

**ADDIS ABABA UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
SCHOOL OF ALLIED HEALTH SCIENCES  
DEPARTMENT OF NURSING AND MIDWIFERY**

LEVEL OF ADHERENCE AND ASSOCIATED FACTORS TO OPTION B<sup>+</sup>  
PMTCT PROGRAMME AMONG PREGNANT & LACTATING MOTHERS IN  
SELECTED GOVERNMENT HEALTH FACILITIES OF SOUTH WOLLO  
ZONE, AMHARA REGION, NORTH EAST ETHIOPIA, 2016

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A RESEARCH THESIS TO BE SUBMITTED TO Addis Ababa  
UNIVERSITY COLLEGE OF HEALTH SCIENCES SCHOOL OF ALLIED  
HEALTH SCIENCE DEPARTMENT OF NURSING AND MIDWIFERY IN  
PARTIAL FULLFILLMENT OF THE REQUIRMENTS FOR THE  
MASTERS OF SCIENCE IN MATERNITY & REPRODUCTIVE HEALTH  
NURSING

**JUNE, 2016**

**ADDIS ABABA, ETHIOPIA**

**ADDIS ABABA UNIVERSITY  
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DEPARTMENT OF NURSING AND MIDWIFERY**

APPROVED BY BOARD OF EXAMINERS

This research thesis by Delelegn Tsegaye Zikie is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of masters of Science in maternity & reproductive health nursing

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## **Acknowledgement**

I like to acknowledge Addis Ababa University department of nursing & midwifery for giving this opportunity to do on this research project. I would like to express my heartfelt gratitude to my advisor Mr. Leul Deribe (B.Sc, Mph) for his unreserved guidance, constructive suggestions, comments and providing necessary materials & ideas for the development of this research thesis.

My thanks also extend to Addis Ababa University digital library staffs in their commitment for accessing internet service. I like to express my deepest gratitude to my colleagues & my families for their advice & support to do this research paper.

I would also like to express my deepest gratitude for all staffs of hospitals & health centers in these study areas for their willingness & cooperative in providing the necessary ideas & materials. I also thank all data collectors & supervisor for their active role to participate in this study. Last but by no means list I thank to my wife Trhas Zenfo & my daughter Eldana Delelegn for their support.

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## Abstract

**Introduction:** Adherence to ART among HIV positive pregnant & lactating mothers is a central component in PMTCT to reduce viral loads & achieve elimination of mother to child transmission of HIV. Option B+ PMTCT programme is a recently introduced approach to eliminate new HIV infection among children. This approach is based on treatment as prevention to mean starting lifelong ART for all HIV positive pregnant & lactating mothers without considering CD4 count or clinical stage of HIV/AIDS disease.

**Objectives:** The aim of this study was to measure the level of adherence and identify factors associated with adherence to option B+ PMTCT programme among pregnant & lactating mothers in selected government health facilities of south wollo zone, Amhara region, north east Ethiopia

**Method:** An institution based cross sectional quantitative study design was used. The study was conducted in two hospitals & five health centers found in south Wollo zone, Amhara region. The sample size required for this study was 191 HIV<sup>+</sup> pregnant & lactating mothers who were on PMTCT follow up. The study subjects were taken consecutively until the sample size was met from March 1 to April 14, 2016. Standard structured data collection instrument was used & it was collected by using face to face interviewing. The data were entered in to EpiData 3.1 then exported to statistical package for social science (SPSS) window version 21 for analysis. Entered data were explored for errors & missing values then it was cleaned before analysis. Bivariate and multivariate logistic regression analyses were employed to identify associated factors for adherence. P-value less than 0.05 with 95 % confidence interval was used to state the association between independent predictors and the outcome variable.

**Result:** A total of 190 HIV<sup>+</sup> pregnant & lactating mothers were included in this study. The level of adherence on option B+ PMTCT drug was 87.9 %. Factors such as those who attend in Hospital(AOR 0.3,95% CI(0.11-0.82)), rural residence (AOR 0.26, 95%CI (0.1-0.73) and those who faced challenges in the same day diagnosis of HIV and initiating lifelong option B+ treatment (AOR 0.08, 95%CI (0.02-0.37) were associated factors for adherence

**Conclusion & recommendation:** mothers who attended for option B+ drugs in health centers, those who lived in urban area and who had no any challenges in same day diagnosing & initiating option B+ drugs were significantly associated factors for better adherence to option B<sup>+</sup> drugs. Therefore, the ability to effectively handle these factors is crucial in the success of option B+ programme.

**Key words:** *adherence, Option B+, HIV<sup>+</sup> pregnant & lactating mothers, north east Ethiopia*

## **List of acronyms & abbreviations**

AIDS – Acquired immune deficiency syndrome  
AAU- Addis Ababa University  
ANC – Antenatal care  
ART- Antiretro viral treatment  
ARV – Antiretro viral  
Dx - diagnosis  
EDHS- Ethiopia Demographic and Health Survey  
EGPAF- Elizabeth Glaser Pediatric AIDS Foundation  
EMTCT- Elimination of mother to child transmission  
EMDHS - Ethiopia mini Demographic and Health Survey  
FMOH – Federal minster of health  
HAART – Highly active anti retroviral treatment  
HIV – Human immune virus  
HIV<sup>+</sup> \_ Human immune virus sero positive  
HCT – HIV counseling & testing  
MCH – maternal & child health  
MNCH- maternal newborn and child health  
MTCT - Mother to child transmission  
NGOs – Nongovernmental organizations  
PITC- Provider initiated testing & counseling  
PNC – post natal care  
TASH - Tikur anbessa specialized Hospital  
UNAIDS- Joint United Nations Programme for HIV and AIDS  
UNICEF- United Nations international Children’s Fund  
PMTCT - Prevention of mother to child transmission  
WHO- World health organization

## **Chapter 1: Introduction**

### **1.1 Background**

AIDS is still a major global health problem (1). It is one of the most serious public health and development challenges in sub-Saharan Africa (2). Mother to child transmission (MTCT) of human immunodeficiency virus (HIV) remains one of the major sources of HIV infection in young children (3). In 2013, 3.2 million children under the age of 15 were living with HIV globally, 91% of whom were in sub-Saharan Africa.

In 2012, over 900 000 HIV positive women living with HIV globally received antiretroviral prophylaxis or treatment (4). In order to address children born free from HIV/AIDS; WHO has started to implement different strategies for the optimization of PMTCT care and support. These were Option A, Option B, and Option B<sup>+</sup> (5).

Option B+ PMTCT transmits simple and strong message to HIV positive pregnant & lactating mothers ‘ART for life’ that promote good adherence and successful ART(6). Adherence to antiretroviral therapy is very essential because it is a lifelong activity which needs engagement to bring effectiveness in viral load suppression, preventing multi drug resistance and reducing the rate of MTCT of HIV(7).

In August 2012, the federal ministry of health of Ethiopia was adopted the option B+ PMTCT programe and started its implementation after wards (8). Although efforts to eliminate MTCT in Ethiopia is good; data from 2010 up to 2013 showed ARV treatment for HIV Positive pregnant women was 55% and also MTCT of HIV after the breast feeding period in 2012 & 2013 were 32% & 25% respectively(9). Generally, Ethiopia reached a decline of greater than 50% in new HIV infections among children from 2009–2013(10).

According to WHO report, women who had higher adherence level to ART results in more than 80% of their children protected from HIV than women with lower adherence rate. Among those who had higher adherence, the risk of MTCT was reduced by 54 % ( 11).

## **1.2 Statement of the problem**

Ethiopia was one of priority countries that have only 55% of pregnant women living with HIV on ART (10). Option B+ has different risk if the mother will not adhere to treatment by using appropriate health systems (12).

According to UNAIDS global report, the annual number of newly HIV infected children in 2012 was 260 000 in low and middle-income countries (10) and also report from UNICEF stated that the rate of HIV transmission from an HIV positive mother to her child if she is not receiving any antiretroviral medicines ranges between 30% and 45% depending on the duration of breastfeeding. One of the main goals of the global plan is to reduce this rate of mother to child HIV transmission to less than 5 % ( 12).

Malawi had experienced challenges with adherence to treatment (5). Similarly Ethiopia also faced different problems in adherence to ART as high percentage of pregnant mothers do not use the full course of lifelong treatment due to different reasons (13). Still, there are important programmatic, operational and clinical challenges and questions about option B+ that need to be addressed. From those challenges low adherence to ARV being one of them that may interfered the success of B+ PMTCT programme. The other problems and questions about option B+ PMTCT are the following;

Service organization and service delivery of ART in MCH, cost and sustainability of the drugs because of cost of ART is expensive that make the country to expense a lot, referral mechanisms and transitions from the PMTCT programme to HIV care and treatment programmes, concerns about HIV drug resistance with long term use of ART when initiated in early HIV disease, safety of increased ARV exposure for the fetus/infant, acceptability and equity of the service (14). These problems should be under consideration during option B+ implementation.

Maintaining adherence to prescribed ART among pregnant & lactating mothers continues to be a major public health concern in both high-income and low-income countries. Virologic and clinical success depend crucially on good adherence, the virus may quickly develop the therapy making drug resistance (15). ART adherence is very important among pregnant &

lactating mothers. But non-adherence increases the risk of virologic failure, maternal HIV disease progression and potential development of drug resistant virus, this may lead to increased risk of mother to child transmission(16,17). Low adherence is the main critical reason for poor treatment outcomes among people receiving antiretroviral therapy. In addition to directly affecting mothers' well-being, poor adherence may fasten the shift from first line to more expensive second-line regimens at an unnecessarily early stage (11).

According to study done in Afar region, Ethiopia in 2015 on adherence to ART among general population stated that 19% of clients on ART did not adhere to their drugs (18). Different studies in Ethiopia described different adherence level that is below 95% adherence which indicates not good level of adherence to brought good health outcomes & reduction of viral loads by ART (9,18).

Therefore, this study was helped to identify the level of adherence and associated factors to adherence in selected government health facilities of south wollo zone, Amhara region. The result of this study has helped to gain new knowledge on adherence to option B+ programme because this is a recent programme started in Ethiopia since 2012. There was only one study done in Ethiopia on adherence to option B+ PMTCT among pregnant mothers but did not include lactating mothers. So it is important to study on adherence to option B+ programme for both pregnant & lactating mothers to eliminate MTCT. This study finding will support the elimination of MTCT in the study area and in other areas of the country & also will help to enable pregnant & lactating mothers to seek intervention and to adhere to their treatment.

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

The importance of studying on level of adherence & associated factors to adherence of option B+ PMTCT drugs will assist the country to contribute on the progress of the option B+ PMTCT programme in the assistance to eliminate MTCT in future pregnancies that the country's main productive resource is the future young generation. This study will have its own benefit for different players playing their part in preventing the society from acquiring the disease at birth.

One of the significance of this study for nursing profession is that it will assist to provide evidence based practice on PMTCT option B+ service that will improve the promotive, preventive, curative & rehabilitative care of mothers & children. Mostly health workers will be benefited from this study because they will get sufficient & up to date data pertaining to option B+ adherence & associated factors through dissemination of the finding in different publication websites & outlets. It will also serves as a base line data for other researcher who will deal on option B+ PMTCT programme.

The other beneficiaries from this study are health service administrator, because it helps to identify the associated factors for adherence & help to provide interventions accordingly. Lastly but not least the population of south wollo zone, Amhara region mainly benefited in the goal of HIV free generation based on the problems or gaps identified; intervention will be provided by different concerned bodies or stakeholders that the population will be benefited.

## Chapter 2: Literature review

Until now world health organization used different approaches in PMTCT programme. These was option A, which consists of antepartum zidovudine(AZT) from 14 weeks of pregnancy, single dose nevirapine(sd-NVP) at the onset of labour and a dual drug regimen of zidovudine(AZT) and lamivudine (3TC) until one week after delivery. Option A has been difficult to implement in many low resource settings due to the challenges in drugs delivered across the care continuum ( ANC, delivery and post natal care) and the requirement for timely CD4 testing to initiate ART for their own health(14).

In option B, mothers receive triple drug antiretroviral prophylaxis starting from 14 weeks of pregnancy until all exposure to breast milk has ended. Determination of women who are eligible for lifelong ART and which women receive prophylaxis is primarily through CD4 screening.

World health organization now recommended option B+ approach since 2011 to Prevent MTCT. Option B+ PMTCT service is only intended for pregnant and breastfeeding women. It stated that for all HIV positive pregnant & lactating mothers it should be given ART at the time of diagnosis regardless of CD4 count or clinical stages. Once daily simplified triple ART regimen containing TDF/3TC/EFV are given and the treatment is continued for the duration of the mother's life to help maintain the best health outcomes of the mother. Option B+ provides greater assurance that women in need of treatment receive a fully suppressive triple ARV regimen to minimize the risks of infant infection and maximize the benefit to their own health (14, 19).

It is known that HIV/AIDS requires near perfect adherence to obtain successful treatment outcomes. Recent studies have estimated the required level of adherence for sustained virological suppression to be about 95 percent (16). ART adherence is fundamental for pregnant and lactating women. The most serious problem of non-adherence to option B+ PMTCT drugs are increased risk of mother to child transmission, increasing the risk of maternal HIV disease progression and potential development of drug resistant virus (16,17).

This literature review will focus on two key areas relating to adherence to PMTCT option B+ programme. This includes the level of adherence & factors that associated with option B+

PMTCT adherence like knowledge of mother towards B+, socio demographic characteristics (place of residence, level of education, occupational status, source of information, and distance to health facility) & male partner involvement, disclosure, forgetfulness and other variables that will be discussed below in the literature part.

### **2.1. Level of adherence to option B+ PMTCT drugs**

Different studies have been done on the level of adherence to ARV drugs among pregnant & breastfeeding mothers. According to published study in 2012, among Nigerian HIV positive pregnant mothers; the level of adherence was 80.6% (21). On other published study in 2010 ,Nigeria, at Nnamdi Azikiwe University Teaching Hospital, Nnewi, among 368 HIV positive pregnant mothers attending PMTCT clinic; the non adherence rate was 21.7%(22).

According to prospective cohort/longitudinal/ study done in Chongwe district, Zambia on adherence to ARV drugs for PMTCT indicated that the adherence rate during pregnancy was 82.5%; 84.2 % at one week postpartum; 81.5 % at six weeks postpartum, and 70.5 % at 24 weeks postpartum (23). In other quantitative study in Lilongwe Urban Health Centers, Malawi, when the researcher asked their adherence to ART in 2013, 90.7% of women told they adhere to ART but 9.3% women admitted not adhering to ART (24).

