UTILIZATION OF PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV SERVICES AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN IN HADIYA ZONE, SOUTHERN ETHIOPIA.

BY: ABEBE DUNE (BSc)

A THESIS SUBMITTED TO JIMMA UNIVERSITY, INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH, POPULATION AND FAMILY HEALTH DEPARTMENT IN PARTIAL FULFILMENT FOR THE REQUIREMENT FOR MASTERS OF REPRODUCTIVE HEALTH.

JUNE, 2019

JIMMA, ETHIOPIA

UTILIZATION OF PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV SERVICES AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN IN HADIYA ZONE, SOUTHERN ETHIOPIA.

BY: ABEBE DUNE (BSc)

ADVISORS

1. ADERAJEW NIGUSSE (Assistant professor, PhD candidate)
2. TSEDACH ALEMU (MPH/RH, PhD fellow)

JUNE, 2019

JIMMA, ETHIOPIA

Abstract

Background: *Mother-To-Child Transmission (MTCT) of HIV is still major public health problem. Ninety-five per cent of HIV infected children acquired the infection through mother-to-child transmission during pregnancy, delivery, or breast feeding time. There are few studies carried out utilization of PMTCT services and associated factors in developing county including Ethiopia.*

Objective*: To determine the magnitude of Prevention of mother-to-Child transmission of HIV Service utilization and associated factors among pregnant women in Hadiya Zone, Southern Ethiopia.*

Methods*: Community based cross-sectional study was conducted in Hadiya Zone from March 1 to may1/2019. A totally 613 respondents was participated in all 29 selected kebeles and multistage sampling technique was conducted. Data was collected by using structured interviewer administered based questionnaire. After the data collection, it was coded, checked and entered into Epi-Data manager version 4.4.0. then was exported to SPSS Version 20.0. Descriptive statistics using measure of central tendency, frequencies, proportions and diagrams was used to check its distribution. Bi-variety and multivariable analysis was run to identify important determinants and controlling possible confounding factors. PCA analysis was done for compute wealth status mothers.*

Result: *Out of the 630 total sample size, 613 pregnant mothers participated in this study resulting in a response rate of 97.3%. only 45% at 95% CI: (41.1%-48.8%) of pregnant women were counselled and tested for HIV as part of PMTCT service utilization in this study. PMTCT of HIV service utilization significantly associated with maternal educational level secondary & above [AOR = 5, 95% CI; (3.08-8.16)], number of ANC visits [AOR = 4.25, 95% CI; (2.41-7.51)], distance from health facility [AOR=1.93; 95% CI= (1.24-3.01)] and male partner involvement [AOR =1.88, 95% CI= (1.31-2.69*).

Conclusion and recommendation: *utilization of testing as PMTCT service among pregnant women in the study setting was 45%, which was lower coverage when compared with the national recommendation that every pregnant woman during ANC visit should get PMTCT service. Special emphasis should be given for female education since educated mothers have better utilize PMTC services than non-educated mothers*

Key words*: PMTCT HIV service utilization, pregnant women, ANC attendants, Hadiya Zone, Southern Ethiopia.*

Acknowledgment

First of all, I would like to present my special thanks for my advisors Mr. Aderajew Nigusse and Mrs.Tsedach Alemu for their unreserved advice, suggestions, support and comments from beginning to completion of my research thesis.

Also, I would like to give great thanks to Jimma University, Institute of Health, Faculty of Public Health, department of Population and family health for providing me the golden opportunity to carry out this thesis.

Lastly, I would also like to acknowledge Hadiya Zone health department, Woreda health offices, Health extension workers, women who participated in this study and data collectors for their contribution by helping for the success of this thesis and my dear friends for sharing me their experiences and relevant information during data analysis.

Table of Contents

Table of Contents

List of tables

List of figures

Acronyms

AID	Acquired Immunodeficiency Syndrome
ANC	Antenatal care
AOR	Adjust odd ratio
ART	Antiretroviral therapy
ARV	Antiretroviral
CD4	Cluster of Differentiation
EDHS	Ethiopia demography health survey
EFY	Ethiopia fiscal years
HCT	HIV counselling and testing
HIV	Human Immunodeficiency Virus
MTCT	Mother to child transmission
PEPFAR	President's Emergency Plan for AIDS Relief
PMTCT	Prevention of mother to child transmission
PNC	Post-natal care
SNNPR	South nation nationality people region
SSA	Sub-Saharan Africa
TBA	Traditional birth attendant's
SPSS	Statistical Packages for Social Sciences
UNICEF	United Nations International Children's Educational Fund
USAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World health organization
ZHD	Zone health department

1. Introduction

1.1 Background

Mother-To-Child Transmission (MTCT) of HIV is still major public health problems which the passing of virus from an HIV infected mother to her baby. Ninety-five per cent of HIV infected children developed the infection through mother-to-child transmission during pregnancy, around the time of labour and delivery, or during breast feeding. PMTCT service should be started before conception, and throughout pregnancy, labour and breastfeeding. PMTCT programs provide both opportunities for prevention of HIV transmission from mother to child and acceptance of the HIV-positive pregnant women including HIV care, therapy counselling and psychological support. MTCT service programs include preventing HIV infections among women of reproductive age (15–49 years), preventing unwanted pregnancies among women living with HIV, and providing women living with HIV with lifelong ART to maintain their health and prevent transmission during pregnancy, labour and breastfeeding. Prevention of mother to child transmission of HIV (PMTCT) is main intervention place to safeguard that no child is born with HIV(1, 2) .

