)	6(27.3%)	7.68 (2.90 - 20.35)	<b>6.75 (2.46 - 18.50)*</b>
	Yes	76(26%)	219(74%)	1	1

*Bold and \* (significant at alpha 0.05)*



## 7. DISCUSSION

In this study, the overall discontinuation rate of Implanon was 29% (95% CI: 24.9, 34.0) with the median duration of use 24 months. This finding is consistent with studies conducted in Arsi, Southeast Ethiopia, where 25% of women using the Implanon discontinued within three years (13). However, the current study is lower than studies conducted in Debre Markos town 46.5% (22), in Ambo 46.3%(22), in Mekele city 62%(23), in Ethiopia demographic and health surveys 46.18% (38) and in Australia 47% (17).The reason for this discrepancy might be due to the educational status of the study participants, as the majority of women in this study (73.2 %) were primary educated and above, compared with those in Debre Markos(21) and Ambo (22), Ethiopia study and governmental implementations done to minimize discontinuation of Implanon might be a reason(the Ethiopian government has updated its commitment to improve the distribution of contraception: the prevalence rate of modern contraceptive use is planned to increase to 55 % by 2020(38).The odds of discontinue Implanon among women who had below five parity were 3.5 times discontinue than those who had above five parity (AOR = 3.51, 95% CI (1.18, 10.46)).This finding is supported by studies conducted in Bahir Dar, Ethiopia (27),in Bangladesh (8) and in Democratic Republic of Congo (18). A possible justification could be that women who had above five(grand multiparous women) may be more motivated to continue using Implanon since they are more likely to have achieved their intended family size and may be more driven to avoid another pregnancy (18).

Additionally, women who had below five giving birth might intend to have children and 43.5% of the present study women were between 25 and 34 years of age. Since they were young, they may intend to have more children and discontinue the Implanon.

Moreover, those Nulliparous women may be in a relationship at the time of insertion and once married, they may have a strong desire and pressure to have a child (20).

The odds of Implanon discontinuation among women who did not get counseling prior to insertion was 6.7 times discontinue than those who were counseled (AOR =6.74, 95% CI (2.46, 18.50). This result is consistent with other studies (20, 21, 25, 27, 37). The possible reason for this might be women who did not get pre-insertion counseling may not accept and tolerate minor side effects and possibly they may seek remove the method before the recommendation time. On the other hand, the information provided during counseling can clear their concerns or misconceptions related to the method causing remove before the recommendation time (39).

Lastly, Women who had history of chronic illness were 2.78 times discontinue the Implanon than those who had no history of chronic disease (AOR=2.78, 95%CI (1.32, 5.86).The possible justification might be related to the risk of co-occurrence of Implanon side effects and drugs that are used to treat chronic illness may accelerate the removal time secondary to failing to tolerate multiple side effects.

Furthermore, women with chronic disease may consider that Implanon side effects might worsen their chronic illness, thus shortening the Implanon removal time (40-42).

## **8. LIMITATION AND STRENGTH**

### **8.1. Limitation of the study**

History of chronic disease was self-report method; this may have recall bias and limitation related to presence of chronic disease diagnosis which is self-report.

A face-to-face interview could have yielded a more socially acceptable response. As a result, social desirability bias may occur.

## 9. CONCLUSION AND RECOMMENDATION

### 9.1. Conclusion

Implanon discontinuation rate in this study is relatively low. Did not obtained counseling during Implanon insertion, having history of chronic disease and parity were found to have a significantly positive associated with Implanon discontinuation.

### 9.2. Recommendations

For health service providers:

- Health professionals could be give pre insertion counseling with giving emphasis on possible Implanon side effects.
- Needs to screen for presence of chronic disease as well as giving appropriate care and treatment while Implanon insertion to improve Implanon retention.

For researchers:

- More importantly, researchers should be invited to study further with cohort (follow up) study design.