According to study from patient records in 540 sites with 21,939 patient records in Malawi, 17% of all Option B+ patients were lost to follow-up six months after ARV initiation. Option B+ patients who initiated ARVs on the day they were diagnosed as HIV-infected were less likely to return to clinics than pregnant Option B+ patients who started subsequently (25).

According to a retrospective cohort study at Bwaila Hospital, Malawi, breastfeeding women at ART initiation have an increased likelihood of having an adherence level between 95% and 100% as well as the median adherence level for pregnant & breast feeding mothers were 91%(26).

Study done in Sobi specialist Hospital, Ilorin Nigeria in 2010 by using self-reporting and pill counting methods , the level of patients' adherence to antiretroviral drugs was low (73.3%) compared with the standard (95%)(27).

Study was also done on ART adherence rate and associated factors among People living with HIV in Dubti Hospital, Afar Regional State, East Ethiopia, the self-reported adherence rate of the patient on ART was 81.1% and the independent predictors of adherence were duration of treatment (18).

Study done in Tikur Anbessa specialized Hospital, Ethiopia (TASH )on knowledge and adherence to antiretroviral therapy among adult people living with HIV/AIDS using self-report and pharmacy refill record were 79.1% and 72.9% respectively showed adherence rate of  $\geq 95\%$ (28).

In Northern Ethiopia, Tigray region institution based quantitative study was done on level of adherence and predictors to adherence in the Option B+ PMTCT programme. In this study the level of adherence to Option B+ PMTCT drugs was 87.1% while in Yirgalem Hospital, south Ethiopia the adherence level for adult patient was 88.7%(29,30).

## **2.2 Factors associated to option B+ PMTCT drugs adherence**

### **2.2.1 HIV disease & treatment related factors**

According to 2013 WHO guideline, many factors were associated to ART drug adherence in the health care delivery systems, like the medication and the person taking ARV drugs may affect adherence to ART. The individual factors include forgetting the doses; being away from home; changes in daily routines; depression or other illness; a lack of interest or desire to take the medicines; and substance or alcohol use(19).

Medication related factors include adverse effect, the complexity of dosing regimens, the pill burden, and dietary restrictions. Health system factors include HIV positive people to visit health services frequently to receive care and obtain refills; long distances to reach & get health care. On the other hand; lack of clear information or instruction on medication, limited knowledge on the progress of HIV infection and benefit of ART associated with non adherence to ARV medication (19).

According to published study in 2012, among Nigerian HIV positive pregnant mothers. The main reason for this good adherence was the desire to protect her unborn child (51.8%) which gave them as a motivator factor. On the contrary one of the reasons for non adherence was fear of being identified by others as HIV positive (63.6%)(21).

According to study done in Tikur Anbessa Specialized Hospital, Ethiopia (TASH), 33% of the participants had good knowledge on the treatment plan and regimen of ART. Younger people were found to be less likely to adhere to ART using pharmacy refill record (28).

### **2.2.2 Social support**

In a study done among HIV positive pregnant women in Nigeria, disclosure of HIV status and treatment partner support were associated with good adherence (21).

A cross-sectional study done in Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria, the main reason for missing ARV drugs were forgetfulness (63.8%). The factors associated with non adherence with ART were socio demographic variables like low level of education both for mothers and their husband as well as time of mothers diagnosis of HIV made before pregnancy were more likely to be non-adherent to therapy than mothers diagnosed their HIV status during pregnancy. The factors associated with non adherence which was significant were source of information, level of education, long waiting time of the women at the hospital as well as occupational status of the mother (22).

Studies in Malawi, Lilongwe Urban health centers explained that inadequate knowledge on perceived importance and consequences for not adhering to ART were associated as a barrier to ART adherence among pregnant mothers. Short waiting time, good relationships with the next of kin and service providers, source of information was highly associated with adherence. Additionally, short waiting time of the women at the hospital during the ARV refill period was highly associated with adherence to ART (24).

Study conducted in Malawi, the most common reasons for not adhering to ART were transportation costs, limited information about antiretroviral drugs (ARVs), experiencing side effects, feeling weak/sick, non-disclosure and having conflicting religious beliefs(5).

According to study done in Sobi specialist Hospital, Ilorin Nigeria, in 2010 by using self-reporting and pill counting methods ; low level of education of patients, adverse drug effects and stigmatization were the main factors for non adherence(27).

On the other hand study in Ashanti Region, Ghana: a cross-sectional study used mixed method of data collection techniques stated that the defaulter rate was 27% and the main

factors associated with non adherence to ART were inadequate knowledge (> 90%) to PMTCT and ART benefits (31).

On the other study in Nnewi, Nigeria on the most common reasons for missing ARV drugs among HIV positive pregnant mothers were forgetfulness (63.8%); feeling healthy and hence no need to take ARV drugs (16.3%) and living very far from the hospital (15.0%). Increasing maternal age, low educational level, extremes of parity, husband's low educational level, being in a sero-concordant relationship and non-disclosure of HIV serostatus were significantly associated with non adherence to ART (22).

According to quantitative study done in Yirgalem Hospital, Ethiopia on ART adherence among PLWHA was that main reasons of non-adherence cited by the patients were; being busy or simply forgetting (51%), change in daily routine (9.4%), and being away from home (8.3%)(29).

According to recent quantitative cross-sectional study done in Tigray region public Hospitals, North Ethiopia; the main reason for non adherence to option B+ PMTCT care & support were forgetting to take their medication. From those non adherent pregnant mothers, around 10% of them missed their ARV drugs in the past 3 days before the interview. From this study, mothers who were counselled on the correct intake of ARV medications and disclosing their HIV status to their partner were positively associated with good adherence (30).

According to a case control study on determinants of non-adherence to antiretroviral therapy among HIV-infected adults in Arba Minch General Hospital, Gamo Gofa Zone, Southern Ethiopia factors like rural residence, PLWHA who has no family and community support, mobile phone, alcohol drinker, malnutrition and who consume low dietary diversity and CD4 Count <250 cells/mm<sup>3</sup> were the major identified significant factors for non adherence to ART treatment in the study area(32).

Study done in Malawi on option B+ patients who lost to follow-up explained that mothers who started lifelong ART during pregnancy will not adhere or will not return to clinic for their ARV drugs than mothers who started with low CD4 count and WHO clinical stage 3 & 4. Option B+ patients who started treatment while breastfeeding, were twice as likely to miss their first follow-up visit (18).

### **2.2.3 Partner/family support**

In antenatal clinic in Nairobi, the mother who came with partners was three times more likely to return for ARV drugs than women who attended alone. The adherence level was 88% among those whose male partner was tested, 67% of mother adhere for which their partner were present but did not tested and only 45% of pregnant mother adhere to ART among women who came alone in the health facility. Generally it was indicated that, disclosure of HIV status & HIV testing of male partner were associated to ARV drug adherence (33).

According to Malawi option B+ implementation report, community based support & network was very important such as “expert clients” because they know the advantages of adherence to treatment. The expert client provided support to overcome the side-effects of the medication and provide pertinent information on healthy lifestyles, using their own experience. These support groups were vital for the promotion of and adherence to Option B+(34). In other study in Malawi South East Zone; the timing and type of counseling may affect ART adherence (35).

## 2.3 Conceptual framework

Adherence to option B+ PMTCT drug is a central component in providing an effective service. This depends upon socio demographic characteristics, social support, disease & treatment, clinical & service delivery. The relationships are outlined in the figure below

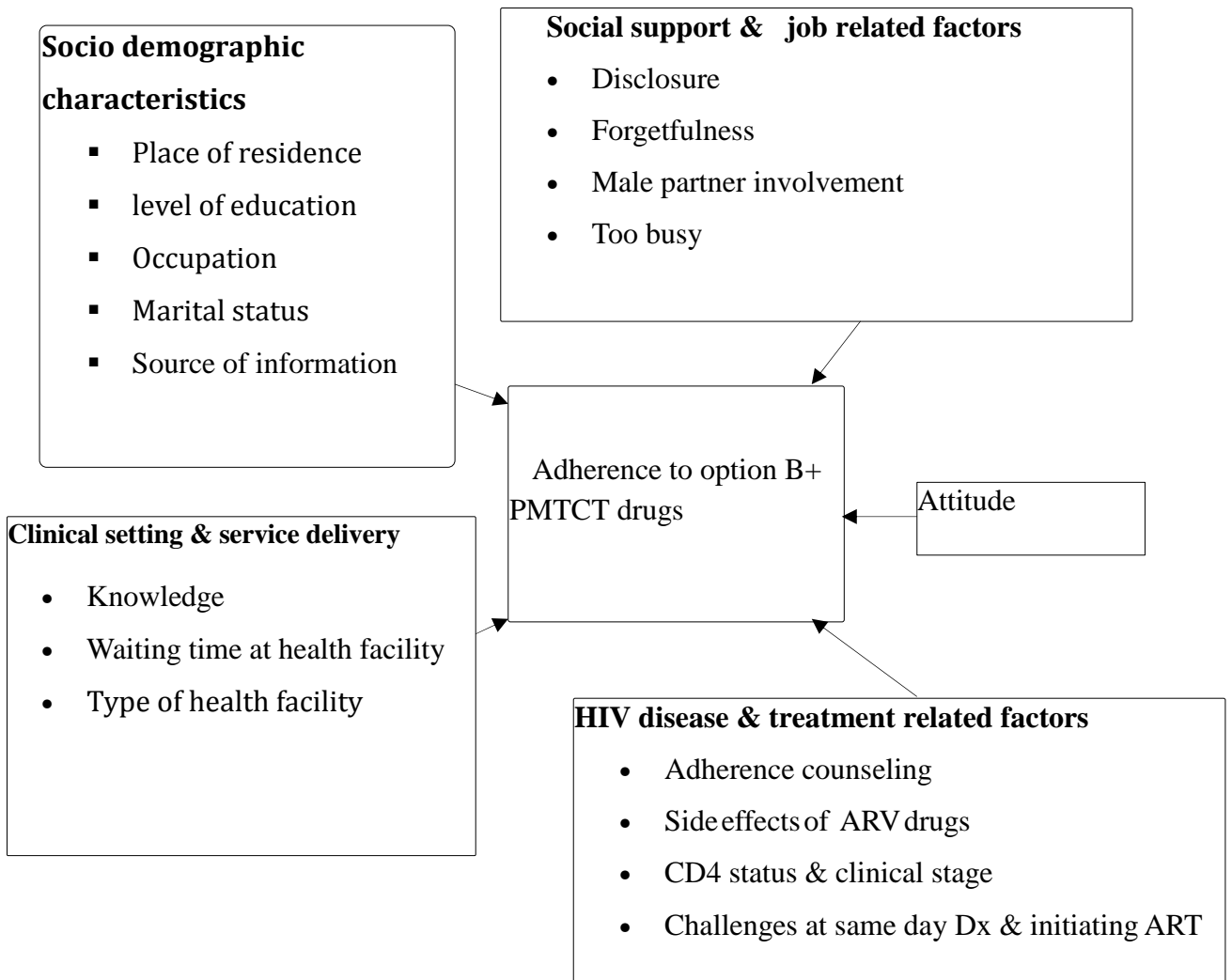


Figure 1: Conceptual framework showing the linkage between adherence to option B+ PMTCT drugs and associated factors. It is adopted and modified from Awittor, 2012 and the following references (reference number 5, 7, 20, 21, 24, 27, 28, 29 & 32)

## **CHAPTER 3: OBJECTIVES**

### **3.1 General objective**

To assess the level of adherence and associated factors with Option B+ PMTCT drugs among pregnant & lactating mothers in selected government health facilities of south wollo zone, Amhara region, north east Ethiopia, 2016

### **3.2 Specific objectives**

- ✓ To determine level of adherence to option B+ PMTCT drugs
- ✓ To identify factors associated with adherence to option B+ PMTCT drugs

## **CHAPTER 4: METHODS & MATERIALS**

### **4.1 Study area and study period**

The study areas were selected government health facilities of south wollo zone, which is located in Amhara region, north east Ethiopia. The city of south wollo zone is Dessie town which is 401km north of Addis Ababa, the capital city of Ethiopia and 480 km from Bahir-dar, the capital city of Amhara regional state. South wollo zone is one of the 10 zones of Amhara region. It is found with an elevation of 3295 meters above sea level. Based on the 2007 national census report conducted by central statistical agency of Ethiopia(CSA), south wollo zone had a total population of 2,518,862 of whom 1,248,698 were men and 1,270,164 were women(36). This zone has four governmental and three private Hospitals and 127 government health centers. The selected government hospitals for this study are Dessie referral hospital & Hidar 11 Hospital which are found in Dessie & Akesta town respectively. Health centers included for this study were from Dessie town (Segno Gebya, Dessie & Bwanbwa wuha health centers) and from Kombolcha town (Kombolcha 03 & kombolcha 05 health centers). All the seven study areas (sites) were selected based on high number of patient flow.

The study period was from March 1 to April 14, 2016.

### **4.2. Study design**

Institution based cross-sectional study design was conducted

### **4.3 Population**

#### **4.3.1 Source population**

The source population for the study was all HIV positive pregnant & lactating women who had PMTCT follow up in selected government health facilities of south wollo zone, amhara region.

$$\frac{\left(\frac{Z}{2}\right)^2 p(1-p)}{d^2} = \frac{Z^2 p(1-p)}{d^2} = \frac{(1.96)^2 \times 0.87(1-0.87)}{(0.05)^2}$$

## 4.6 Sampling procedure

The health institutions selected for this study were two hospitals and five health centers which were providing option B+ PMTCT service. These study sites were selected based on the number of client flow. The figure below briefly demonstrates the sampling procedure.