In 2016, United Nation Organization for AIDS (UNAIDS) with President's Emergency Plan for AIDS Relief (PEPFAR developed frame work calling for world worldwide spirt to end HIV/ AIDS among child, adolescent and young women (3).

PMTCT program in Ethiopia was launched in 2001 and implemented the service to reduce HIV epidemics in general population and specifically in children. According to WHO PMTCT guideline it was revised in 2007 & 2012 and launched the accelerated plan for PMTCT service in our country,2012 (4, 5). Launched option B+(test and treat strategy) implementation; i.e. all HIV infected pregnant women receive triple ARV (anti-retro viral) drugs without an initial CD4 testing(6). Ethiopia has adopted the WHO recommended four branched PMTCT strategy. The first component is support preventing new HIV infections among women of child bearing age, second prevention of unintended pregnancy among HIV infected women, third promotes reduction of HIV transmission from HIV-infected women to their infants (PMTCT) and the fourth provides care, treatment, and support to HIV-infected women, their infants, and their families (4)

1.2. Statement of problem

Globally around 1.8 million children less than 15 years living with HIV and 120,000 children died from AIDS-related illnesses in 2017 year. About 90 per cent of these infections mainly the result of mother-to-child transmission (MTCT) of HIV during pregnancy, labour and delivery, or through breastfeeding (7). UNICEF data indicated that globally an estimated 1.4 million pregnant women were living with HIV in 2017 and 180 000 are born infected from their parents in the same years. The burden of the of transmission and death differ with in regions, nearly 75% accounts Africa alone the overall of global burden and around 91 % of these in sub-Saharan Africa, low- and middle- income countries (8).

Ethiopia is one of sub-Saharan African countries, around 66,517 children infected with HIV 2017 years , the main source of child HIV were mostly those vertically infection and MTCT rates were high (9). PMTCT plays a major role in limiting the number of children being infected by HIV. In the absence of any prevention of mother to child transmission (PMTCT) service the chance of passing the virus from mother to child during pregnancy, delivery and breastfeeding is 15% to 45% and 50% of all infants infected with HIV are probable to die before their second birthday (8). However, Effective interventions of PMTCT can decreasing the risk to below 5% (10). In our country proportion of women who receive HIV test during pregnancy as well as HIV-positive pregnant women who receive antiretroviral drugs (ARVs) for PMTCT remains low. EDHS report shown that only 19% of pregnant women received counselling on HIV, tested for HIV and accepted HIV test result during ANC visit which reflects a big gap between ANC service utilization and utilization PMTCT of HIV service (11). This shown that pregnant women go to health facilities for antenatal care, few of them counselled about PMTCT of HIV. But, without counselling service, a few of them get tested for HIV, the proportion of pregnant women received the PMTCT services has been very low. Besides, mother to child transmission of HIV still remains major problem & there were still many unresolved barriers especially receive HIV test during pregnancy as well as HIV-positive pregnant women who receive antiretroviral drugs. Even if the number of health facilities providing PMTCT service has increased in number in our county(12). Recently a revised strategy for accelerated implementation of the PMTCT programme in the 'opt-out' strategy, HIV testing is offered to all women during pregnancy, delivery and PNC. Despite, achievement have been low & lagging behind (13) . PMTCT has national been regarded as one of the important strategies to prevention of HIV/AIDS, particularly MTCT of the infection and

implementing universal HIV screening of pregnant women since 2007 and working to achieve 90-90-90 treatment target endorsed in the 2016 United Nations political declaration on ending AIDS. Moreover, Ethiopia is also working to eliminate MTCT of HIV by 2020. PMTCT of HIV services are one of the important areas that need to be confirmed for achievement of the sustainable development goals (SDGs) related to health, mainly SDG 3. Compared with other approaches, routine provider-initiated HIV counselling and testing using the opt-out approach for all pregnant women has resulted in greater acceptability, increased opportunity to prevent MTCT, and minimized stigma (4). HIV counselling and testing during pregnancy is vital components of PMTCT interventions. It is the primary point of all PMTCT services and fundamental for achievement of consecutively PMTCT programmes. Prevention of mother to child transmission of HIV/AIDS is one of the national priority programmes of the FMOH. At national level PMTCT of HIV tested coverage was 57% in 2017. The performance is far below the national target 91% and has decreased by 8%(from 63% to 57%). Whereas HIV positivity yield has increased by about 22% compare to 2016 (14).

In SNNPR only 17.2% of pregnant women use PMTCT of HIV test service and counselling during ANC visits performance remains very low as compare to national standard (11).