## 10. REFERENCE

1. BRIEF P. Contraceptive implants. reproductive health supplies colalition. March 2012.
2. Jacobstein R, Polis CB. Progestin-only contraception: injectables and implants. *Best Practice & Research Clinical Obstetrics & Gynaecology*. 2014;28(6):795-806.
3. Alie MS, Abebe GF, Negesse Y. Magnitude and determinants of unmet need for family planning among reproductive age women in East Africa: multilevel analysis of recent demographic and health survey data. *Contraception and Reproductive Medicine*. 2022;7(1):1-11.
4. Azmat SK. Models to accelerate modern family planning/contraceptive services access and uptake among married women in rural Pakistan [doctoral research]. Ghent: Ghent University. 2017.
5. Asnake M, Henry EG, Tilahun Y, Oliveras E. Addressing unmet need for long-acting family planning in Ethiopia: Uptake of single-rod progestogen contraceptive implants (Implanon) and characteristics of users. *International Journal of Gynecology & Obstetrics*. 2013;123:e29-e32.
6. Zeleke GT, Zemedu TG. Modern contraception use and associated factors in Ethiopia: Evidence from the 2019 Ethiopian Mini Demographic and Health Survey. 2022.
7. Ali MM, Cleland JG, Shah IH, Organization WH. Causes and consequences of contraceptive discontinuation: evidence from 60 demographic and health surveys. 2012.
8. Mahumud RA, Hossain MG, Sarker AR, Islam MN, Hossain MR, Saw A, et al. Prevalence and associated factors of contraceptive discontinuation and switching among Bangladeshi married women of reproductive age. *Open Access Journal of Contraception*. 2015;6:13.
9. Ontiri S, Ndirangu G, Kabue M, Biesma R, Stekelenburg J, Ouma C. Long-acting reversible contraception uptake and associated factors among women of reproductive age in rural Kenya. *International journal of environmental research and public health*. 2019;16(9):1543.
10. Tsui AO, Brown W, Li Q. Contraceptive practice in sub-Saharan Africa. *Population and development review*. 2017;43(Suppl Suppl 1):166.
11. Jain AK, Winfrey W. Contribution of contraceptive discontinuation to unintended births in 36 developing countries. *Studies in family planning*. 2017;48(3):269-78.
12. Chirina S, Goddard JA, Carr KB, Carek PJ. Satisfaction, early removal, and side effects associated with long-acting reversible contraception. *Fam Med*. 2013;45(10):701-7.
13. Burusie A. Reasons for premature removal of Implanon among users in Arsi zone, Oromia region, Ethiopia, 2013. *Reproductive System & Sexual Disorders: Current Research*. 2015;4(1):1-6.
14. T GM, Gebrekidan KG, Nerea MK, Gerezgiher H, Haftu M. Early Implanon discontinuation rate and its associated factors in health institutions of Mekelle City, Tigray, Ethiopia 2016/17. *BMC Res Notes*. 2019;12(1):8.
15. Peterson AM, Brown A, Savage A, Dempsey A. Prevalence of early discontinuation and associated factors among a retrospective cohort of etonogestrel contraceptive implant users. *The European Journal of Contraception & Reproductive Health Care*. 2019;24(6):475-9.
16. Berlan E, Mizraji K, Bonny AE. Twelve-month discontinuation of etonogestrel implant in an outpatient pediatric setting. *Contraception*. 2016;94(1):81-6.
17. Weisberg E, Bateson D, McGeechan K, Mohapatra L. A three-year comparative study of continuation rates, bleeding patterns and satisfaction in Australian women using a subdermal contraceptive implant or progestogen releasing-intrauterine system. *The European Journal of Contraception & Reproductive Health Care*. 2014;19(1):5-14.
18. Akilimali P, KP K. Incidence and determinants of Implanon discontinuation: Findings from a prospective cohort study in three health zones in Kinshasa, DRC. *PloS one*. 2020;15(5):e0232582.
19. Dagnew GW, Gelaw YM, Asresie MB, Anteneh ZA. Level and timing of Implanon discontinuation and associated factors among women who used Implanon in Andabet District, public health facilities, North-West Ethiopia. *BioMed research international*. 2021;2021.
20. Melkamu Asaye M, Syoum Nigussie T, Mequannt Ambaw W. Early Implanon discontinuation and associated factors among Implanon user women in Debre Tabor town, public health facilities, Northwest Ethiopia, 2016. *International journal of reproductive medicine*. 2018;2018.