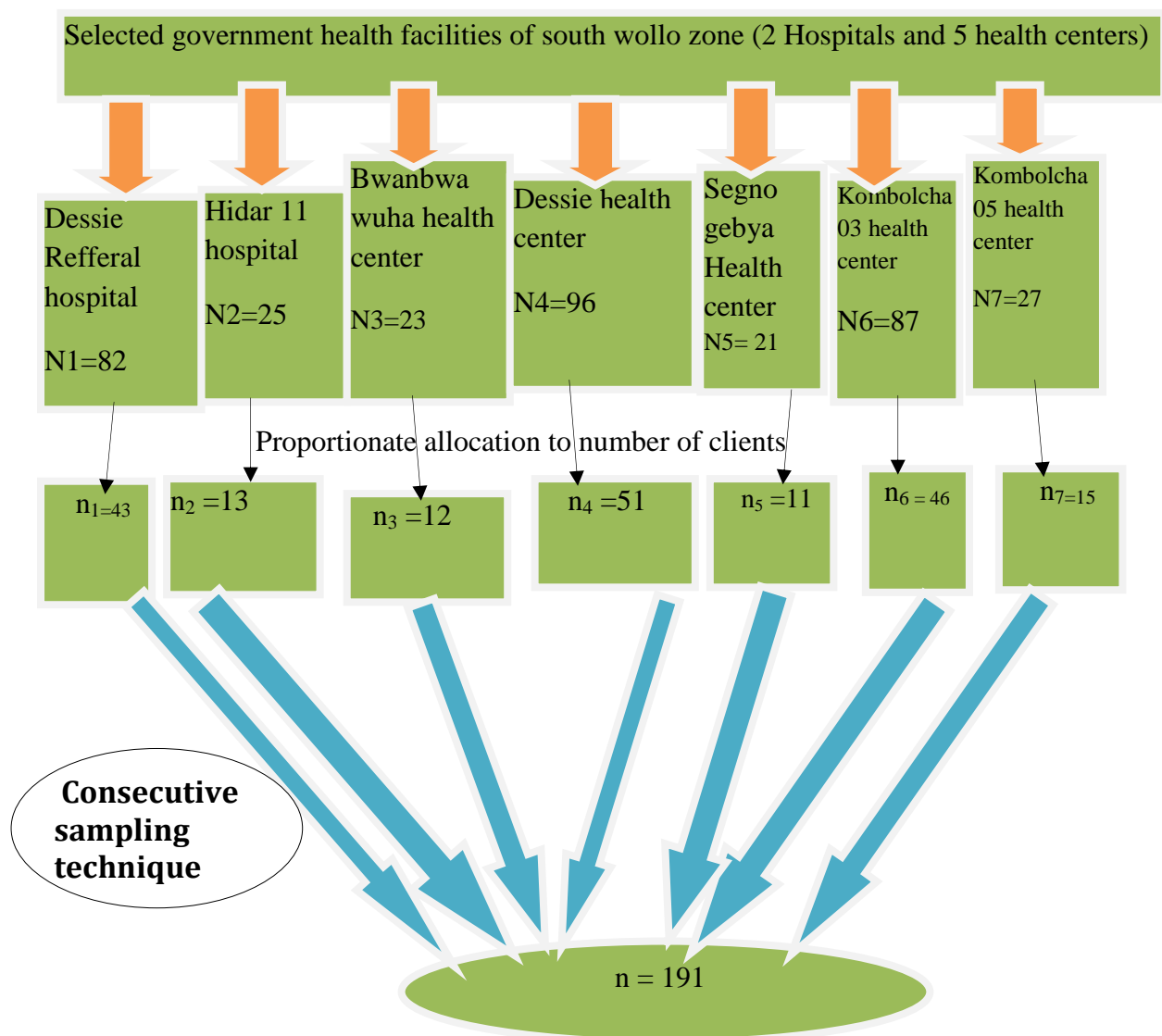


Figure 2: Schematic presentation of the sampling procedure

Consecutive sampling is a sampling technique in which all study participants meeting the criteria of inclusion were selected till the required sample size was achieved.

## **4.7 Variables**

### **4.7.1 Independent Variables**

#### 1. Socio demographic characteristics

- ✓ Place of residence
- ✓ level of education
- ✓ Occupation
- ✓ Marital status
- ✓ Source of information

#### 2. Clinical setting & service delivery factors

- ✓ Waiting time at health facility
- ✓ Knowledge
- ✓ Attitude
- ✓ Type of health facility

#### 3. Characteristics of the disease & its treatment

- ✓ Adherence counseling
- ✓ Side effects of ARV drugs
- ✓ CD4 status & WHO clinical stages
- ✓ Challenges faced in same day diagnosis & initiating ART

#### 4. Social support & job related characteristics

- ✓ Disclosure status
- ✓ Forgetfulness
- ✓ Male partner involvement
- ✓ Too busy

### **4.7.2 Dependent Variable**

- Adherence to option B+ PMTCT drugs

## **4.8 Data collection instrument**

A structured quantitative data collection technique was used by using interviewer administered standard questionnaire(16) and it was prepared in English then translated into the local language (Amharic) and then translated back in to English by different person to

check the consistency & similarity of both languages . The questionnaires contain closed ended questions.

The questionnaires had eight sections; the questions were assessed the socio demographic characteristics of respondents, adherence level to option B+ PMTCT drugs, HIV status disclosure, clinical setting and service delivery , knowledge, attitude, partner support, HIV disease & treatment related. In addition to quantitative data collection technique client's medical records were reviewed to get supportive data for the study.

The data on level of adherence was assessed using two adherence measurement methods (self-reporting questions and pill count) prior to patients collecting their medications in PMTCT clinic. This assessment tool was taken from South Africa experience of a multi-method tool to measure ART adherence in resource constrained settings (16). The questionnaire was administered for each study participant & the respondents were answered all items verbally and patient record was reviewed to assess patient's medical conditions like date of HIV diagnosis, date of initiation of therapy, CD4 count during admission, record of previous pill counts and other important datas were seen

For assessment of adherence by pill count the following formula were used

$$\% \text{ adherence} = \frac{\text{Dispensed- returned}}{\text{Expected to be taken}} * 100$$

Additionally, for assessment of the level of adherence by self report, each of the four questions holded either 1(no) or 0(yes) with a possible score between 0 - 4.

The knowledge of women on Option B+ PMTCT programme was measured from the total number of correct answers to thirteen knowledge questions, with a possible minimum score of 0 and maximum of 20. Each question contains either 0 or 1 (30).

Regarding male partner involvement, the measure of male partner support in the option B+ PMTCT service was measured from the total number of correct answers to 10 questions that focus on the male partner's support to his wife/partner, with a minimum score of 0 and maximum of 10. Each male partner support measurements contain 1 or 0 (30).

#### **4.9 Pre test**

The questionnaire was pre-tested with 5% of the sample size. Pre test was done in Tita health center which not selected for this study. Pretest was done to make sure that the questions were consistent with regard to language clarity, easy understandability, coherence, completeness and organization. After doing pre test, the questionnaires were corrected accordingly.

#### **4.10 Data collection procedure**

A structured questionnaire was administered by recruiting one bachelor degree nurse as supervisor and seven diploma nurses as data collector. One data collector assigned for each health facility. Data collectors recruited from nurses who were working from other health institution other than the study site & who have experience in PMTCT service. The reason were for maintenance of confidentiality because study participants may not provide data during interviewing if same health care provider took the interview. The data collectors & supervisor were trained for one day on the objectives of the study, relevance of the study, procedures during interviewing, confidentiality of client information, eligibility criteria, respondents' right, informed consent, ways of approach during interview. Data were collected in PMTCT clinic.

#### **4.11 Quality control**

Both supervisor and principal investigator were closely followed the data collection process. Pretest was contributed for the quality of the study. Maintenance of privacy and confidentiality of the respondents as well as good communication skills between respondents and interviewer that were gained through training session of both data collectors & supervisors could also contributed for the quality of the study. Every day all questionnaires were reviewed and checked at the end of data collection period and any errors were corrected accordingly with supervisor and data collector.

Daily checking of filed questionnaires were done for any missing values & incomplete data in order to enhance the quality of data.

#### **4.12 Data analysis & presentation**

The collected data were checked manually for its completeness and consistency by supervisors during field work and rechecked again by principal investigator before data entry. It was entered daily into epiData 3.1 then exported to Statistical Package for Social Science (SPSS) window versions 21 for analysis. Entered data was explored for errors of data as well as missing values were cleaned before analysis.

Finally, descriptive statistics (frequency table, pie chart & bar graph) were used to summarize the data. Bivariate analysis was done in order to view the association of individual explanatory variables to outcome variable. Multiple logistic regression analysis was employed to control for confounding variables to those significantly related to the outcome variable at the bivariate regression. Based on the findings of bivariate analysis, variables that had ( $P < 0.05$ ) with outcome variable and which were considered as important variables were entered to multivariate logistic regression analysis to identify association with the dependent variable. P-value less than 0.05 with 95 % confidence interval was used to state association between independent predictors and the outcome variable.

#### **4.13 Ethical Consideration**

Ethical issues were considered in all phases of the research process. Ethical approval of the research proposal was obtained from the ethical review committee of Addis Ababa University, college of health sciences, school of allied health sciences, department of nursing and midwifery. A formal letter was written by the department of nursing and midwifery to Dessie administration city health office & south Wollo zone health department. Permission was asked from the responsible authorities of each health facilities. Detailed explanation about the purpose and benefit of the study were described to the study participants and verbal consent was taken before proceeding to the interview. The data was taken only from volunteer respondents without recording their name & address to maintain confidentiality. Reference materials used in this study were acknowledged and cited with their authors name, journal name & published year.

#### 4.14 Operational definition of variables

**Level** –the relative position/rank of mother as compared to others related to adherence to option B+ drugs. These were good or poor level

**Adherence:** To measure the level of adherence to option B+ drugs, two of the adherence measurement methods were used. These were;

- I. **For pill count:** Based on the number of missed doses in the last 4 weeks. If adherence level is 95% & above (no missed any pills) it was ‘good adherence’. If it was below 94% (missing 1 and more pills); ‘poor adherence’
- II. **For self reporting 4 questions:** If ‘no’ for all self report adherence questions or ‘yes’ to at least 1 self report adherence question ( $\geq 95\%$  or good adherence), if yes for 2 & more self report adherence questions; it is low adherence)(30). Good adherence level ( $\geq 95\%$ ) is associated with greater reduction in viral loads as compared with poor adherent patients (16).

**Option B+:** an approach to all pregnant & lactating women living with HIV who received a triple drug ARV regimen regardless of CD4 count or clinical stage, both for their own health and to prevent vertical transmission of HIV for child and discordant male partner (19).

**Knowledge:** In this study mothers’ knowledge was categorized in to two as ‘knowledgable’, and ‘not knowledgable’. If they scored above the mean score were considered as knowledgable otherwise not knowledgable.

**Attitude:** classified as ‘good attitude’ if they scored above the mean where as ‘poor attitude’ if below the mean score.

**Male partner involvement** – In this study ‘good male partner support’ means they scored above the mean score where as ‘poor male partner support’ for those who scored below the mean score.

**Forgetfulness-** mothers who didn’t remember to took at least one dose (1 pill) of option B+ drugs in a month.

**Disclosure-** those mothers whose HIV test result were told for their male partner or family members

## **CHAPTER 5: RESULT**

This chapter organized in three main sections namely: the socio-demographic characteristics of respondents, adherence to option B+ and factors associated to adherence (knowledge, waiting time, disclosure, forgetfulness, male partner support, CD4 count & clinical stage, source of information, side effect of option B<sup>+</sup> drugs, too busy, adherence counseling and attitude of mother to option B+).

A total of 191 HIV positive pregnant and lactating mothers were invited to participate in the study but 1(0.5%) of mother was refused to participate

### **5.1 Socio-demographic characteristics of the respondent**

The mean age of the women were 29.1 with standard deviation of 4.43 years. About 64 %(122) of women attended in health center for option B+ PMTCT care & support. Of the total respondents, 79.5% (151) were married (those who lived with their partner). About 49.5% (94) of mothers learnt primary education (grade1-8<sup>th</sup>) while only 8.9% (17) mothers had achieved higher education (Table1).

Of the total respondent, 64.2% (122) were housewife. The proportion of respondent belonging to Muslim religion was 55.5% (105). Around 78% (149) of respondent were lived in the urban area. About 55% (105) of women took more than one hour by walking on foot from their home to health facility (Table1).

**Table 1:** Sociodemographic characteristics of participant among HIV+ pregnant & lactating mothers in selected government health facilities of south wollo zone, amhara region, north east Ethiopia, 2016(N=190)

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Number of study participants in health facility	122	64.2
Health centers		
Hospitals	68	25.8
Study participants		
Pregnant mother	94	49.5
Breastfeeding mother	96	50.5
Age		
≤29	105	55.3
≥30	85	44.7
Place of residence		
Rural	41	21.6
Urban	149	78.4
Religion		
Muslim	105	55.3
Orthodox	77	40.5
Others	8	4.2
Marital status		
Cohabitated	39	20.5
Married	151	79.5
Respondent's educational level		
No formal education	42	22.1
Grade 1-8	94	49.5
Grade 9-12	37	19.5
Technical/vocational & above	17	8.9
Mothers occupation	122	64.2
Housewife(no job)	25	13.2
Private employee		
Merchant	21	11.2
Government employee	16	8.4
Others	6	3
Male partner occupation(N=151)		
Government employee	41	27.2
Merchant	38	25.2
Daily laborer	23	15.2
Private worker	16	10.6
Farmer	22	14.6
Driver	11	7.3
Time taken to reach health facility from home		
Far(≥1hr)	105	55.3
Near(<1hr)	85	44.7

N= number of participant, no formal education - those who can't read & write (didn't attend class), Cohabitated were those who were single, divorced & widowed (didn't lived with sexual partner)

## 5.2 Knowledge of mothers on HIV, MTCT, PMTCT option B+

In this study, 91.6%(174) of HIV positive pregnant & lactating mothers were heard about the presence of life long ART (option B+) for all HIV positive pregnant & lactating women. But regarding to the benefit of PMTCT option B+, 44.7 %( 85) of mothers knew option B+ will benefit to protect for MTCT for the future pregnancy. 85.8% of mothers correctly responded on ‘adhering to ARV drugs can reduce the risk of opportunistic infections’ (Table 2).