In 2010 EFY Hadiya Zone HMIS report showed that only 42% of pregnant women got PMTCT of HIV test during ANC (15,16). There are only few studies carried out utilization of PMTCT services in different parts developing country particularly in Ethiopia, showed that many barriers' identified utilization of PMCT service like lack of awareness and knowledge about the availability and benefit of PMTCT HIV services, shortage of PMTCT service providers, lack of adequate and separate room for PMTCT services, no involvement of partners/husbands, poor disclosure HIV status to partners, and psychological unpreparedness due to fear of being positive for HIV are the main barriers preventing mothers from HIV testing (17). but Some important factors like referral linkage from for HIV counselling and testing were not addressed. As per the investigator's search many scholars' no previous studies were found that have specifically focused utilization and factors affecting PMCT of HIV service in my study area. Therefore, the aim of this study attempted to identify the main reason why pregnant mother not use PMTCT service based on provider initiated HIV testing and counselling approaches and VCT.

1.3. Significance of the study

For component of PMTCT of HIV service among pregnant women as seen in last three consecutive demographic and health surveys at national and regional level remained stagnant and very low as compared to national plan. Even if, many interventions have been done to improve PMTCT of service, this might be due to many barriers like access of service, fear of test, fear of stigma, lack of service provider and perception.

Previously, different study conducted at facility level hence may not be generalized to the overall pregnant women in the population and could not be covered pregnant women did not attend ANC at all. However, this study was more chance to covered all pregnant women in the community.

Therefore, this community based study is important because was identify the main reason why pregnant mother have not undergone HIV counselling, testing as PMTCT service and formulate recommendations for improvement service utilization in my study area. Although, the PMTCT of HIV service is widely expanding throughout health centers and hospitals in the country, mothers are not still to get tested for HIV, due to different factors which was explained in this study.

This study it was provide important directions for intervention which help local level health planners to critically look at the problem during their planning process. Furthermore, be used by PMTCT program supporters and implementers as an input towards supporting and promoting PMTCT service and as well as can be used as an input for similar studies that are going to be conducted in the future.

Lastly, the result of this study will be expected to fill the gap of the lack of study on the utilization of PMTCT service in my study area.

2. Literature Review

2.1 Magnitude of Utilization of PMTCT service

According to report showed in the Middle East and North Africa, regional ART coverage remains low. Less than 41% of the estimated number of HIV infected pregnant women received the most effective ARV regimens for PMTCT in 2017 (18).

A study done by in the south Africa showed that 78% of pregnant women utilized the PMTCT service (19). A cross-sectional Study conduct in Cameroon showed that HIV testing during the first visit among the ANC attendees was 85.5% (20). Study conducted in Nigeria (two study area) showed that 96% & 80.6% were utilized PMTCT service in pregnancy respectively (21)(22). A cross sectional study done in Uganda and Tanzania indicated that 30.1% and 76% of pregnant women utilized PMTCT services (23),(24).

In the context of Ethiopia, a study done in Ambo Hospital found that regarding to the time of transmission from the infected mother to her child, 31.4% responded that breast feeding, 29.2% during pregnancy, 27.5% during labour and 11.9% did not know timing of transmission (25). A cross sectional study conducted in Southern part of Ethiopia showed that 86.3% of pregnant tested for HIV(26). Another study conducted among pregnant women in North West Ethiopia showed that, 88.5% knew MTCT of HIV and 83.5% of them knew that MTCT of HIV is preventable. As to the period of HIV transmission, 35.9%, 33.6% and 24.9% of responded during pregnancy, during labour and breast feeding respectively. On the other hand, about the mechanisms for PMTCT service 58.4% knew the protective effect of ARVs drugs, 18% knew not breast feeding can prevent MTCT of HIV and 11% knew that caesarean section delivery can prevent MTCT of HIV (27).

Study done in Tigray region using a multilevel modelling, found that 79% of pregnant women received PMTCT of HIV service (28). Study done in Afar showed that 70.9% pregnant women were utilizing PMTCT of counselling and testing (29). According to a study done in Addis Ababa found that about 70.1% of respondents attended the facility for HIV counselling and testing (17). A cross-sectional study done on Sebeta town showed that the prevalence of PMTCT service utilization among pregnant mothers attending antenatal care was 86.9% (30). Across-sectional study conducted in Adama, revealed that 70.1% pregnant women utilization of PMTCT service during ANC follow up (31). Recent Demographic and Health Survey showed that only 19% pregnant women received counselling for HIV, HIV tested and accepted the test of result during

ANC visit (11). Study conducted all region of Ethiopia showed only 35.1% tested for HIV and received the test results during pregnancy (32). Similarly, study done in South Gondar revealed only 9.7% PMTCT service utilization among ANC clients (33). Another study conducted in Oromia region Wollega zone showed that 83.8 % were counselled and tested for HIV as part of PMTCT service (34). Annual report of MOH showed that 57% people were received PMTCT of HIV test service (14). A other study conducted in Addis Ababa showed that utilization of PMTCT service was 74.3% (17). An study done Bahir Dar showed that Only 61.3% of the pregnant women were utilizing PMTCT service (35). A cross-sectional study conducted in Mizan-Aman Town, Bench Maji Zone, revealed that 53.7% of pregnant women utilizing PMTCT service (36). A cross-sectional study done in Ambo showed that only 15.3% of pregnant women tested HIV(37)

2.2 Factor associated with Utilization of PMTCT

2.2.1 Socio-demographic and Socio-economic factor

Age: - A cross-sectional Study conducted done in Uganda showed that age of mothers 20-24 years more likely utilized PMTCT of HIV service than age of mothers 15-19 years was significantly associated with PMTCT service utilization (23). In our country study done in Sebeta and East Wollega showed that older age of women less likely utilized of PMTCT service than younger age (30, 34).