21. Siyoum M, Mulaw Z, Abuhay M, Kebebe H. 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. *ARC Journal of Public Health and Community of Medicine*. 2017;2:8-16.
22. Mamo K, Siyoum M. Premature implanon discontinuation and associated factors among implanon user women in Ambo town, Central Ethiopia. *J Health Med Nurs*. 2019;58.
23. Gebrekidan KG, Nerea MK, Gerezgiher H, Haftu M. Early Implanon discontinuation rate and its associated factors in health institutions of Mekelle City, Tigray, Ethiopia 2016/17. *BMC research notes*. 2019;12(1):1-6.
24. Thida T, Liabsuetrakul T, McNeil E. Disparity in utilization and expectation of community-based maternal health care services among women in Myanmar: a cross-sectional study. *Journal of Public Health*. 2019;41(1):183-91.
25. Nageso A, Gebretsadik A. Discontinuation rate of Implanon and its associated factors among women who ever used Implanon in Dale District, Southern Ethiopia. *BMC Womens Health*. 2018;18(1):189.
26. Abebe BA, Assefa N, Mengistie B. Discontinuation of Reversible Long-Acting Contraceptive and Associated Factors among Female Users in Health Facilities of Hawassa City, Southern Ethiopia: Cross-Sectional Study. *Open Access Journal of Contraception*. 2020;11:113.
27. Yehuala T, Melese E, Bogale KA, Dagnew B. Determinants of implanon discontinuation among women who use implanon at Bahir Dar town health institutions, Northwest Ethiopia, 2019: a case-control study. *Evidence-Based Complementary and Alternative Medicine*. 2020;2020.
28. Tesfaye K. Early Discontinuation of Implant and Its Associated Factors among Women Who Ever Used Implant in 2017/2018 in Hawassa Health Centers, Southern Ethiopia, 2019. *jmccr*. 2019;2(7).
29. Habte A, Wondimu M, Abdulkadir H. Survival time to Implanon discontinuation and its predictors among a cohort of Implanon users who enrolled in public hospitals of southern Ethiopia, 2021: a retrospective cohort study. *Archives of Public Health*. 2022;80(1):1-16.
30. Ssebatta G, Kaye DK, Mbalinda SN. Early contraceptive implants removal and its associated factors among women using implants at a National Referral Hospital, Kampala Uganda. *BMC Women's Health*. 2021;21(1):1-9.
31. Barden-O'Fallon J, Speizer IS, Calhoun LM, Corroon M. Women's contraceptive discontinuation and switching behavior in urban Senegal, 2010–2015. *BMC women's health*. 2018;18(1):1-9.
32. Yehuala T, Melese E, Bogale KA, Dagnew B. Determinants of Implanon Discontinuation among Women Who Use Implanon at Bahir Dar Town Health Institutions, Northwest Ethiopia, 2019: A Case-Control Study. *Evid Based Complement Alternat Med*. 2020;2020:9048609.
33. Tadesse A, Kondale M, Agedew E, Gebremeskel F, Boti N, Oumer B. Determinant of Implanon discontinuation among women who ever used Implanon in Diguna Fango District, Wolayita zone, southern Ethiopia: a community based case control study. *International journal of reproductive medicine*. 2017;2017.
34. Muthir J, Nyango D. Indications for removal of etonogestrel implant within two years of use in Jos, Nigeria. *East African Medical Journal*. 2010;87(11).
35. Aminu MB, Dattijo LM, Shehu AM, Kadas SA, Chama CM. Factors responsible for discontinuation of long-term reversible contraceptives in a tertiary facility in Northeastern Nigeria. *Port Harcourt Medical Journal*. 2019;13(2):67.
36. Adane M, Teka B, Gismu Y, Halefom G, Ademe M. Food hygiene and safety measures among food handlers in street food shops and food establishments of Dessie town, Ethiopia: a community-based cross-sectional study. *PloS one*. 2018;13(5):e0196919.
37. Birhane K, Hagos S, Fantahun M. Early discontinuation of implanon and its associated factors among women who ever used implanon in Ofla District, Tigray, Northern Ethiopia. *International Journal of Pharma Sciences and Research*. 2015;6(3):544-51.