**Table 2:** Knowledge on HIV/AIDS, MTCT, PMTCT option B+ PMTCT among pregnant & lactating mothers in selected government health facilities of south wollo zone, Amhara region, north east Ethiopia, 2016(N=190)

Characteristics	Frequency	Percentage (%)
Know about how HIV is transmitted		
Yes	188	98.9
No	2	1.1
Ways HIV/ AIDS is transmitted		
Unsafe sexual intercourse	178	94.7
Contact with infected blood	139	73.
MTCT	169	89.9
Contaminated sharps	128	68.1
Can a pregnant women living with HIV/AIDS transmit the disease to her un born baby		
Yes	188	98.9
No	2	1.1
Time of HIV transmission		
Pregnancy	141	74.2
Delivery	161	85.6
Breast feeding	149	79.3
Have you ever heard about life long Rx for any HIV positive pregnant & lactating mothers		
Yes	174	91.6
No	16	8.4

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... Cont'd

The benefit of PMTCT option B+ for pregnant & lactating women		
To prevent transmission to her husband	92	48.8
To improve mothers health	130	68.4
To reduce HIV transmission for next pregnancy	85	44.7
To prevent transmission to her baby	158	83.2
Condom use can prevent HIV transmission during sex with an HIV infected partner		
True	161	84.7
False	29	15.3
HIV positive women can reduce the risk of HIV transmission to their babies if they take PMTCT drugs		
True	175	92.1
False	15	7.9
Omitting to take some of the PMTCT drugs has effect on the effectiveness of PMTCT care and support		
True	170	89.5
False	20	10.5
Adhering to ARV drugs can reduce the risk of opportunistic infections		
True	163	85.8
False	27	14.2
The support of male partner during PMTCT care does not have any effect on mothers adherence		
True	72	39.9
False	118	62.1

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The knowledge of mother on HIV, MTCT and PMTCT option B+ care was calculated by the sum of knowledge questions and those who scored above the mean (12.73) were considered as knowledgeable and if below the mean score considered as not knowledgeable. The highest score was 16 while the lowest score was 5 out of 20 points to knowledge questions and it was normally distributed to the mean. In our study 58 % ( 110) of mothers were knowledgeable.

### 5.3 Attitude of mothers towards option B+

Regarding to attitude of mothers towards option B+ PMTCT, 90 % ( 171) of mothers agreed on “taking PMTCT drugs benefits not only for the mother but also for the baby”. However, 67.9 %( 129) of mother did not agree on the question of”taking PMTCT drugs in every day is tiresome” (Table 3).

In summary, the composite attitude of mothers towards option B+ PMTCT service categorized in to two which were positive attitude (those who scored above the mean) and poor attitude (scored below the mean). The mean score to attitude questions was 3.98. The minimm & maximum score were 0 & 5 respectively. In this study 76.3% of participants had positive attitude while others had poor attitude.

**Table 3:** Attitude of mothers towards option B+ PMTCT care among HIV+ pregnant & lactating mothers in selected government health facilities of south wollo zone(N=190)

Variables	Disagree		Indifferent		Agree	
	n	%	n	%	n	%
Do you think it is tiresome to take PMTCT drugs every day	129	67.9	0	0	61	32.1
Do you believe taking PMTCT drugs benefits not only the mother but also the baby	18	9.5	1	0.5	171	90.0
Do you think starting ART treatment earlier can help to improve quality of life and survival of the mother	22	11.6	1	0.5	167	87.9
Do you believe involving male partner in care and support increases the effectiveness of PMTCT services	20	10.5	4	2.1	166	87.4
I would not like to give birth taking PMTCT drugs	123	64.7	10	5.3	57	30.0

### 5.4 Disease & treatment

About 88% (168) of respondents were in WHO clinical stage I and II during admission in option B+ programme. About 42 %( 80) of mothers had CD4 count of below 350 cell/mm<sup>3</sup> at admission in PMTCT B+ programme. However, 22.1% (42) of HIV+ pregnant & lactating mothers’ CD4 count were not measured due to WHO recommendation in option B+ progamme. It recommends initiate life long ART (option B+) irrespective of CD4 & clinical stage for all HIV+ pregnant and breastfeeding mothers (Table 4).

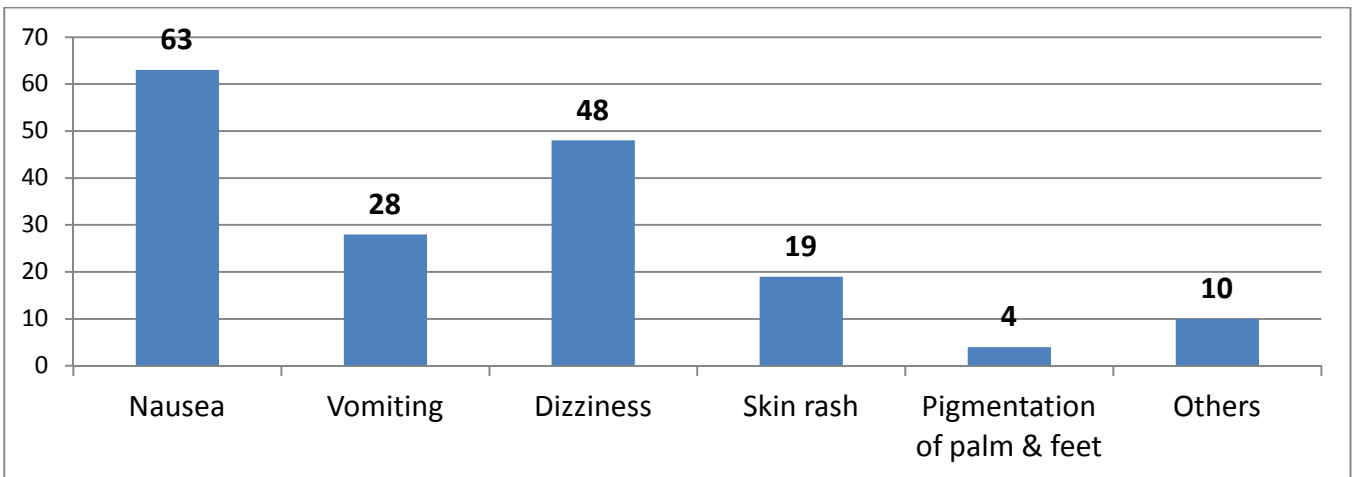
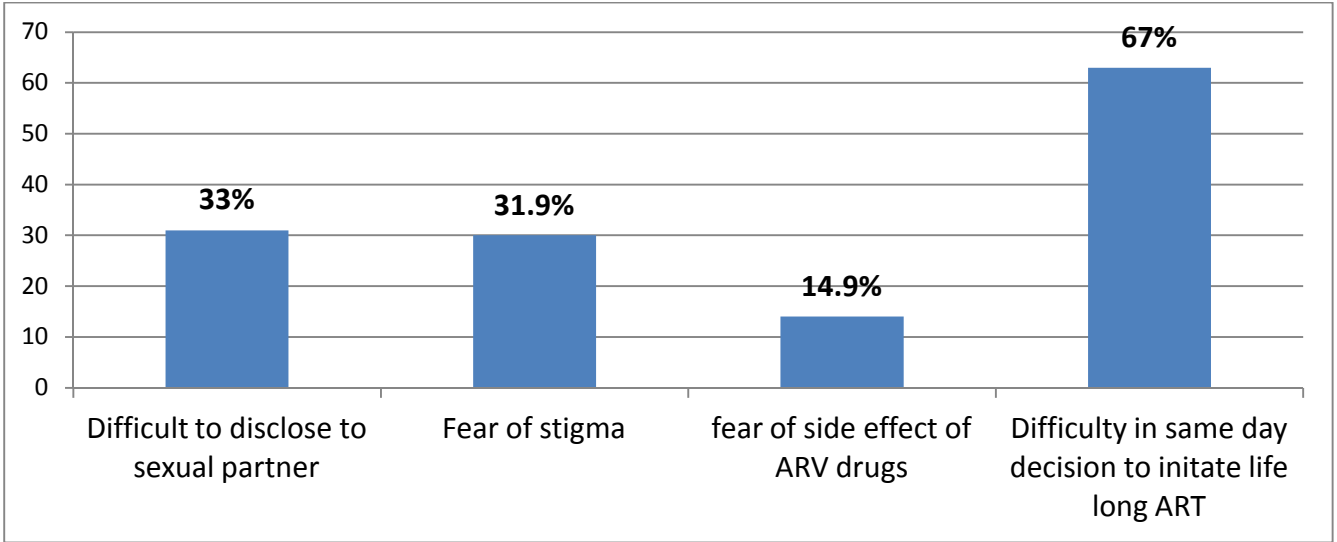
Almost all(189) reported as they got counseling about how to take option B+ drugs as prescribed and about 60% of respondents got counseling for more than 30 minutes duration per each session (Table 4).

From those mothers who were on PMTCT option B+, 54.2 %( 103) of mothers took 2-4 pills per day including non ARV drugs. Ninety seven percent (185) of respondents disclosed their HIV serostatus to others like male partner & family.

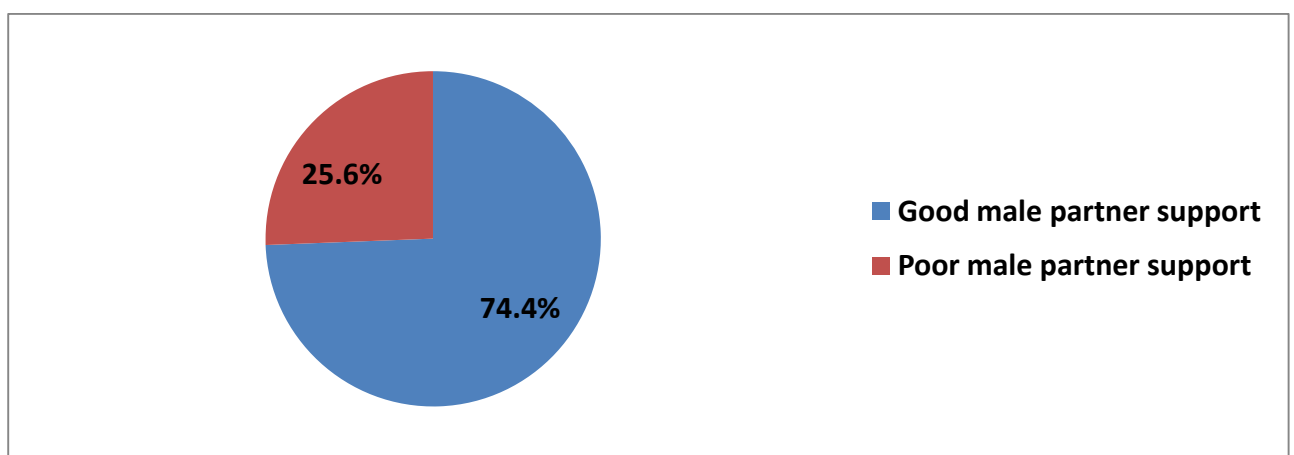
**Table 4:** Disease & treatment related result among pregnant & lactating mothers in selected governmental health facilities of south wollo zone, north east Ethiopia (N=190)

Characteristics	Frequency	Percentage (%)
WHO clinical category at admission in option B+		
Stage 1 or 2	168	88.4
Stage 3 or 4	22	11.6
WHO clinical category during study period		
Stage 1(T1)	129	67.9
Stage 2(T2)	61	32.1
Started ART with CD4 count or clinical stage		
Yes	114	60.0
No	76	40.0
CD4 count at admission in option B+ programme		
<350	80	42.1
≥350	68	35.8
Not measured during initiation of option B+	42	22.1
Time of initiation of option B+		
During pregnancy	100	52.6
During breast feeding	15	7.9
Previously started	75	39.5
Challenges faced in same day Dx & initiating B+		
Yes	94	49.5
No	96	50.5
When knows HIV status at PMTCT enrolment		
Previously known	116	61.1
Newly Dx	74	39
Got counseling about how to take ART drugs		
Yes	189	99.5
No	1	.5
Duration of the counseling		
<30minutes	77	40.5
≥30minutes	113	59.5
Number of pills taken per day (including non ARV)		
1 pill	87	45.8
2-4 pills	103	54.2
Experienced any ARV side effects		
Yes	112	58.9
No	78	41.1
Regimen changed after side effect		
Yes	16	14.3
No	96	85.7

*\*Dx-diagnosis, ARV-antiretroviral, Rx-treatment, data collectors were those recruited diploma nurses review, T1 & T2- treatment stage 1 & 2*



<b>Male involvement activities</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Shares his wife decisions on household issues	160	93.0
Discusses with his wife on use of condom during sex	138	80.2
Knows the frequency of taking PMTCT drug	161	93.6
Visits PMTCT clinic with his wife to bring ARV drugs	99	57.6
Knows the name of PMTCT drugs	81	47.1
Knows the doses of PMTCT drugs	139	80.8
Discusses the advantages of ANC/PNC appointment	150	87.2
Supports his wife financially to visit ANC/PNC PMTCT	159	92.4
Attends PMTCT with his wife	155	90.1
Reminds his wife about ANC/PNC appointment	152	88.4



## 5.6 Level of adherence to option B+ PMTCT drugs

Two different methods were utilized to estimate the levels of adherence to option B+ PMTCT drugs. These were self report & pill count assessment methods (Table 6 & 7). With regard to self report adherence, there were four questions that measure adherence level to option B+ PMTCT drugs.

The over all level of adherence for all study participants in this study by both methods was 87.9%. From the total study participants, 87.9% (167) had good adherence (adherent) to their option B+ drugs for PMTCT whereas 12.1 % ( 23) of mothers had poor adherence. Those who were poor adherent mothers; they did not respond correctly for 2 & more questions from the four self report measurement questions. On the other hand poor adherence by pill count method; they missed at least one pills within a month/4 weeks/.

From the self reporting measurement tools, 96.3% of respondents answered ‘no’ to the question “many patients have troubles in taking their ARV doses as prescribed; did you missed any ARV doses in the last 3 days?” when we compared with other question; 68% of motherst responded ‘no’ with the question “do you sometimes find it difficult to remember to take your medication?”(Table 6).