A cross-sectional Study conducted in Bahir Dar and Dire dawa showed that mother in rural area more likely utilized PMTCT service than urban area (35, (38). But study done Wollega and Gojam showed that women living urban were more utilized than rural living mother(34, 39). A cross-sectional Study conducted in Kenya indicated that mother secondary above educational status more utilized of PMTC service than no formal education(40). Study done in Afar and Bahir Dar revealed that educational status of mother was increased, mothers more utilized PMTC of HIV service (29, 35). Another study done in wollega zone mothers who had formal schooling more likely utilize PMTCT service than no formal schooling (34).A cross-sectional Study conducted in Addis Ababa showed that marital status of women were significantly associated with utilization of PMTC service (17). A cross-sectional Study conducted in Sebata showed that employer women had less likely utilized PMTC service than non- employer (30). DHS analysis showed that richest women more utilize PMTCT of HIV service than those who lowest wealth status of mothers (16)

2.2.2 Pregnancy history factors

A cross-sectional Study conducted in Gonder showed that a women more than one ANC visit in health facility more utilized PMTCT service (33). similarly study done in Adema showed that more ANC visit of mother more utilized PMTCT service (31). Another study done in Hosanna and Hawassa showed that number of more visit ANC were significantly associated with utilization of PMTC services (41, 42). Study conducted in Tigray region showed that a mother delivery at institution who more utilized PMTCT service than home delivery (28). Hosanna and Hawassa last pregnancy place of delivery were associated with utilization of PMTCT service (41, 42). According to a study done in Bahir Dar showed that multi-gravid mother more utilized PMTCT service than primi-gravid (35). Similarly, study done in East Gojam number of gravidity were significantly associated with utilization of PMTC service (39). Another study conducted in Mizan amen and Hawassa number of gravidity mothers more likely utilize PMTC of HIV service (36, 42).

2.2.3 Access of service and access of information related factors

A cross-sectional Study conducted in Phnom Penh Cambodia showed that lack of access to ANC service were significantly associated with utilization of PMTC service (43). Another cross-sectional Study conducted in Tanzania showed that pregnant women having got information from mass media and health workers were positively associated with utilization of PMTC service (44). Another study conducted in Afar region showed that distance from home to ANC clinic were found to be barriers to HIV testing and counselling and significantly associated with utilization of PMTC service (29). Another similarly study done in Ethiopia by applying count regression indicated that long walking distance from health facility would decreases utilization of PMTCT HIV service (45) According to studies in Uganda showed that long time waiting were negatively with associated with utilization of PMTC service (23). Also another study done in Zimbabwe waiting time were found to be barriers for utilization of PMTCT service (46). Study in Addis Ababa and Bahir Dar showed that long time waiting were less significantly associated with utilization of PMTC service (17, 35). A study in Addis Ababa indicated that privacy/ confidentiality and counselling time were significantly associated with utilization of PMTC service (17).

2.2.4 Cultural perception and Individual factors

A studies conducted in Uganda and Zimbabwe showed that fear of stigma and discrimination were found as barriers for utilization of PMTCT service (22, 46). A study in Nigeria states found that, pregnant women have low level of knowledge with PMTCT service utilization of half which is associated with stigma and discrimination and giving births by religious order (22). Study done in South Africa Soweto, found that women 62.7% had accurate knowledge on antenatal prophylaxis for the purpose prevention of MTCT of HIV service (47). A cross-sectional study done in Lemo district showed that male involves is significantly associated with utilization of PMTCT and only 39.1% of male involves during ANC (48). Another study done in Cameroon indicated that male partner involvement positively associated with PMTCT service utilization (20). Similarly another study done in Sebata, Wollega and Bahir Dara showed male involvement during ANC HIV testing and counselling positively associated with utilization of PMTCT service (30,34, 35). Study conducted in Hawassa Showed that fear of stigma and discrimination were negatively associated with utilization of PMTCT service (42). Demography Health Survey in Ethiopia and study done in Bahir Dar showed that fear of positive test identified as negatively associated with utilization of PMTC service (12, 35).

According to a cross-sectional Studies conducted in Nigeria showed that woman's knowledge of her HIV status were negatively associated with utilization of PMTC service (21). similarly , study conducted in Afar showed that woman's knowledge of her HIV status were negatively associated with utilization of PMTC service (29). Another study conducted in Adema showed that woman's knowledge were identified as barrier of utilization PMTC service (31). Study conducted in Bahir Dar revealed that women 's knowledge identified as challenge utilization of PMTC service (35). Another study done in East Gojam showed that a woman's knowledge was barrier of HIV testing and counselling among pregnant women (39). A cross-sectional Studies conducted in Gondar showed that knowledge were positively associated with utilization of PMTC service (33).