38. Weldemariam KT, Gezae KE, Abebe HT. Reasons and multilevel factors associated with unscheduled contraceptive use discontinuation in Ethiopia: evidence from Ethiopian demographic and health survey 2016. *BMC public health*. 2019;19(1):1-15.
39. Dehlendorf C, Levy K, Kelley A, Grumbach K, Steinauer J. Women's preferences for contraceptive counseling and decision making. *Contraception*. 2013;88(2):250-6.
40. Vicente L, Mendonça D, Dingle M, Duarte R, Manuel Boavida J. Etonogestrel implant in women with diabetes mellitus. *The European Journal of Contraception & Reproductive Health Care*. 2008;13(4):387-95.
41. Patel RC, Morroni C, Scarsi KK, Sripipatana T, Kiarie J, Cohen CR. Concomitant contraceptive implant and efavirenz use in women living with HIV: perspectives on current evidence and policy implications for family planning and HIV treatment guidelines. *Journal of the International AIDS Society*. 2017;20(1):21396.
42. Dunlop AL, Jack BW, Bottalico JN, Lu MC, James A, Shellhaas CS, et al. The clinical content of preconception care: women with chronic medical conditions. *American journal of obstetrics and gynecology*. 2008;199(6):S310-S27.

## 11. APPENDIXES

### 11.1. Appendix I: Information sheet (English Version)

BAHIR DAR UNIVERSITY  
COLLEGE OF HEALTH SCIENCE  
SCHOOL OF PUBLIC HEALTH

#### Preamble

Hello. My name is..... and I am working as a data collector in a study entitled “Implanon Discontinuation and its associated factors among women who requested removal of Implanon in Dessie town, Northeast Ethiopia; cross-sectional study” by Mekdes Alie Wodajo from Bahir Dar University, College of Medicine and Health Sciences, School of Public Health.

The objective of this study is to assess the Implanon discontinuation and its associated factors among women who requested removal of Implanon in Dessie town, Northeast Ethiopia, 2021. We are collecting some detail information on family planning/birth spacing knowledge and practices, barriers of family planning, source of care. Please be assured that all the information given by you will be kept strictly confidential. Your participation in this survey is completely voluntary. There will be no cost for you to join other than the time you spend with us. We would highly appreciate your cooperation. You have the right to withdraw at any time without penalty or decline to answer any specific questions without any explanations or penalty. I would like to highly appreciate your cooperation and assistance. However, providing honesty response for the questions will contribute generating quality and factual outcome for the study.

Thank you and appreciate your help on participating in our job, interview by the way will not take more time, not more than an hour. If you need further clarity regarding this study, you may contact: Principal Investigator: Mekdes Alie Wodajo, 0925214183

Are you willing to participate in the study? 1. Yes 2. No

If yes, continue to the Next Page (encircle or write the response accordingly)



## 11.2. **Appendix II:** Consent form (English Version)

In undersigning this document, I am giving my consent to participate in the study. I have been informed that the purpose of this study is to assess the Implanon discontinuation and its associated factors among women who requested removal of Implanon in public and NGO health institution of Dessie town. I have understood that participation in this study is entirely voluntary and my identity will not be disclosed to the third party. I have also been informed that my participation or my refusal to take part will not affect the care I receive from the hospital. I understood that participation in this study imposes no risk to me. I understood that Mekdes Alie Wodajo is the contact person if I have questions about the study or about my rights as a study participant. Now I am giving my consent to participate in the study voluntarily.

Signature of the participant \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Data collector

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

### 11.3. Appendix III: Questionnaire (English version)

Date of Interview \_\_\_\_\_ Questionnaire code \_\_\_\_\_

Time Started \_\_\_\_\_ Time Finished \_\_\_\_\_

Name of Interviewer \_\_\_\_\_

Supervised & checked by \_\_\_\_\_

Instruction: -Circle the response alternative (s) accordingly and write the answer given by the respondent in simple and clear word for data that need filled.

Part. Socio-demographic characteristics of the participants in Dessie town Amhara Region, North East Ethiopia, 2021

Code	Question	Response	Skip
101	Age	-----Years	
102	Marital status	1.Married 2.Single 3.Separated/divorced 4.Widowed	
103	Family size (enter in the space)	-----	
104	Residence?	1. Urban 2. Rural	
105	Educational status of women	1. No formal education 2. Primary education (1-8) 3. Secondary education (9-12) 4. College and Above	
106	Occupational status of women	1.Farmer 2.Merchant 3. Government Employee 4. House wife	

107	Educational status of women's partner	1. No formal education 1. Primary education (1-8) 2. Secondary education (9-12) 3. College and Above	
108	Occupational status of women's Partner	1. Farmer 2. Merchant 3. Civil servant, 4. Daily laborer 5. Other (specify).....	