**Table 6:** describes self report adherence measurement tools with their finding among HIV+ pregnant & lactating mothers in selected government health facilities of south wollo zone, amhara region, north east Ethiopia(N=190)

Questions	Yes		No	
	n	%	n	%
Do you sometimes find it difficult to remember to take your medication?	60	31.6	130	68.4
When you feel better, do you sometimes stop taking your medication?	10	5.3	180	94.7
Many patients have troubles in taking their ARV doses as prescribed; did you miss any ARV doses in the last 3 days?	7	3.7	183	96.3
Sometimes if you feel worse, do you stop taking ARV drugs?	21	11.1	169	88.9

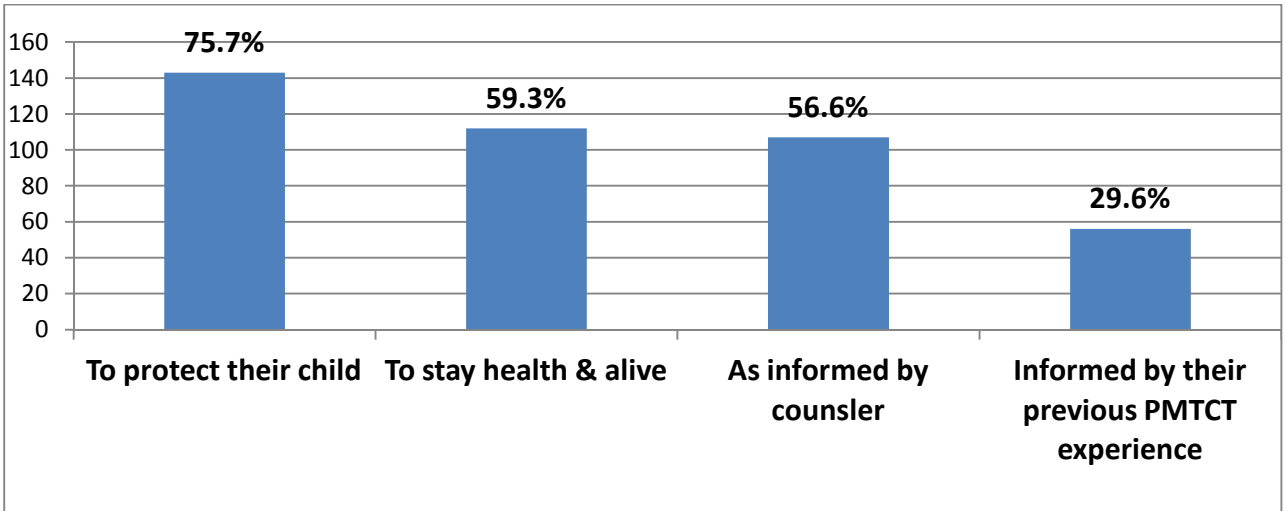
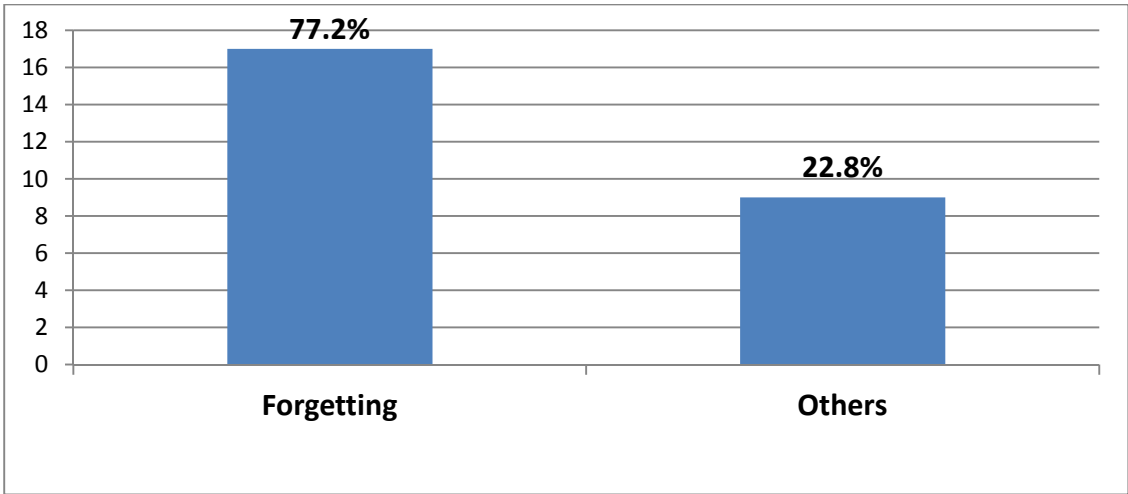
Ninety percent (171) of mothers took all their option B+ drugs with 7 day self report recall. For those mothers who brought their ART drug container as well as by referring with their drug adherence sheet in their medical record by data collectors, 4 weeks(1 month) pill counting method was used (Table 7).

The methods used to measure adherence were both self report & pill count methods. If a mother had either poor or good adherence simultaneously for both methods, it was decided as poor or good level of adherence respectively. But if her adherence level in both methods were different (either good in one method or poor in other method); the adherence level was taken with that of the self report method as it is recommended to measure adherence level in developing countries. It said that at the very minimum you should record the results of the self report. However, this has a tendency to measure higher levels of adherence than actually happened.

**Table 7:** Describes adherence of HIV+ pregnant & lactating women by using pill count method & 7 day recall to option B+ PMTCT drugs in selected government health facilities of south wollo zone, amhara region, north east Ethiopia(N=190)

Characteristics	Frequency	Percentage (%)
Number of pills she missed since her last visit(within 4 weeks)		
No missed any pills	168	88.4
1 & more dose missed	22	11.6
Number of pills missed within 7 days(7 day self report)		
0	171	90
1 pill	10	5.3
2 & more pills	9	4.7

The main reason for non-adherence to their option B+ drugs were forgetting to take their drugs 77.2 %( 17) (fig 6)



## **5.7 Factors associated with adherence to option B+ drugs**

Bivariate & multivariate logistic regression analysis were done for different variables. Most socio demographic variables were analysed in bivariate logistic regression. With the exception of place of residence and type of health facility; no other sociodemographic variables were statistically significant with adherence at bivariate regression (Table 8).

The result of multivariate logistic regression analysis shows mothers who attend option B+ PMTCT service in Hospitals were 0.3 times less likely to adhere than those who attend in health centers (AOR 0.30% CI (0.11-0.8))

HIV+ pregnant & lactating mothers who were lived in rural area were 0.26 times less likely adhered to option B+ PMTCT drugs as compared to those who lived in urban area (AOR 0.26, 95% CI (0.09-0.73) (Table 8).

Those HIV positive pregnant & lactating mothers who faced challenges (difficulties) on the same day HIV diagnosis & initiating lifelong ART were less likely adhered than those who did not face any challenges (AOR 0.08, 95% CI (0.02-0.37))

**Table 8:** Bivariate and multivariate logistic regression analysis for factors associated with adherence to Option B+ PMTCT among HIV<sup>+</sup> pregnant & breast feeding women in selected government health facilities of south wollo zone, amhara region, north east Ethiopia, 2016

Variables	Adherence level		Crude OR(95%CI)	Adjusted OR(95%CI)
	Good	Poor		
	n(%)	n(%)		
Health facility				
Health center	114(93.4)	8(6.6)	1	1
Hospital	53(77.9)	15(22.1)	0.25(0.1-0.6)	<b>0.3(0.11-0.8)*</b>
Age				
≤29	94(89.5)	11(10.5)	1	1
≥30	73(85.9)	12(14.1)	0.712(0.29-1.71)	0.95(0.33- 2.76)
Place of residence				
Rural	31(75.6)	10(24.4)	0.29(0.12-0.74)	<b>0.26(0.09- 0.73)*</b>
Urban	136(91.3)	13(8.7)	1	1
Marital status				1
Cohabitated	31(79.5)	8(20.5)	1	
Married	136(90.1)	15(9.9)	2.34(0.912-6.005)	1.31(0.43-3.93)
Educational level				
No formal education	35(83.3)	7(16.7)	1	1
Formal education	132(89.2)	16(10.8)	1.65(0.63-4.32)	1.63(0.47-5.56)
Challenges faced in same day diagnosis & initiating option B+ Rx				
Yes	73(77.7)	21(22.3)	0.07(0.02-0.33)	<b>0.08(0.02-0.37)*</b>
No	94(97.9)	2(2.1)	1	1
Experienced any ARV side effect				
Yes	91(81.3)	21(18.8)	1	1
No	76(97.4)	2(2.6)	8.769(1.20-38.60)	3.26(0.65- 16.36)

\*No formal education - those who can't read & write, formal education was those whose educational level were grade 1-8(elementary school) and above, cohabitated included those who were single,divorced & widowed (didn't lived with their sexual partner)

## CHAPTER 6: DISCUSSION

The main objective of this study was to assess the level of adherence and factors associated with option B+ PMTCT adherence among HIV positive pregnant and breastfeeding women.

In this study the level of adherence to option B+ PMTCT drugs among HIV positive pregnant and breastfeeding women was 87.9 %.

Similar studies were done in Ethiopia; the level of adherence was similar with those study reported in Tigray region, north Ethiopia (87.1%) & Yirgalem Hospital, south Ethiopia (88.7%). This is because of the similarities of sociodemographic characteristics of the population as well as the study design used in both studies were similar.

Adherence levels in studies done in Sobi specialist Hospital, Ilorin, Nigeria (73.3%), Dubti Hospital, Afar Regional State, East Ethiopia (81.1%) and Tikur Anbessa Specialized Hospital, Ethiopia (72.9%). These all studies were done among the general population.

The reason for low adherence in other study was pregnant & lactating mothers were not included. If they were involved the adherence level may be decreased because mostly pregnant & lactating mothers faced many challenges in addition to adult population faced like nausea, vomiting, care for family & their children this may have negative effect on adherence to option B+. The other reason is the study design used in Dubti hospital was retrospective that was relied on secondary data. So it may be exposed to different bias & error in the quality of data.

Similarly adherence level in Chongwe district, Zambia(82.5%), Nnewi, Nigeria (78.3%) & a systematic review and meta-analysis in low, middle and high income countries of (73.5%)(17,18,22,23,28). These studies were done among pregnant & lactating mothers. The reason may be due to sociodemographic factors.

On the other way option B+ programme implemented in our country since 2012 and it had its own role on the improvement of adherence due to simplified drug regimen /TDF/3TC/EFV/ which is taken 1 pill per day. These may contribute for high adherence as compared with option A or B which had more pills to be taken in every day in other studies.

Similarly good adherence during pregnancy & breast feeding would be expected due to the motivation of mother to get HIV free child. As this study shows 75% of mothers main reason for adherence was to protect their child from being infected with HIV. Due to this motivation HIV+ pregnant & lactating mothers may have high adherence as supported by other study done in Nigeria (21).

However, in our study the level of adherence is slightly lower than a study conducted in Bwaila Hospital, Malawi (91%)(26). The discrepancy was due to the quality of data used for assessing the level of adherence. They used the pill count method from the electronic medical record system but in our study self report & pill count methods were used.

In this study, factors associated with adherence to option B+ PMTCT programme were type of health facility, place of residence and presence of challenges in the same day diagnosing & initiating option B+ treatment.

Most sociodemographic variables like age, marital status, level of education, occupation of mother & source of information were not statistically significant association with adherence.

In our study, HIV positive pregnant & lactating mothers who attended in hospitals for option B+ PMTCT care were less likely adherent than those who attended in health centers. This finding was supported by studies done in Zambia and Malawi (23, 24). Potential reasons could be poor quality of PMTCT services provided in hospitals due to a large number of PMTCT clients. Because of this health workers could be busy to provide in-depth adherence counseling.

The other reason is that; in this study most of HIV<sup>+</sup> pregnant & lactating mothers who attended in health centers were married 67.5% (102) & knowledgeable 68.5%(94) which were higher than those who attended in Hospitals. Those who were married might supported by their partner and may have improved adherence.

In this study mothers who lived in rural area were less likely adhered to option B+ PMTCT drug/care than those who lived in urban areas. This finding was supported by study done in Arba Minch General Hospital, Gamo Gofa Zone, and Southern Ethiopia & in dubti Hospital, Afar Regional State, East Ethiopia (18,32).

The reason for this difference in adherence was that mothers who lived in rural area travel long distance (more than 1 hour walking on foot) to reach health facilities. From this study; about 55 % of mothers traveled for more than one hour to get health facility. Travelling long distance to reach health facility may affect adherence as the mother may tired to travel & they may face different social problems.due to this she may miss her appointment.

Other reason for poor adherence in rural resident was mothers' disclosure to anyone. Only 26.1% of pregnant & lactating mothers who lived in rural area disclosed their HIV status when compared with urban resident (73.9%). Discosure to partner/family will improve adherence in PMTCT option B+ as supported by other similar studies (22, 30). So the support of partner/family play great role in good adherence.

HIV positive pregnant & breastfeeding mothers who faced challenges in testing & initiating option B+ treatment at the same day of HIV diagnosis was found statistically significant to poor adherence to option B+ PMTCT drugs. Even though there were very few studies showing this relationship; in a study done among Malawian women; it described feeling pressure to initiate ART immediately at the time of HIV diagnosis with little or no support in decision making for their health was significantly associated with poor adherence (25, 37).

In this study the association is logical since women experiencing challenges in same day testing & initiating option B+ treatment are less likely to be confident on the treatment and may have negative effect on good adherence.

In our study, the main challenges they faced in option B+ programme were difficulty in early decision to initiate treatment (67%) followed by difficulty in disclosing to their male partner (33%). The main reason for this challenges would be due to improper counseling about the benefit of early initiation of life long ART. This was supported by study done in Tigray region, north Ethiopia (30).

In our study the experience of side effect of ARV drugs was statistically significant at bivariate analysis but not in multivariate regression after controlling for confounders. However; disclosure, knowledge, attitude, forgot, male partner support & CD4 count were not statistically significant with adherence at the bivariate analysis.

## **Strength & limitation of the study**

### **Strength of the study**

This study has strength for identifying multiple associated factors for adherence to option B+ PMTCT programme. The data was collected by using different methods like structured interviewed by self report and also by pill count method.

The other strength of this study was the inclusion of many health facilities like two hospitals & five health centers. As option B+ programme was recently implemented in our country; it is important to assess the level of adherence in many health facilities.

### **Limitation of the study**

In some extent this study might be affected by social desirable and recall bias; even if it was minimized by using different strategies like interviewing in private rooms & use of two different adherence measurement methods.

The generalizability of our results may be limited to selected health facilities of south Wollo zone, Amhara region.

Our study participants were those HIV<sup>+</sup> pregnant & lactating mothers who attended in PMTCT clinic during the study period.

## **CHAPTER 7: CONCLUSION & RECOMMENDATION**

### **7.1 Conclusion**

This study shows that the level of adherence to option B+ PMTCT drug in selected government health facilities of south Wollo zone, Amhara region, north east Ethiopia was 87.9%.

Attending option B+ PMTCT care in health centers, being urban residence and didn't faced challenges in the same day testing(diagnosing) & starting lifelong option B<sup>+</sup> treatment were found associated with good adherence to option B+.

The most common challenges faced by the women in option B+ PMTCT program was difficulty in making decision by themselves to initiate life long ART at the same day of HIV diagnosis. So mothers should be given adequate time to decide by themselves as well as with their partner or family after in-depth counseling.

The most common reason for non adherence in this study was forgetting to take their drugs. On the contrary, the main reasons for good adherence were to protect their child from being infected with HIV.