2.3 Conceptual frame work

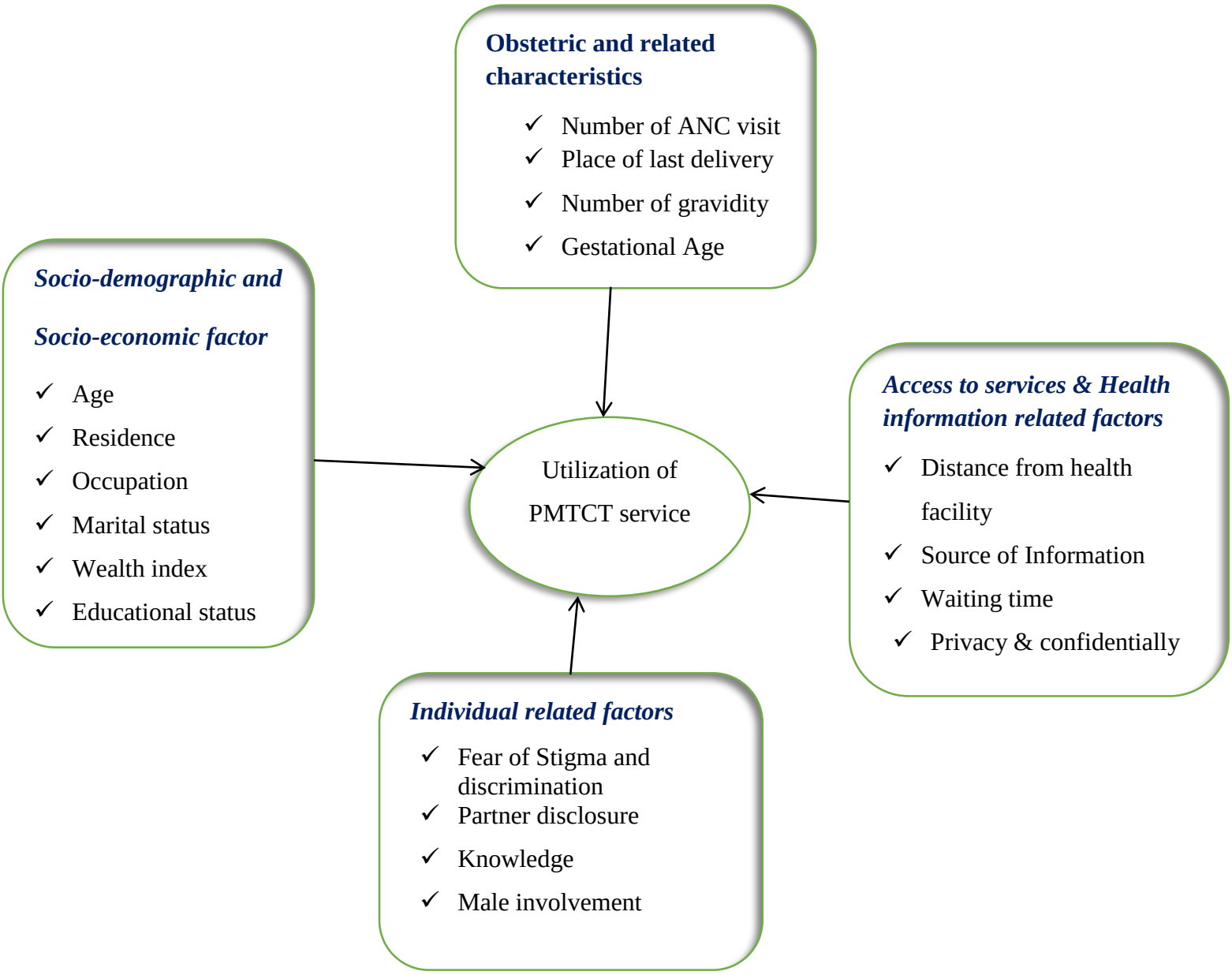

Figure 1:- conceptual frame work for PMTCT of HIV service utilization and associated factor among pregnant women

Source: Adapted from review of literature (29, 32, & 33).

3. Objectives

3.1 General objective

To assess utilization of PMTCT of HIV service and associated factors among pregnant women in Hadiya zone, Southern Ethiopia, 2019.

3.2 specific objectives

- To determine the magnitude of utilization of PMTCT HIV services among pregnant women in Hadiya Zone, Southern Ethiopia
- To identify factors affecting PMTCT of HIV services utilization among pregnant women in Hadiya Zone, Southern Ethiopia.

4. METHODS AND MATERIALS

4.1 Study area and study period

The study was conducted from March 1 to May 2 / 2019 G .C in Hadiya zone which is found SNNPRs of Ethiopia. It is located 230 Km away from Addis Ababa to Southern part of Ethiopia and 194 km from regional city Hawassa to Southwest. It is bounded on South by Kembata tembero Zone, on the Southwest by Dawro Zone, on the West by the Omo river, which separates it from Oromia region and Yem special Woreda, on the North by Gurage, on the Northeast by Silte and on the East by the Alaba. According to the 2007 E.C demographic profile data currently total estimated population has 1.69 million out of which 831,480 (49.2%) are male and 858,520(50.8%) are female. From whom 30,048(3.5%) are pregnant women. Hadiya Zone has 10 districts and two town administration. Regarding to health institution there are one Wachemo university teaching general hospital, four primary district hospital, sixty-one public health centres, 305 health post and private clinics (15).