Part II. Obstetric-Related Factors for Implanon Discontinuation in Dessie town Amhara region, North East Ethiopia, 2021

Code	Question	Response	Skip
201	Number of parities?	------(numbers)	
202	Current Number of living children?	------(numbers)	
203	Have you a desire for having children to the future?	1. Yes 2. No	
204	If yes question 203, when they having children to the future?	1. Within 2 years 2. After 2 years	

Part III Health Service and client related factors for Implanon Discontinuation in Dessie town Amhara Region, North East Ethiopia, 2021

Code	Question	Response	Skip
301	Place of insertion current contraceptive Implanon	<ol style="list-style-type: none"> <li>1. Hospital</li> <li>2. Health centers</li> <li>3. Family Guidance Association</li> <li>4. Maristops</li> </ol>	
302	Who was decision maker for insertion of Implanon?	<ol style="list-style-type: none"> <li>1. Own choice</li> <li>2. My partner</li> <li>3. Health professional</li> <li>4. Others</li> </ol>	
303	Have you freely discuss on Family planning choice to your Partner	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>	
304	What is your reason for choosing this method (more than one answer possible)?	<ol style="list-style-type: none"> <li>1. Safety</li> <li>2. Long protection</li> <li>3. Can be removed at any time</li> <li>4. Others .....</li> </ol>	
305	Did you get counselling prior to insertion?	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> </ol>	
306	If yes to question 305 what information obtained during counselling (more than one answer possible)?	<ol style="list-style-type: none"> <li>1. Advantage of the method</li> <li>2. Duration of action</li> <li>3. Side effect</li> <li>4. Other</li> </ol>	
307	What type of counselling is given?	<ol style="list-style-type: none"> <li>1. Individual</li> <li>2. Mass</li> <li>3. With partner(couple)</li> </ol>	

308	Did you have a follow up after insertion?	1. Yes 2. No	
309	If Yes question 308 How much?	-----	
310	Did you have a known diagnosed Chronic illness?	1. Yes 2. No	
311	If yes question 310, Which type of Chronic illness, occurred?	1 Metabolic Disorder(Hypertension, Diabetes Mellitus, Hyperthyroidism) 2 Humanimmuno deficiency virus(HIV) 3 Tuberculosis(TB) 4 Chronicheartdisease(CHD) 5 Other (Specific)-----	

Part IV. Method related for Discontinuation of Implanon in Dessie town Amhara Region, North East Ethiopia, 2021

Code	Question	Response	Skip
401	Have you Contraceptive used just before current Implanon?	1. Yes 2. No	
402	If yes question 401, Which Type of contraceptive used?	1. OCP 2. Injectable 3. Implanon 4. Jadle 5. IUCD 6. Other----- (specific)	
403	For question 402, Have you ever experienced side effects?	1. Yes 2. No	

404	Duration of current Implanon use until removal?	----- ( in month)	
405	Which is the reason to you need for remove Implanon?	<ol style="list-style-type: none"> <li>1. Side effect/Health concern</li> <li>2. Shifting other Method</li> <li>3. Desire for having children to the future</li> <li>4. Marital separation/Divorce</li> <li>5. Method expired</li> <li>6. Partner lives away</li> <li>7. Other(-----)specific</li> </ol>	
406	If the reason is side effect 405, no.1, Which type of side effect you experienced?	<ol style="list-style-type: none"> <li>1. Menstrual disturbance</li> <li>2. Pain on insertion site</li> <li>3. Head ache</li> <li>4. Weight gain</li> <li>5. Other----- (Specified)</li> </ol>	

Thank you for your cooperation!!

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

11.4. Appendix IV: Information sheet (Amharic Version)

ተጨማሪ መግለጫዎች

ባህርዳር ዩኒቨርሲቲ

ጤና ሳይንስ ኮሌጅ

የፕብሊክ ሄልዝ ትምህርት ቤት

አባሪ: የመረጃ ሰነድ

ጤና ይሰጥልኝ ስሜ \_\_\_\_\_ ይባላል።

በአሁኑ ስድስት ወር ደሴ ከተማ ላይ በኢምፕላናን የቤተሰብ እቅድ ተጠቃሚዎች ላይ የሚያስወጡበትን ጊዜ እና እንድሁም ተጽእኖ ሊያሳድሩ የሚችሉ ነገሮች ላይ በሚደረገው ጥናት ወሰጥ የጥናት ቡድን አባል ነኝ።