The success of option B+ PMTCT programme depends on mother's ability to remain on lifelong ART. Therefore, identifying the challenges in option B+ PMTCT care adherence and planning interventions to support HIV positive pregnant & breastfeeding women will help to improve the long term maternal and child health.

## 7.2 Recommendation

### **For health care provider & managers**

- ✓ Health care provider should provide in-depth adherence counseling
- ✓ Health workers who work in PMTCT clinic should allow adequate time for decision making to initiate option B+ lifelong treatment. Because option B+ drugs is not an emergency treatment.
- ✓ Health worker should counsel about use of different techniques like use of reminder, male partner or family support to minimize forgetfulness

### **For south wollo zone & Dessie city health office**

- For rural resident, community mobilization should be done about the importance of simplified option B+ PMTCT programme
- Regular follow up in Hospitals should be done in related to option B+ adherence.
- Monitoring and evaluation about the new programme/option B+ adherence & its challenges should be done

### **For researchers**

- Further study should be carried out in longitudinal base by integrating with qualitative study design to understand the level of adherence for those who are users of option B<sup>+</sup> PMTCT drug after they know their infant's HIV status(after 18 months)

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## ANNEX

### Annex I: Information & consent form, English version

**Date** \_\_\_\_\_

**Code** \_\_\_\_\_

**Health facility** \_\_\_\_\_

My name is ..... I am working on this research project by Addis Ababa University College of health sciences, school of allied health science, department of nursing & midwifery, Post graduate nursing programme with the objective to assess the level of adherence and associated factors to option B+ PMTCT drugs among pregnant & lactating mothers in selected government health facilities of south wollo zone, north east Ethiopia. I am interviewing HIV positive pregnant or lactating mothers who are currently on option B+ PMTCT service. So your cooperation has great role for fruitfulness of this study. You do not have to answer any questions that you do not want to answer, and you may end this interview at any time as you want. Any care or service provision never be discontinued related to your refusal to participate in this study. The care & support will continue even you did not accept this study. You can change your idea at any time even if you accept the study.

**Risks:** by participating in this study you will not face any risk but if you suspect any risk or questions you can rise at any time.

**Benefits & incentives:** No any incentives you get in participating in this study. But the aim of this study is any children not born with HIV virus

**Confidentiality:** Your information will not be disclosed for any one except by the investigator. your name will not be written in the paper but by only coding. This code known only by the data collector. The data may be seen by investigator, advisor and data collectors but for others not will be disclosed

**Share the finding:** If you want to know the finding at the end of the study we can communicate. The result of the study will be disseminated for different scholars, scientific communities & other who want to know.

**Time of interview:** The interview will take about 20-30 minutes

## **Consent sheet**

I \_\_\_\_\_ heard all information above about the purpose of study, confidentiality, risks & time taken for the interview in this study. I am knowledgeable about all aspects of this study. If you ever have questions about this study, you should contact Principal investigator, **Delelegn Tsegaye**, mobile number. +251912483128 or Email- delelegnt78@gmail.com

**Agreement of the Participant:** Do you agree? A. Yes    B. No

If yes continue or if no give thanks & proceed to other participant

**Name of data collectors** \_\_\_\_\_ **date** \_\_\_\_\_

## Annex II: English version questionnaires

Date \_\_\_/\_\_\_/\_\_\_\_\_

Questionnaire Identification Number \_\_\_\_\_

Health institution \_\_\_\_\_

### Section 1: Questions on sociodemographic characteristics of participants in selected government health facilities of south wollo zone, north east Ethiopia, 2016

S.no	Variables	Response	Skip to
101	Age (in years)	_____	
102	Place of residence	Rural	
		Urban	
103	What is your religion?	Orthodox christian	
		Muslim	
		Protestant christian	
		Catholic	
104	What is your marital status?	Single	
		Married	
		Divorced	
		Widowed	
105	What is your highest educational attainment?	No formal education	
		Primary (grades 1–8)	
		Secondary (grade 9–12)	
		Technical/Vocational	
		Higher education	
106	What is your occupation at this time?	House wife	
		Private employee	
		Merchant	
		Government employee	
		Student	
		Others(specify)_____	
107	What is your partner occupational status?	Student	
		Daily Laborer	
		Government employed	
		Merchant	

		Private worker	
		Farmer	
		Driver	
		Others__	
108	Is the respondent pregnant?	1. Yes 2. No	
109	Time to reach from home to health facility (in hour)	_____	
110	How would you describe the distance?	Very far Far near	

Section 2: Assessment of level of adherence to option B+ PMTCT drugs among pregnant & lactating mothers in selected governmental health facilities of south wollo zone, north east Ethiopia, 2016

Self-reporting questions

s.no	Questions	Response	Skip to
201	Do you sometimes find it difficult to remember to take your medication?	Yes No	
202	When you feel better, do you sometimes stop taking your medication?	Yes No	
203	Many patients have troubles in taking their ARV doses as prescribed; did you miss any ARV doses in the last 3 days?	Yes No	
204	Sometimes if you feel worse when you take the medicine, do you stop taking it?	Yes No	
<p>Yes contain 0 point while No has 1 point            No to all(4/4)= high adherence            Yes to at least 1 question= low adherence</p>			
<p>II. Pill count measuring questions</p>			
205	Now, try to remember the last 2 days before this visit, Did you take all pills during that time?	All doses(excellent)	
		1 dose(good)	
		0 dose(poor)	
206	Now, try to remember the last 7days before this visit, Did you take all pills during that time?	All days(excellent)	
		5-6 days (good)	
		<5days (poor)	
207	If you missed any, how many pills did you miss? (7-day Self report)	_____	

208	How many pills you have left now since the last one month?	___	Please count ARV drugs
209	How many pills the patient should have taken since her last visit	___	
210	How many pills she missed since her last visit	___	
211	What made you miss a pill?(multiple answer possible)	Side effect Lack of food Pill burden forgot/fell Clinic not accessible Lack of care/support Depressed Too busy Religion(e.g. fasting) Others _____	
212	What is your main reason for taking your ARV drugs as prescribed without any discontinuation?	To protect my child	
		To stay healthy and alive	
		As I was told by counselors	
		Informed by my previous PMTCT experience	
		Others_____	

Section 3: HIV status disclosure among pregnant & lactating mothers in selected governmental health facilities of south wollo zone, north east Ethiopia, 2016

s.no	Questions	Response	Skip to
301	Have you disclosed your status to anyone?	Yes No	If no go to qn.304
302	Who did you disclose your status to?	Partner Family friend other___	
303	Do they help you take your pills regularly and on time?	Yes No	
304	Is your partner HIV positive?	Yes No Don't know	If yes skip to 305

305	Is your partner on medication?	Yes No Don't know	
306	Have you ever thought of stopping ARTs?	Yes No Not sure	If yes go to Q308
307	If your thought is no. What was the reason?	Want to live longer Want to be stronger Want to protect my baby other_____	
308	If your thought is yes, what was the reason?	Feel better Doubt if I have AIDs. Doubt if ARVs work Tired of taking medicines Others-----	

**Section 4:** HIV disease & treatment related questions among pregnant & lactating mothers in selected governmental health facilities of south wollo zone, north east Ethiopia, 2016

401	WHO clinical category at admission?	Stage 1 Stage 2 Stage 3 Stage 4	Please review patient medical record
402	WHO clinical category during the study time	Stage 1 Stage 2	Done by data collectors
403	Did you start your ART with CD4 count or clinical stage?	Yes No	
404	CD4 count at admission, cells/mm <sup>3</sup>	<200 200–349 350–499 >500 Not measured	Please review patient's medical record
405	When you started your option B+ drugs?	During this pregnancy During breast feeding Previously known	
406	Do you think HIV testing & taking ARV treatment at the same day of HIV diagnosis is challenging?	yes No	If yes skip to question 407

407	What are the challenges?	Difficulty in early decision Fear of side effect of drug Fear of stigma Difficult to disclose to partner Others_____	
408	HIV status at PMTCT enrolment?	Already known HIV status	
		Newly diagnosed during pregnancy	
		Newly diagnosed during breast feeding	
409	Were you counseled about how to take your drugs as prescribed?	Yes No Not sure	
410	What was the duration of the counseling?	<10minutes 10-19minutes 20-29minutes >30minutes	
411	How many times were you counseled	Once Twice Three times >three times	
412	Have you received any counseling again since you started your treatment?	Yes No Not sure	
413	How would you rate your health before you started treatment?	Excellent Good Poor Not sure	
414	How many pills do you take in 24 hours including the medicines that are not HIV medicines?	1 pill 2-4 pills 5-7 pills More than 7 pills	
415	How do you remind yourself about taking your medicines?	clock Friends other_____	
416	Have you experienced any side effects of the medicines you are taking?	Yes No Not sure	If yes go to question 417
417	What did you experience?	Nausea	

	Pigmentation of palms and feet	Vomiting	
		Dizziness	
		Skin rash	
		Other _____	
418	Were the medicine(s) changed for you after the experience of side effect?	Yes No Not sure	Please refer question 417

Section 5: Male partner involvement towards option B+ PMTCT in selected government health facilities of south wollo zone, north east Ethiopia, 2016

S.no	Male involvement activities	yes	no
501	Shares his wife decisions on household issues		
502	Discusses with his wife on use of condom during sex		
503	Knows the frequency of taking PMTCT drug		
504	Visits PMTCT clinic with his wife to bring ARV drugs		
505	Knows the name of PMTCT drugs		
506	Knows the doses of PMTCT drugs		
507	Discusses the advantages of ANC/PNC appointment		
508	Supports his wife financially to visit ANC/PNC PMTCT		
509	Attends PMTCT with his wife		
510	Reminds his wife about ANC/PNC appointment		

Section 6: Clinical setting and service delivery among pregnant & lactating mothers in selected government health facilities of south wollo zone, north east Ethiopia, 2016

s.no	Questions	Response	Skip to
601	Did you receive general counseling today?	Yes No	
602	Did you see your prescriber today?	Yes No	
603	Did he/she greet you today?	Yes No	
604	How long did you spend altogether at the clinic today for this review?	Less than 3hours 3-5hours More than 5 hours	

Section 7: Knowledge questions regarding Option B+ PMTCT among pregnant & lactating mothers in selected government health facilities of south wollo zone, north east Ethiopia

S.no	Characteristics	Response	Skp to
701	Do you know how HIV is transmitted?	No Yes	If yes go to Qn.702
702	Ways HIV/ AIDS is transmitted? (more than one answer is possible)	Unsafe sexual intercourse Contact with infected blood Mother to child transmission Contactminated sharps Others-----	
703	Can a pregnant women living with HIV/AIDS transmit the disease to her un born baby?	Yes No Don't know	
704	Time of HIV transmission (multiple answer is possible)	Pregnancy Delivery Breast feeding Others -----	
705	Is there any means to avoid transmission of HIV from mother to her child?	Yes No	
706	Have you ever heard about life long treatment of ART for any HIV positive pregnant & lactating mothers?	Yes No	If no skip to Qn.708
707	What is your source of information on option B+?(multiple answer possible)	Friends Health personnel Radio/TV Other----	
708	What is the benefit of PMTCT option B+ for pregnant & lactating women do you know? (multiple answer will be possible)	To prevent transmission to her husband To improve mothers health To prevent transmission to her baby Others-----	
709	Condom use can prevent HIV transmission during sex with an HIV infected partner	True False Unsure	
710	HIV positive women can reduce the risk of HIV transmission to their babies if they take PMTCT drugs	True False Unsure	
711	Omitting to take some of the PMTCT drugs has effect on the effectiveness of PMTCT care and support	True False Unsure	

712	Adhering to ARV drugs can reduce the risk of opportunistic infections	True	
		False	
		Unsure	
713	The support of male partner during PMTCT care does not have any effect on mothers adhering to PMTCT drugs	True	
		False	
		Unsure	

Section 8: Attitude questions towards Option B+ PMTCT service among HIV positive pregnant & lactating mothers in south wollo zone selected government health facilities, north east Ethiopia

s .no	variables	Disagree	Indifferent	Agree
801	It is tiresome to take PMTCT drugs every day			
802	Taking PMTCT drugs benefits not only the mother but also the baby			
803	Starting ART treatment earlier can help to improve quality of life and survival of the mother			
804	Involving the male partner in care and support increases the effectiveness of PMTCT services			
805	I would not like to give birth taking PMTCT drugs			

**Annex III (ቅፅ 3): በአማራኛ የተተረጎመ የስምምነት እና መረጃ ቅፅ**

አዲስ አበባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ የነርቪንግ እና ሚዲዋይሬሪ ትምህርት ክፍል የድህረ ምረቃ ፕሮግራም

ቅፅ 1: በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ውስጥ የፀረ ጤች ጤይ ቪ መድሃኒት የሚጠቀሙ ነፍሰጡር እና ጡት ስሚያጠቡ እናቶች የተዘጋጀ ቃለመጠይቅ

01-ቀን / \_\_\_\_\_ / \_\_\_\_\_ 02-የጥያቄዎች መሰያ ኮድ ቁጥር \_\_\_\_\_ 03 የጤና ተቋም ስም-----  
-----

**አባሪ 1: የመረጃ መግለጫ ቅፅ**

ስሜ-----እባላለሁ::በአዲስ አበባ ዩኒቨርሲቲ ሕክምና ፋኩሲቲ ነርቪንግና ሚዲዋይሬሪ ት/ት ቤት በሚደረገው ጥናት ላይ ማስትሞ ጤች ጤይ ቪ ጤድስ ከእናት ወደ ልጅ እንዳይተላለፍ በሚደረገው ህክምና ላይ የጤች ጤይ ቪ ጤድስ ቫይረሱ በደማቸው ውስጥ ስሚገኝባቸው ነፍሰ ጡር እናቶች ያስምንም ቅድመ ሁኔታ(የሲዲፎር መጠን እና የበሽታው ደረጃ) ለህይወት ዘመን የሚወሰድ የፀረ ጤች ጤይ ቪ ጤድስ መድሃኒት ማስጀመር በሚባለው ምርጫ ላይ እናቶች ከመድሃኒቱ ጋር ያላቸው ቁርኝት እና አወሳሰድ እንዲሁም ሌሎች ተደያዥ ነገሮችን የሚዳስስ መረጃዎችን ስመሰብሰብ ነው:: በመሆኑም የእርስዎ ትብብር ስጥናቱ መሳካት የማይተካ ሚና አለው:: በዚህ ጥናት ላይ መሳተፍ ካልፈለጉ በአገልግሎት አሰጣጡ ላይ ምንም የሚለወጥ ነገር አይኖርም:: የሚሰጠው እንክብካቤ ደቀጥላል::አሁን አዎ ቢሉም እንኳን ሃሳብዎን መቀየር ይችላሉ::