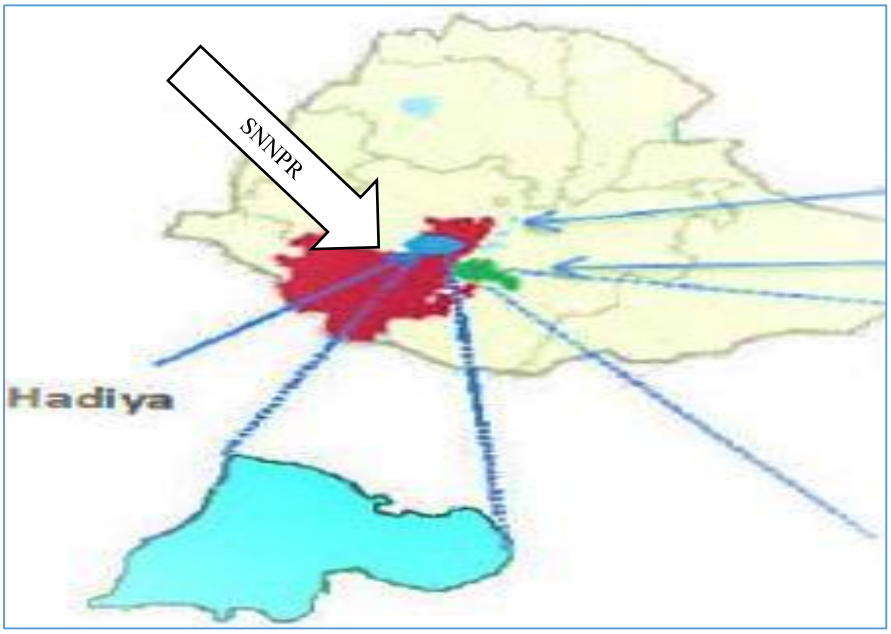

Figure 2: Map of the study area, Hadiya Zone, Southern Ethiopia, 2019

Source: Adapted from the department of finance and economy development of Hadiya zone

Zone

4.2 Study design

Community based cross-sectional study was conducted.

4.3. Population

4.3.1 Source population

All pregnant women in the Hadiya Zone

4.3.2 Study population

Selected Pregnant women who fulfilled inclusion criteria in study

4.3.3 Study units:

pregnant women

4.4 Eligible criteria

4.4.1 Inclusion criteria

Pregnant mothers who lived at least for six months in the selected kebeles

4.4.2 Exclusion criteria

Pregnant mothers who was severely/ critically ill or unable to verbally communicate during the data collection time.

4.5. Sample size determination

The sample size calculated for each specific objective and the larger sample size was used for this study. -for first specific objective used single population proportion formula, calculating of sample size by considering, level of confidence 95%, (Zα/2) = 1.96, marginal error (d) =0.05 and magnitude for utilization of PMTCT Service among Pregnant Women.

Based on above assumptions, the sample size was calculated using single population formula as follows: $n = \frac{\left(\frac{Z\alpha}{2}\right)^2 p\,(1-p)}{d^2}$ (50)

Where: n = the desired sample size

Zα/2= 95% confidence interval (1.96)

d = marginal error 5 %

p=proportion of PMTCT service utilization among pregnant mother taken p=53.7% which contributed largest sample size for 1st specific objective (36). So, n =382. For design effect *1.5*

which 1.5*382=573 then adding 10% non-respondent rate to have. Final sample size for 1st objective =**630**.

-For 2nd specific objective as follows to determine the sample size for this study outcome variables and various factors significantly associated with the outcome variables was considered & calculated by using epi info version 7.2.2 by considering the following assumption: 95% confidence interval, power 80%, allocation ratio 1:1 and per cent of outcome in exposed and unexposed. The sample size calculated for those selected variables as follows.

Table 1:-Some of the variables tried to calculate sample size, 2019

S.no	Variable	CI	Power	% outcome in Unexposed group	% out come in Exposed group	Sample size	Reference
1	Educational status	95%	80%	78.2%	93.27%	201	(29)
2	Multigravida	95%	80%	42.8%	64.7%	315	(36)
3	Residence	95%	80%	85.9%	71.4%	276	(34)

The samples size for second objective calculated are 456, 332& 520 those smaller than that of the first objective. So, the final sample size for this study was **630**.

4.6. Sampling technique and procedure

Multi-stage sampling technique was used to identify pregnant women to be participated for the study. At first stage, the Hadiya Zone was stratified as rural districts (10 in number) and town administrations (2 in number). Then 3 rural districts were selected by lottery method from the 10 districts. And one town administration was included randomly from urban. At second stage, all kebeles was selected from each selected districts by size of kebeles in random sampling methods based on the recommendation of WHO guideline "Tools for Assessing the Operationally of district Health Systems**(51)**. Mothers were proportionally allocated to the selected kebeles depending on the number of pregnant mothers. List of pregnant women were obtained from updated family folder and registration books health posts of the selected kebeles then was prepared a sampling frame. Finally, systematic random sampling method was used to get mothers for interview at every household by using formula of k^{th} (interval) = N/n [1829/630, which k^{th}=3] for each selected kebele based on N (total listed pregnant women) and decide on the n (sample size) that you want. Lastly the 1st mother was selected by randomly or lottery method.