የጥናቱ አላማ ኢምፕላናን የሚጠቀሙ ሴቶች ሚያስወጡበትን ጊዜ እና ተጽእኖ ሊያሳድሩ የሚችሉ ነገሮችን ለማየት ሲሆን እርስዎም በጥናቱ ላይ እንዲሳተፍ ተመርጧል። ይህ የጥናቱ አንድ ክፍል ስለሆነ በግል ሁኔታዎ እና በሌሎች ለዚህ ተግባር አስፈላጊ በሆኑ ጉዳዮች ላይ አንዳንድ ጥያቄዎችን እጠይቅዎት አለሁኝ።

የምጠይቀዎት ጥያቄም በቀላሉ ሊመለሱ የሚችሉ ሲሆኑ ነገር ግን የሚሰጡኝ መረጃ ሚስጥራዊነቱ የተጠበቀ ይሆናል። ማለትም ከዚህ የጥናት ቡድን አባላት ወጪ ማንም አያውቀውም። ስምዎትም አይጻፍም።

ጥናቱ በአማካኝ 20 ደቂቃ ሊወስድ ይችላል። ነገር ግን የትኛውም አይነት ጥያቄ ካለዎት እኔን ከመጠየቅ ወደጎላ እንዳይሉ። በተጨማሪም ጥናቱን ወይም የጥናቱን ቅድመ ተከተል በተመለከተ ማንኛውንም ጥያቄ በማንኛውም ጊዜ ለመጠየቅ ከዚህ በታች የተጠቀሱትን አድራሻ ይጠቀሙ።

ስም: መቅደስ አሌ ወዳጆ ስልክ፣ 0925214183

በጥናቱ ላይ መሳተፍዎ በፍቃደኝነት ላይ የተመሰረተ ሲሆን መመለስ የማይፈልጉት ጥያቄ ካለዎት እና ወደ ቀጣዩ ጥያቄ እናልፋለን። ቃለ ምልልሱን በፈለጉት ጊዜ ማቋረጥ የሚችሉ ቢሆንም የሚሰጡን መረጃ ጠቃሚ ስለሆነ ና በጥናቱ ጥራትና ውጤታማነት ላይ ከፍተኛ አስተዋጽኦ ስለሚኖረው እንዲሳተፉ በትህትና እንጠይቅዎታለን።

በዚህ ጥናት ላይ ለመሳተፍ ፈቃደኛ ነዎት?

አዎ.....ወደ ሚቀጥለው ገጽ ይለፉ( በጣም አመሰግናለሁ)

አይ.....ወደ ሚቀጥለው ተሳታፊ ይለፉ

11.5. **Appendix V:**Consent form (Amharic Version)

አባሪ II: የስምምነት ቅፅ

በዚህ ሰነድ ላይ በመለያዬ በመሳተፌ ፈቃደኝነቴን እሰጣለሁ። የዚህ ጥናት ዓላማ በደሴ ከተማ የኢምፕላናን የቤተሰብ እቅድ ተጠቃሚዎች ሲያስወጡ የሚያስወጡበትን ጊዜ እና ተያያዥ ምክንያቶችን ለማጥናት መሆኑን ተነግሮኛል። በዚህ ጥናት መሳተፍ ሙሉ በሙሉ በፈቃድ ውስጥ የተካተተ እንደሆነና የእኔን ማንነት ለሶስተኛ ወገን እንደማይሰጥ ተረድቻለሁ። በተጨማሪም የእኔ መሳተፌ ወይም አለመሳተፌ በተቋሙ ከሚሰጠው አገልግሎት ጋር ምንም ችግር እንደሌለው ተነግሮኛል። በዚህ ጥናት ውስጥ መሳተፍ ለኔ ምንም ችግር እንደማይፈጥር ተረድቻለሁ። ስለ ጥናቱ ወይም እንደተሳታፊ ስለመብቶቼን አስመልክቶ ጥያቄዎች ካሉኝ መቅደስ አሌ ወዳጆ ተጠሪ መሆኑን ተረድቻለሁ።