ስጋቶች:እርስዎ የጥናቱ ባለቤት በመሆንዎ የሚያስጋዎት ምንም ነገር አይኖርም::ነገር ግን ያልተሰመደ ነገር ካጋጠመዎ በማንኛውም ስዓት ነፃ ሆነው ያስዎትን ስጋትና ጥያቄ እንዲነግሩን እንፈልጋለን::

ጥቅም እና ማበረታቻ:በዚህጥናት በመሳተፍዎ የሚሰጥዎት ጥቅም ሆነ ማበረታቻ የለም::ነገር ግን ደህ ጥናት ማንኛውም ህፃን ከጤች ጤይ ቪ ጤድስ ጋር መወሰድ የለበትም የሚለውን እራሴ ለማሳካት ከፍተኛ ሚና አለው::

ሚስጥርመጠበቅ:ከእርስዎ የሚሰበሰበው መረጃ በሚስጥርነት የሚያዝና ከአጥኝዎ በስተቀር ሌላ ሰው አያደውም::ማንኛውም ስለእርስዎ የሚሰበሰብ መረጃ ላይ ስምዎ አይፃፍም:: በስምዎ ምትክ የሚስጥር ቁጥር የሚሰጠው ይሆናል:: ደህን ቁጥር የሚያውቀው አጥኝዎ ብቻ ነው:: ከአጥኝዎ ከአማካሪዎ ከጥናቱ ስፖንሰር አድራጊ በስተቀር መረጃዎ ለማንም ሌላ ሰው ተላልፎ አይሰጥም::

ግኝቶችን ስለመግለጻ:እርስዎ የጥናቱን ግኝት ማወቅ ከፈለጉ ጥናቱ ካስቀ በኋላ ከእርስዎ ጋር መወያየት እንችላለን እንዲሁም ስለጥናቱ ውጤት ለሌሎች ምሁራን እና ለተሰደዩ ህብረተሰብ የምናካፍል ይሆናል::ደህን የምናደርገው የጥናቱን ውጤት ለማወቅ ስሚፈልጉ ሁሉ በሰው እና በተሰደዩ ድህረ-ገፅ ነው::

ጥናቱ የሚወስደው ግዜ - ደህ ጥናት ከ 20 ደቂቃ እስከ 30 ደቂቃ ያህል ግዜ ይወስዳል

**የጥናቱ ተሳታፊ የስምምነት መረጃ**

እኔ-----የተባልኩት ግለሰብ ከላይ የተገለጸልኝን መረጃ በትክክል አዳምጬ ተረድቻለሁ:: የጥናቱን ትቅም:የሚያመጣው ችግር:የሚስጥር መጠበቅ: ጥቅማጥቅም እና የሚወስደው ግዜ በተመለከተ ተገንዝቤአለሁ::

ደህን ጥናት በተመለከተ ማንጋገር ወይም መጠየቅ የሚፈልጉት ጉዳይ ካለዎት የዋና አጥኝዎ አድራሻ እንደሚከተለው እገልጻለን

ስም:ደስለኝ ፀጋዩ ዘቄ ሰልክ ቁጥር- 0912483128 ኢሜይል delelegnt78@gmail.com

በጥናቱ ላይ ስመሳተፍ ፈቃደኛ ነኝ?  ሀ.አዎ  ለ. አልፈልገም

አዎ ከሆነ ደቀጥብ: አልፈልገም ካሉ አመስግኑ እና ወደሚቀጥለው ቃለመጠይቅ ይሂዱ::

የመረጃ ሰብሳቢዎ ስም -----ፊርማ-----ቀን-----

### Annex IV (ቅፅ 4): የጥናቱ መጠይቆች

ክፍል 1: ማህበራዊ ፤ አካባቢያዊና ኢኮኖሚያዊ ጋር የተያያዙ ጥያቄዎች፡፡ በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ለሚገኙ ኤች አይ ቪ ቫይረስ በደማቸው ለሚገኝ ባተዉ ነፍስ ጠር እና የሚያጠቡ እናቶች የተዘጋጀ፣ 2008 ዓ.ም

ተ.ቁ	ጥያቄዎች	መልስ	ዝላቃ/ሂደት
101	እድሜዎት ስንት ነው?	<input type="checkbox"/> _____ <input type="checkbox"/>	
102	የሚኖሩበት አካባቢ	ገጠር <input type="checkbox"/> ከተማ <input type="checkbox"/>	
103	የምን ሀይማኖቶ ተከታይ ነዎት?	አርቶዶክስ ክርስቲያን መስሊም ፕሮቴስታንት ክርስቲያን ካቶሊክ ክርስቲያን ሌላ (ይገለጽ)-----	
104	የትዳር ሁኔታ?	ያላገቡ ያገቡ የፈቱ/የፈታች የትዳር አጋር በሞት	
105	የትምህርት ደረጃዎትን ቢገልጹልኝ?	መደበኛ ትምህርት 1ኛ ደረጃ (1-8ኛ) ሁለተኛ ደረጃ (9-12ኛ) ቴክኒክ እና መያ ከፍተኛ ትምህርት	
106	የእርስዎን ስራ ቢነግሩኝ?  ነጋዴ	የቤት እመቤት የግል ስራተኛ/ተቀጣሪ የመንግስት ስራተኛ  ተማሪ ሌላ (ይገለጽ)-----	
107	የባለቤት/የትዳር አጋሪ/ ስራ ምን ድነው?  የቀን ስራተኛ	ተማሪ የመንግስት ስራተኛ ነጋዴ የግል ስራተኛ ገበሬ	

		ሹፌር	
		ሌላ (ይገለጽ)-----	
108	የጥናቱ ተሳታፊ ነፍሰጡር ነኝ	አዎ አይደለም	
109	ከቤትዎ እስከ ጤና ድርጅቱ ለመድረስ ምን ያህል ሰዓት ይወስድቦታል?	_____ ሰዓት	
110	ከቤትዎ እስከ ጤና ተቋሙ ያለውን እርቀት እንዴት ይገልጹታል?	በጣም እሩቅ 2. ሩቅ 3. ቅርብ	

ክፍል 2: ለለ ፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ጥብቅ እምነት እና ቁርኝት መኖርን የሚመለከቱ ጥያቄዎች: : በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ለሚገኙ ኤች ኤይ ቪ ቫይረስ በደማቸው ለሚገኝ ባተዉ ነፍሰ ጠር እና የሚያጠቡ እናቶች የተዘጋጀ፣ 2008 ዓ.ም

ሀ. የ ጥናቱ ተሳታፊ ግላዊ ገለጻ

ተ.ቁ	መጠይቆች	መልስ	ወደ ገፅ
201	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒትሽን ስትወስጁ አንዳንድ ግዜ ለማስታወስ ተቸግረሽ ነበርን?	አዎ አይደለም	
202	ጥሩ ስሜት በማሰማሽ ወቅት አንዳንድ ግዜ መድሃኒትሽን አቋርጠሽ ታወቁያለሽ?	አዎ አይደለም	
203	ብዙ ታካማዎች የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት እንደታዘዘላቸው ለመወሰድ ሲቸገሩ ይታያል። ባለፉት ሶስት ቀናት ውስጥ መወሰድ ያለብሽን መድሃኒት አቋርጠሽ ነበር?	አዎ አይደለም	
204	አንዳንድ ግዜ መድሃኒቱን በምትወስጁበት ወቅት የባሰ ችግር ቢያጋጥምሽ፤ መድሃኒቱን መወሰድሽን ታቋርጫለሽ?	አዎ አይደለም	
<p>አዎ ማለት ዜሮ ነጥብ ሲይዝ፤ አይደለም ማለት አንድ ነጥብ ይይዛል ሁሉም ጥያቄዎች አይደለም ከሆነ የመለሱት (4/4)= ከፍተኛ አድህራንስ (high adherence) ቢያንስ ለአንዱ ጥያቄ አዎ ከሆነ መልሱ = ዝቅተኛ አድህራንስ (low adherence)</p>			
<p>ለ. የ ፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቱን በመቁጠር የሚጠየቁ ጥያቄዎች</p>			
205	እዚህ ከመምጣትሽ በፊት ያለፉትን 2 ቀናት ለማስታወስ ሞክ: : በእነዚህ ቀናት ሁሉንም የፀረ ኤች ኤይ ቪ ኤድስ ክኒን ወስደሽ ነበርን?	ሁሉንም መጠን/ደዝ ከወሰደሽ (እጅግ በጣም ጥሩ) 1 መጠን/ደዝ ከወሰደሽ (ጥሩ) ምንም ካለ ወሰደሽ (አናሳ)	
206	እዚህ ከመምጣትሽ በፊት ያለፉትን 7 ቀናት ለማስታወስ ሞክሪ: : በሁሉም	ሁሉም ቀን ከወሰደሽ (እጅግ በጣም ጥሩ)	

	ቀናቶች የፀረ ኤች ኤይ ቪ ኤድስ ክረንሽን ወስደሽ ነበርን?	ከ5-6ቀን (ጥሩ) <5ቀን (አናሳ)	
207	ሳትጠቀሚከቀረሽዉ የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቶች ዉስጥ ባለፉት 7 ቀናት ዉስጥ ምን ያህል ክረኖች ይሆናሉ?(የ7ቀን የታካሚዋ ገለጻ)	_____	
208	ከባለፈዉ 1 ወር ዉስጥ ከታዘዘልሽ መድሃኒት ምን ያህል ክረን ቀርቶሻል/ተርፎሻል/?	_____	እባክዎን መድሃኒቱን
209	በባለፈዉ አንድ ወር ዉስጥ ምን ያህሉን የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ክረን በትክክል ወሰደች/ወሰዳለች?	_____ ይቁጠሩ	
210	በባለፈዉ አንድ ወር ዉስጥ ምን ያህሉን የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ክረን አልወሰደችም?	-----	
211	መድሃኒትሽን ሳትጠቀሚ የቀረሽዉ በምን ምክንያት ነዉ?	የጎንዮሽ ጉዳት በምግብ እጥረት በመድሃኒቱ/ክረን ብዛት በመርሳት ጤና ተቋሙ በአቅራቢያ አለመኖር የእንክብካቤ እጥረት/ድጋፍ አለመኖር ድብርት ስለሚሰማኝ የስራ ጫና ስላለብኝ ስለምጋም ሌሎች-----	
212	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቱን በጥብቅ እምነት ያለማቆረጥ ለመወሰድሽ ዋነኛ ምክንያቶች ምን ድንናቸዉ?	ህጻኑን ከኤች ኤይ ቪ ቫይረስ ለመከላከል ለእናትየዋ ጤንነት እና ረጅም እድሜለመኖር ከጤና ባለሙያዎች ምክር ስላገኘሁ ከአሁን በፊት ኤች ኤይ ቪ ቫይረስ ከእናት ወደ ልጅ እንዳይተላለፍ በሚደረገዉ ህክምና ተጠቃሚ ስለነበርኩ ባለኝ ልምድ የተነሳ ሌሎች-----	

ክፍል 3: በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ለሚገኙ ኤች ኤይ ቪ ቫይረስ በደማቸዉ ለሚገኝ ባተዉ ነፍስ ጠር እና የሚያጠቡ እናቶች የኤች ኤይ ቪ ኤድስ ቫይረስ በደም ዉስጥ መኖሩን ለሌላ ሰዉ ማሳወቅን የሚዳስስ መጠይቅ፣ 2008 ዓ.ም

ተ.ቁ	ጥያቄ	መልስ	ዝለል/ሂድ
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301	የኤች ኤይ ቪ ኤድስ ውጤትሽን ለሌላ ሰው አሳወቀሻል?	አዎ አይደለም	አዎ ከሆነ ጥ.ቁ 302 ሂድ
302	ለማን ነው ወያላ ወቅሽው?	ለትዳር አጋር ቤተሰብ ጓደኛ ሌላ -----	
303	መድሃኒቱን በትክክል እና በሰዓቱ እንድትወስጧ ያግዙሻል?	አዎ አይደለም	
304	የትዳር አጋርሽ/ባለቤትሽ ኤች ኤይ ቪ ኤድስ በደሙወስጥ አለበት?	አለበት የለበትም አሳወቅሁም	አለበት ከሆነ መልስዎ ወደ ተ.ቁ 305 ይሂዱ
305	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት እየወሰደ ነው?	አዎ የለም አሳወቅም	
306	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ማቋረጥን አስበሽዉ ታወቁያለሽ?	አዎ አይደለም እርግጠኛ አይደለሁም	
307	መድሃኒቱን ማቋረጥ አስቤዉ አሳወቅም ካሉ፤ ምክንያቱ ለምን ይመስልዎታል?	ረጅም እድሜ መኖር ስለምፈልግ ጠንካራ መሆን ስለምፈልግ ልጄን ባይረሱ እንዳይዘዉስለምፈልግ ሌላ -----	
308	መድሃኒቱን ማቋረጥ አስቤዉ አወቃለሁ ካሉ ምክንያቱ ለምን ይመስልዎታል?	ይሻለኛል ብዬ ስለማስብ ኤች ኤይ ቪ ቫይረስ በአኔላይ መኖሩን ስለምጠራጠር የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ውጤታማነት ስለምጠራጠር መድሃኒቱን መወሰድ አድካሚ ስለሆነ ሌላ -----	

ክፍል 4፤ በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ለሚገኙ ኤች አይ ቪ ቫይረስ በደማቸው ለሚገኝ ባተዉ ነፍሰ ጠር እና የሚያጠቡ እና ቶች ከኤች ኤይ ቪ ኤድስ በሽታ እና ከህክምና ውጋር የተያያዘ መጠይቆች