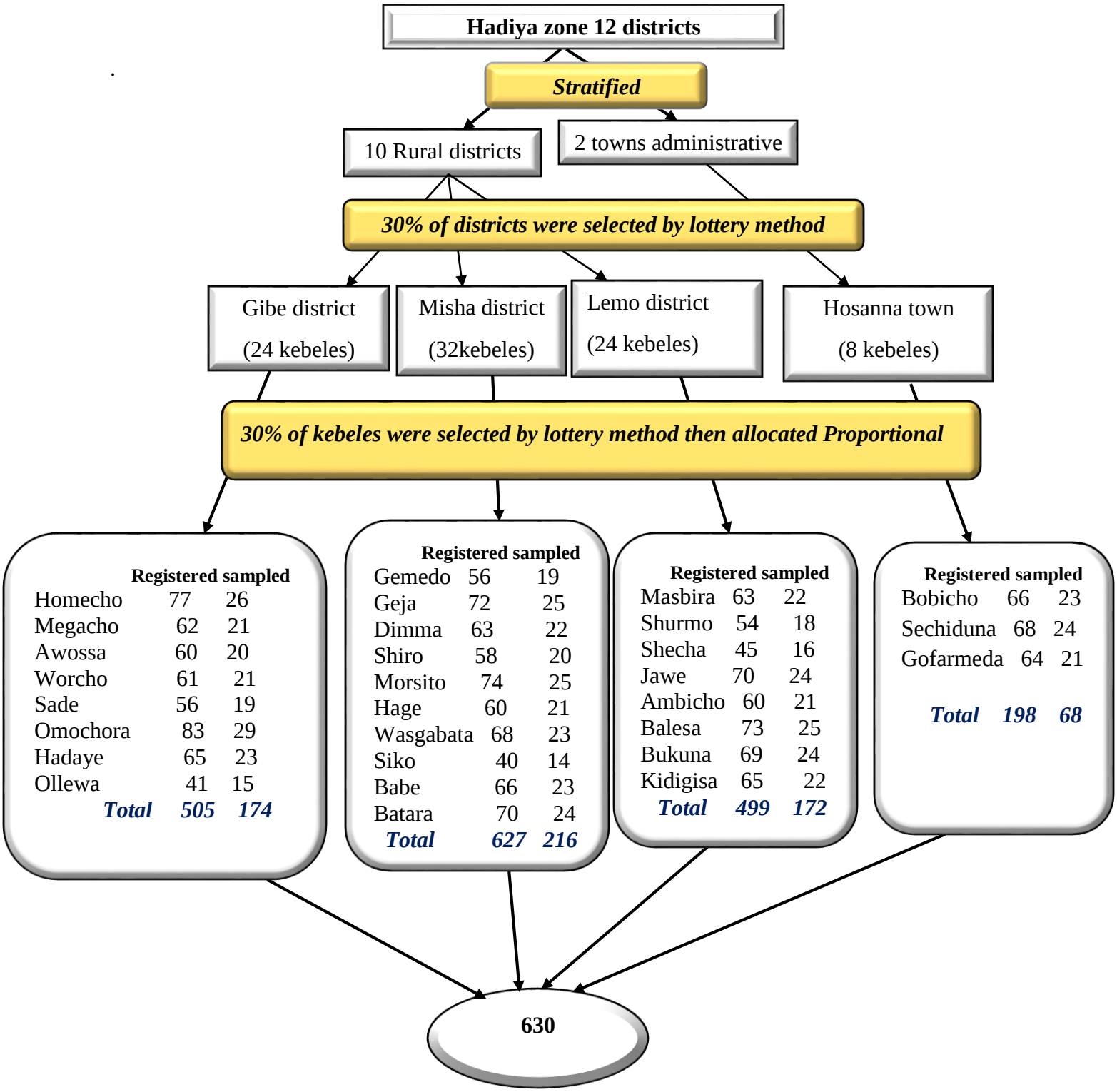

Figure 3:- Schematic representation of the sampling procedure for on PMTCT service utilization and associated factors among pregnant women .

4.7. Data collection tools and procedures

Data collection tools

Data was collected by using structured interviewer administered questionnaire adapted from UNAIDS best Practice collection tool and modified according to the local context by the investigator(52) . The indicators for the wealth index was adapted from EDHS (11) which included ownership of household assets and equipment's, water supply, power supply, sanitary facility, residential homes, farmlands and livestock ownership. Structured interviewer administered questionnaire was used to obtain information on socio-demographic and Socio economic characteristic's, obstetric and related characteristics of mothers, Access to service & health information related factors and individual related characteristics of respondents.

Data collection procedures

Before actual data collection, list of pregnant women (sampling frame) were obtained from each selected kebele health posts. One-day training was given for 10 data collectors and 4 supervisors regarding the data collection instrument one by one, ethical consideration and objectives of the study in each districts. Then the data was collected by ten diploma nurses who are familiar with local area and fluent speak local language in the study area for 30 days and four BSc public officer's supervisors closely supervised in each woreda.