አሁን በፈቃደኝነት በጥናቱ ለመሳተፍ ሰጥቻለሁ።

የተሳታፊው ፋርማ \_\_\_\_\_ ቀን \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

መረጃ ሰብሳቢ

ስም \_\_\_\_\_ ፋርማ \_\_\_\_\_ ቀን \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

11.6. **Appendix VI :**Questionnaire (Amharic Version)

ክፍል አንድ: የግልና ማህበራዊ መረጃዎች

1. ቃለ መጠይቁ የተካሄደበት ሰዓት የተጀመረበት-----የተጠናቀቀበት-----
2. ቃለ-መጠይቁ የተካሄደበት ቀን/ወር/ዓ.ም -----ከድ-----
3. የጠያቂ ስም-----
4. የተቆጣጣሪ ስም-----

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
101	እድሜዎት ምን ያህል ነው? (ሙሉ አመት)	-----	
102	የጋብቻ ሁኔታዎ ምን ይመስላል?	<ol style="list-style-type: none"> <li>1. ያገባች</li> <li>2. ያላገባች</li> <li>3. የፈታች</li> <li>4. የሞተባት</li> </ol>	
103	የቤተሰብ አባላት ብዛት ምን ያህል ነው?		



		.....	
104	የመኖሪያ አካባቢዎ የትነው	<ol style="list-style-type: none"> <li>1. ከተማ</li> <li>2. ገጠር</li> </ol>	
105	የእርስዎ ትምህርት ደረጃ	<ol style="list-style-type: none"> <li>1. መደበኛ ያልተማረ</li> <li>2. የመጀመሪያ ደረጃት/ት የተከታተሉ</li> <li>3. ሁለተኛ ደረጃ ት/ት የተከታተሉ</li> <li>4. ከፍተኛት/ት የተከታተሉ</li> </ol>	
106	የእርስዎ ስራ ሁኔታ	<ol style="list-style-type: none"> <li>1. አርሶ አደር</li> <li>2. ነጋዴ</li> <li>3. መንግስት ሰራተኛ</li> <li>4. የቤት እመቤት</li> <li>5. ሌላ _____</li> </ol>	
107	የባለቤትዎ ትምህርት ደረጃ	<ol style="list-style-type: none"> <li>1. መደበኛ ያልተማረ</li> <li>2. የመጀመሪያ ደረጃ ት/ት የተከታተሉ</li> <li>3. ሁለተኛ ደረጃ ት/ት የተከታተሉ</li> <li>4. ከፍተኛ ትም/ት የተከታተሉ</li> </ol>	
108	የባለቤትዎ ስራ ሁኔታ	<ol style="list-style-type: none"> <li>1. አርሶ አደር</li> <li>2. ነጋዴ</li> <li>3. መንግስት ሰራተኛ</li> <li>4. የቀን ሰራተኛ</li> <li>5. ሌላ _____</li> </ol>	

**ክፍል ሁለት: ወሊድ እና ወሊድነክ የሆኑ መጠይቅ በተመለከተ**

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
201	ከዚህ በፊት ስንት ልጅዎ ልደዋል?	-----	
202	አሁን ምን ያክል ልጆች አሉዎት?	----- (ቁጥር)	
203	ከዚህ በኋላ ልጅ መውለድ ይፈልጋሉ?	1. አወ 2. አይ	
204	ለጥያቄ 4 መልሳቸው አወ ከሆነ፣ መቸ ለመውለድ አስበዋል?	1. በሁለት አመት ውስጥ 2. ከሁለት ዓመት በኋላ	

**ክፍል ሶስት: የቤተሰብ እቅድ አገልግሎት አሰጣጥ እና ከኢምፕላናን ተጠቃሚዎች ጋር ተያያዥ ያላቸው ጥያቄዎች**

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
301	የአሁኑ ኢምፕላናን የገባልሽ የት ነው?	1. ሆስፒታል 2. ጤናጣቢያ 3. ቤተሰብ መምሪያ 4. ሜሪሰቶፕ	
302	ኢምፕላናን እንድትጠቀሚ የመረጠልሽ ማነው?	1. በራሴ 2. ባልተቤቴ 3. የጤና ባለሙያ	
303	ከባልተቤትሽ ጋር ስለቤተሰብ እቅድ ምርጫዎች በግልጽ ታወራላችሁ	1. አወ 2. አይ	
304	ኢምፕላናንን መጠቀም ለምን መረጣሽ?	1. ምቹ ስለሆነ 2. ለረጅም ጊዜ ዜስለሚያገለግል 3. በማንኛውም ስዓት ማስወጣትስ ለምችል 4. ሌላ ካለ -----	
305	ኢምፕላናን ከመጠቀምሽ በፊት የምክር አገልግሎት አግኝተሽ ነበር?	1. አወ 2. አይ	