ተ.ቁ	መጠይቅ	ምርጫ	ዝላቃ/ሂደት
401	የኤች ኤይ ቪ ኤድስ መድሃኒት መውሰድ ሲጀምሩ የአለም የጤና ድርጅት ባወጣው የበሽታዉ ደረጃ የትኛዉ ላይ ነበሩ?	ደረጃ 1 ደረጃ 2 ደረጃ 3 ደረጃ 4	እባክዎን የታካሚዎን ካርድ ይመልከቱ
402	በአሁኑ ሰዓት የአለም የጤና ድርጅት ባወጣው የኤች ኤይ ቪ ኤድስ በሽታ ደረጃ ላይ የትኛዉ ላይ ይገኛሉ?	ደረጃ 1 ደረጃ 2	በመረጃ ሰብሳቢዉ የሚሞላ
403	የሲዲፎር/CD4/ መጠን ተለክቶ ወይም የኤች ኤይ ቪ ኤድስ የበሽታ ደረጃ መሰረት ተደርጎ ነዉ መድሃኒቱን የጀመርሽዉ?	አዎ አይደለም	
404	መድሃኒቱን ሲጀምሩ የነበረዎት የሲዲፎር/CD4/ መጠን ስንት ነበር?	< 200 200-349 350-499 > 500 አልተለካልኝም	እባክዎን የታካሚዉን መረጃ ይመልከቱ
405	ያለ ሲዲፎር መጠን ወይም የበሽታዉ ደረጃ የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ማስጀመር በሚባለዉ ምርጫ ላይ አንቺ መውሰድ የጀመርሽዉ መቼ ነዉ?	በዚህ እርግዝና ጊዜ ጠት በማጠባበት ጊዜ	
406	ኤች ኤይ ቪ ኤድስ እንደተመረመሩ ቫይረሱ ለተገኘባቸዉ ነፍሰ ጠር እና ለሚያጠቡ እና ቶች የህይወት ዘመን የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ማስጀመር በሚባለዉ ምርጫ ላይ ያጋጠመሽ ፈታኝ ችግር ነበርን?	አለ የለም	አዎ ከሆነ ወደ ተ.ቁ 407 ይሂዱ
407	ፈታኝ ነገሮች ምን ድንናቸዉ?	ወዲያ ዉኑ መድሃኒቱን ለመጀመር ለመውሰን መቸገር የመድሃኒቱን የጎንዮሽ ጉዳት መፍራት እገለገለሁ የሚል ስጋት ለትዳር አጋር/ጓደኛ ለመናገር መቸገር ሌላ -----	

408	ኤች ኤይ ቪ ኤድስ ቫይረሱ በደምሽ ውስጥ መገኘቱን ያወቅሽዉ መቼ ነበር ?	ካሁን በፊት ታወቅ ነበር በዚህ እርግዝና ጊዜ አዲስ የተገኘ አዲስ የተኘ /ጠት በምታጠባበት ጊዜ	
409	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቱ እንዴት እንደሚወሰድ የምክር አገልግሎት አግኝተሽ ነበር ?	አዎ አላገኘሁም እርግጠኛ አይደለሁም	
410	የምክር አገልግሎት ያገኘሽዉ ለምን ያህል ስዓት ነዉ?	< 10 ደቂቃ 10-19 ደቂቃ 20-29 ደቂቃ >30 ደቂቃ	
411	ለምን ያህል ጊዜ የምክር አገልግሎት አግኝተሻል?	1 ጊዜ 2 ጊዜ 3 ጊዜ >3 ጊዜ	
412	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቱን ከጀመርሽ በኋላ በድጋሚ የምክር አገልግሎት ተሰጥቶሽ ነበር ?	አዎ አይደለም እርግጠኛ አይደለሁም	
413	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቱን ከመጀመርሽ በፊት ጤንነትሽን እንዴት ነዉ የምትገልጧል?	እጅግ በጣም ጥሩ ጥሩ መጥፎ ሁኔታ እርግጠኛ አይደለሁም	
414	ሌሎች መድሃኒቶች እንዲሁም የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒቱን ጨምሮ በአጠቃላይ በ 24 ስዓት ውስጥ ምን ያህል ክኒን ትወስጃለሽ?	1 ክኒን 2-4 ክኒን 5-7 ክኒን ከ 7 ክኒን በላይ	
415	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒትሽን እንዳተረሽዉ የምታስታወሽበት ዘዴ በምን ድን ነዉ?	ስዓት ጓደኛ ሌላ -----	
416	የመድሃኒቱ የጎንዮሽ ጉዳት አጋጥሞሽ ያዉቃል?	አዎ ኤደለም እርግጠኛ አይደለሁም	አዎ ከሆነ ወደ ጥያቄ ቁጥር 417 ይሂዱ
417	ምን ድን ነዉ ያጋጠመሽ የጎንዮሽ ጉዳት?	ማቅለሽለሽ ማስታወክ እራስ ማዞር የቆዳ ማሳከክ የእጅ እና የእግር መዳፍቀለም መቀየር ሌላ -----	

418	የመድሃኒቱ የጎንዮሽ ጉዳት ካጋጠመሽ በኋላ መድሃኒቱ ተቀይሮልሻል?	አዎ አይደለም እርግጠኛ አይደለሁም	ጥያቄ ቁጥር ይመልከቱ	417
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ክፍል 5: የትዳር አጋር ተሳትፎ ከእናት ወደ ልጅ ኤች አይ ቪ ቫይረስ እንዳይተላለፍ በማድረግ ወይም በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ለሚገኙ ኤች አይ ቪ ቫይረስ በደማቸው ላለባቸው ነፍስ ጠር እና የሚያጠቡ እናቶች መጠይቅ፤ 2008 ዓ.ም

ተ.ቁ	የትዳር አጋር ተሳትፎ ጥያቄዎች	አዎ	አይደለም
501	በቤት ውስጥ ጉዳዮች ላይ የትዳር አጋሩን ጋር ወሳኔ ይጋራል		
502	ከትዳር አጋሩ/ባለቤቱ ጋር በግብረሰጋ ግንኙነት ግዜ ስለ ኮንዶም አጠቃቀም ወይይት ያደረጋሉ		
503	ከእናት ወደ ልጅ ኤች አይ ቪ ቫይረስ እንዳይተላለፍ የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት በቀን ውስጥ ስንት ግዜ እንደሚወሰድ ያወቃል		
504	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ከባለቤቱ ጋር ለመወሰድ ጤና ተቋም አብሮ ይመጣል		
505	ከእናት ወደ ልጅ ኤች አይ ቪ ቫይረስ እንዳይተላለፍ የሚያደረገውን መድሃኒት ስም ያወቃል		
506	ከእናት ወደ ልጅ ኤች አይ ቪ ቫይረስ እንዳይተላለፍ የሚያደረገውን መድሃኒት መጠን/dose/ ያወቃል		
507	ስለ ቅድመ ወሊድ ወይም ድህረ ወሊድ ቀጠሮ ጥቅም ይወያያሉ		
508	የትዳር አጋሩን በቅድመ ወሊድ ወይም ድህረ ወሊድ ከእናት ወደ ልጅ ኤች አይ ቪ ቫይረስ እንዳይተላለፍ ለማድረግ ወይም የገንዘብ ድጋፍ ያደርጋል		
509	ከትዳር አጋሩ ጋር ከእናት ወደ ልጅ ኤች አይ ቪ ቫይረስ እንዳይተላለፍ በማድረግ ወይም ይከታተላል		
510	የትዳር አጋሩን/ባለቤቱን የቅድመ ወሊድ/ድህረ ወሊድ ክትትል እንድታደርግ ያስታወሳል		

ክፍል 6: የህክምና የአገልግሎት አስጣጥ በተመለከተ በደቡብ ወሎ ዞን በተመረጡ የመንግስት ጤና ተቋማት ለሚገኙ ኤች አይ ቪ ቫይረስ በደማቸው ላለባቸው ነፍስ ጠር እና የሚያጠቡ እናቶች ቃለ መጠይቆች፤ 2008 ዓ.ም

ተ.ቁ	መጠይቅ	መልስ	ዝለል/ሂድ
601	በዛሬዉ እለት ጠቅላላ የምክር አገልግሎት አግኝተሻል?	አዎ አይደለም	
602	በዛሬዉ እለት መድሃኒትሽን ያዘዘልሽን ባለሙሉ ይተሸዋል?	አዎ አይደለም	
603	ስላምታ ስጥቶሻል	አዎ አይደለም	
604	በዛሬዉ እለት ለህክምና ሽ/ምር መራ ስትመጧምን ያህል ስዓት ወስደብሽ?	ከ3 ስዓት በታች 3-5 ስዓት ከ5 ስዓት በላይ	

ክፍል 7: የእናቶችን እውቀት የሚመዘን ቃለ መጠይቅ/የኤች ኤይ ቪ ኤድስ ቫይረስ በደማቸው ወስጥ ለሚገኝባቸው ነፍሰ ጠር እናቶች ያለ ሲዲፎር መጠን የህይወት ዘመን የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት ማስጀመር በሚባለው የህክምና ምር ጫጋር የተያያዘ ጥያቄዎች

ተ.ቁ	ጥያቄዎች	መልስ	ዝለል/ሂድ
701	የኤች ኤይ ቪ ኤድስ መተላለፍያ መንገዶችን ያውቃሉ?	አዎ አላውቅም	አዎ ከሆነ መልስዎ ወደ ጥ.ቁ 702 ይሂዱ
702	የመተላለፊያ መንገዶቹን ይግለጹ?(ከአንድ በላይ መመለስ ይቻላል)	ልቅ በሆነ የግብረ ስጋ ግንኙነት በተበከለ ደም ንክኪ ከእናት ወደ ልጅ በተበከለ ስለታምነ ገሮች ሌላ -----	
703	ከኤች ኤይ ቪ ባይረሱ የምትኖር ነፍሰ ጠር እናት ወደ ልጅ ባይረሱ የምታስተላልፍ ይመስሎታል?	አዎ አታስተላልፍም አላውቅም	
704	ኤች ኤይ ቪ ቫይረስ ከእናት ወደ ልጅ መቼ የሚተላለፍ ይመስሎታል?ይግለጹ?(ከአንድ በላይ መመለስ ይቻላል)	በእርግዝና በምጥ እና ወሊድ ግዜ በጠት ማጥባት ግዜ ሌላ -----	
705	ኤች ኤይ ቪ ቫይረስ ከእናት ወደ ልጅ እንዳይተላለፍ መከላከያ አለው ብለው ያስባሉ?	አዎ አላውቅም	
706	ስለኤች ኤይ ቪ ቫይረስ በደማቸው ወስጥ ለሚገኝባቸው ነፍሰ ጠር እናቶች ያለ ምንም ቅድመ ሁኔታ የህይወት ዘመን የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት መጀመር አዎ እንዳለበት ስምተው ያውቃሉ?	አላውቅም	አዎ ከሆነ ወደ ጥ.ቁ 707 ይሂዱ
707	በምን የመረጃ ምንጭ ነው የሰሙት?(መልስዎ ከአንድ በላይ ሊሆን ይችላል)	ከጓደኛ የጤና ባለሙያ ራድዮ/ቴሌቪዥን ሌላ -----	
708	ቫይረሱ በደማቸው ወስጥ ለሚገኝባቸው ነፍሰ ጠር እና ለሚያጠቡ እናቶች ለህይወት ዘመን የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት መውሰድ ጠቀሜታው ምን ድን ምን ነው? (ከአንድ በላይ መመለስ ይቻላሉ)	ወደ ትዳር አጋር/ጓደኛ እንዳይተላለፍ ይከላከላል	
		የእናት የዋጤን ነት ይሻሻላል	
		ለቀጣዩ እርግዝና እንዳይተላለፍ ለመቀነስ	
		ከእናት ወደ ልጅ እንዳይተላለፍ ለመከላከል	
		ሌላ -----	

709	ኮንዶም በአግባቡ እና በትክክል ከተጠቀሙ ኤች ኤይ ቪ ኤድስ ያለበትን የትዳር አጋርን ሊከላከል ይችላል?	እዉነት ሀሰት እርግጠኛ አይደለሁም	
710	ፀረ ኤች አይ ቪ መድሃኒት መውሰድ ቫይረሱ ከእናት ወደ ልጅ የመተላለፍ አቅመጫ ይቀንሳል	እዉነት ሀሰት እርግጠኛ አይደለሁም	
711	የፀረ ኤች አይ ቪ መድሃኒት እያቆራረጡ መውሰድ ከእናት ወደ ልጅ እንዳይተላለፍ ለማድረግ ወይም ህክምና ዉጤታማነት ተፅዕኖ አለዉ	እዉነት ሀሰት እርግጠኛ አይደለሁም	
712	የፀረ-ኤች ኤይ ቪ ኤድስ መድሃኒት በትክክል መውሰድ ከኤይ አይ ቪ ኤድስ ጋር ከተያያዙ ተጓዳኝ በሽታዎቻቸው መከላከል ይቻላል?	እዉነት ሀሰት እርግጠኛ አይደለሁም	
713	የትዳር አጋር/ጓደኛ ድጋፍ መኖር የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒትን በቁርኝት እና በእምነት ለመውሰድ ምንም አስተዋፅኦ የለዉም	እዉነት ሀሰት እርግጠኛ አይደለሁም	

ክፍል 8: ለረጅም ጊዜ የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት መውሰድ በሚባለው የህክምና ምርጫ ጋር የተያያዘ አመለካከትን የሚለካ ቃለ መጠይቅ

ተ.ቁ	መጠይቅያ	አልስማማም	ገለልተኛ	እስማማለሁ
801	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት በየቀኑ መውሰድ አድካሚነት ወይም ጥቅሙን አይቀንሩም			
802	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት መውሰድ ጥቅሙን እና ትኩረት ጠቅሞ ላይ ሆኖ ለህፃናት ምንም ዓይነት ጉዳይ አይኖረውም			
803	ለረጅም ጊዜ የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት/ህክምና/ወዲያ ወይም መጀመር ለእናት የጥፋት ጉዳይ እንዲሁም ረጅም ጊዜ ለመኖር ያግዛል			
804	የትዳር አጋር ተሳታፊ እና ድጋፍ ማድረግ ኤች ኤይ ቪ ኤድስ ከእናት ወደ ልጅ እንዳይተላለፍ ለማድረግ ወይም ህክምና ዉጤታማነት አስተዋፅኦ አለዉ			
805	የፀረ ኤች ኤይ ቪ ኤድስ መድሃኒት እየወሰድኩ ልጅ መውለድ አልፏልግም			

ጥያቄዎቼን ጨርሻለሁ በጣም አመሰግናለሁ!

## **DECLARATION**

I, DELELEGN TSEGAYE ZIKIE hereby declare that apart from references to other peoples' work which have been properly acknowledged, this thesis is the result of my own work, I further declare that this thesis either in whole or in part has not been submitted for the award of any degree in this institution and any other University elsewhere.

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