306	ለጥያቄ 305 መልስዎ አወ ከሆነ ምን ምን የምክር አገልግሎት ተሰጥቶታል ነበር?	1. ስለቤተሰብ እቅድ ጥቅም 2. ለስንት ጊዜ እንደሚያገለግል 3. ስለጎንደር ጉዳይ 4. ሌላ ካለ-----	
307	የምክር አገልግሎት የተሰጥቶታል በምን አይነት መልኩ ነበር?	1. በግል 2. በጋራ ከብዙ እናቶች ጋር 3. ከባለቤቱ ጋር	
308	የኢምፕላኖን አገልግሎት ካገኘሽ በኋላ ክትትል አድርገሽ ታውቁዎለሽ?	1. አወ 2. አይ	
309	ለጥያቄ 308 አወ ከሆነ መልሳቸው ስንት ጊዜ ክትትል ነበረሽ?	----- (በቁጥር)	
310	ከዚህ በፊት በህክምና የተረጋገጠህ መምህራን ለበደህ	1. አወ 2. አይ	
311	ለጥያቄ 310 መልስዎ አወ ከሆነ ምን አይነት ህመም አጋጥሞታል?	1. የስካርህመም 2. የደምግፊት 3. ኢድስ 4. የሳምባ ነቀርሳ 5. የልብ ህመም ችግር 6 ሌላ ካለ-----	

**ክፍል አራት: ከኢምፕላኖን ጋር ተያያዥነት ያላቸው መጠይቆች**

ተ.ቁ	ጥያቄ	መልስ	ምርመራ
401	ከዚህ የቤተሰብ እቅድ በፊት ተጠቅመው ያውቀሉ	1. አወ 2. አይ	

402	ለጥያቄ 1 መልስዎ አወ ከሆነ የተጠቀሙት የእርግዝና መከላከያ አይነት ምን ነበር	<ol style="list-style-type: none"> <li>1. ከኒን</li> <li>2. መርፌ</li> <li>3. ኢምፕላናን</li> <li>4. ጃድል( የ5 ዓመት)</li> <li>5. ሉፕ</li> <li>6. ሌላ ካለ-----</li> </ol>	
403	በተጠቀሙት የወሊድ መከላከያ የጎንዮሽ ጉዳት አጋጥመዎት ነበር	<ol style="list-style-type: none"> <li>1. አወ</li> <li>2. አይ</li> </ol>	
404	የአሁኑን የእርግዝና መከላከያ ኢምፕላናን ለምን ያክል ጊዜ ተጠቀሙ	----- (በወር)	
405	ለጥያቄ 404 አሁን ያስወጡበት ምክንያት ምንድን ነው	<ol style="list-style-type: none"> <li>1. የጎንዮሽ ጉዳት</li> <li>2. እርግዝና ፈልገው</li> <li>4. ሌላ የተሻለ የእርግዝና መከላከያ ፈልገው</li> <li>5. ትዳሬስለተለያየሁ/ስለተፋታሁ</li> <li>6. የመውጫ ጊዜው ስለደረሰ</li> <li>7. ባልተቤቱ ወደ ውጭ አገር ስለሄደ</li> <li>8. ሌላ ምክንያት ካለ-----</li> </ol>	
406	ለጥያቄ 405 መልስዎ በጎንዮሽ ጉዳት ከሆነ ምን አይነት የጎንዮሽ ጉዳት ደርሶበት ነው	<ol style="list-style-type: none"> <li>1. የወር አበባ መዛባት</li> <li>2. ኢምፕላናን በገባበት ክንድ ላይ ህመም</li> <li>3. የራስ ምታት</li> <li>4. የክብደት መጨመር</li> <li>5. ሌላካለ----- ይጻፍ</li> </ol>	

ለትብብርዎ አመሰግናለሁ።

ተቆጣጣሪ፡

ስም \_\_\_\_\_ ፋርማ \_\_\_\_\_ ቀን \_\_\_\_ / \_\_\_\_ / \_\_\_\_