4.8. Study Variables measurements

4.8.1. Dependent Variable

Utilization of PMTCT HIV service

4.8.2 Independent variables

Socio demography characteristics

- ✓ Age
- ✓ Occupation,
- ✓ Marital status
- ✓ Residence
- ✓ Educational status
- ✓ Wealth index

Obstetric and related characteristics

- ✓ Number of ANC visits
- ✓ Place of last delivery
- ✓ Number of gravidity
- ✓ Gestational Age

Cultural and individual characteristics

- ✓ Fear of Stigma and discrimination
- ✓ Partner disclosure
- ✓ Male partner involvement
- ✓ Knowledge

Access to services and health information *related factors*

- ✓ Accessibility and distance
- ✓ Privacy and confidentially
- ✓ Source of Information about PMTCT services
- ✓ Waiting time

4.8.3 Measurements

The main outcome variable in this study was utilization of PMTCT of HIV service based on provider-initiated HCT approaches & voluntary HIV testing. It was measured by participants' response who reported to be counselled and offered voluntary HIV testing, were HIV tested, and took the test result (4, 29)

Other independent variables included

Age*:* Age of women at interview in completed years categorized in to three intervals groups: 15-24, 25-34, and =>35.

Residence: place where respondents currently lives assigned as '1' for rural and '2' for urban.

Educational status: highest level of education reached by the respondents and categorized in to 3 groups such as no formal education, primary (grade 1-8), secondary and above education (grade 9-12^{+}).

Occupational status*:* current specific occupation of respondent coded as housewife, government employee, merchant and others.

Wealth index*:* Using EDHS questionnaire, house hold assets ownership of the following household resources: radio, television, electricity, bicycle, motorcycle, car, type of floor, type of wall material, type of roof material, toilet facilities, farm land, and of domestic animals such as cattle, sheep, goats, and mule were assessed and wealth index was computed by using principal component analysis. The wealth status was categorized in to five groups and ranked from poorest to highest quintile.

ANC visits: Having health institution visit for pregnancy check up by skilled health professional during pregnancy. categorized in to four: first ANC visits, second ANC visits, third ANC visits and ≥fourth & above ANC visits.

Place of delivery*:* The place where mother deliver last pregnancy categorized as "Health facility" and "home'.

Gestation age (GA): Woman's own report age of pregnancy in complete weeks were categorized as first trimester, second trimester and third trimester.

Distance from health facility: Mothers who live within a distance of 60 minutes on foot walk from the nearest health center or hospital for service were considered as geographically accessible (53). Women were asked average distance was coded as '1' for less than 60 minute and '2' for greater than 60 minute.

Male partner involvement: supported ANC follow-up of their partners by arranging transport cost and voluntary to go health facility together with their women for counselling and testing.

Waiting time to see counsellors; Time spent on waiting to see counselors categorized into three based on FMoH implementation reform guideline (i.e. average waiting time in health facility from 30- 40 minute) coded as < 30 minute for short time, 30- 60 minute just/ right time and > 60-minute-long waiting time(54).

Knowledge about PMTCT service was measured by the participants' responses to 10 knowledge related questions related to MTCT/PMTCT. Correct responses were given a value of "1" and incorrect responses were given "0." Then that scored 60% and above have good knowledge while those that scored less than 60% have poor knowledge (21).

Stigma**:** individual who has stigmatizing idea for at least one of eight questions related to stigma towards "if you were to test positive for HIV and others found out about your HIV status" Do you think any of the following might happen to you? (losing friends, being treated like an outcast by

the community, being treated badly at work, experiencing break-up of marriage, suffering from physical abuse by partner, losing one's job/livelihood, being treated badly by health professionals, and/or being neglected by family (55).

4.9. Operational and term definition

Antenatal care (ANC) - is pregnant woman the care her unborn baby with in pregnancy.

Mother-to-Child HIV Transmission - The act of passing HIV virus from HIV positive mother to her baby during pregnancy, labor and delivery or breastfeeding

PMTCT of HIV service- is a service which is received by pregnant mothers in health facility like counselling, testing, and receiving test result as prevention of MTCT of HIV/AIDS.

Partner disclosure – telling anyone having sexual relations with the women regarding to HIV test result.

4.10. Data Quality Management

Data quality was assured before, during and after data collection process.

Before data collection:

Data collection tools was translated from English to Hadiyisa and back to English to assure consistency and pre-test was carried out 10% of total sample size in Soro district (out of study area) to make necessary adjustments after obtaining informed consent. The questionnaire was checked for its clarity, understand ability, uniformity and completeness of the questions. Important amendments and logical flow of ideas was maintained based on the pre-test result. Additionally, training given for data collectors and supervisors. Reliability of the data collection tools was checked by using Cronbach's alpha value at cut off point of ≥ 0.7 for composite variables. The result was found for knowledge part, 0.79 & obstetrics characteristics part, 0.72.

During data collection: There was a close day to day supervision in the data collection process. Collected data was checked for completeness and consistency by the supervisors and principal investigator each day.

After data collection: The supervisors and the principal investigator together was rechecked the completeness and consistency before transferring it into computer software. Non over lapping numerical code was given for each question and the coded data entered into Epi data manager

version 4.4.0 prepared templates then cleaning data during preparing of templates, during data enter and after data entered.

4.11. Data processing and analysis

The collected data was checked for consistency and completeness, coded and entered into Epi-data manager version 4.4.0. It cleaned and edited accordingly then was exported to SPSS version 20.0. The composite variables were computed and dichotomized based on measurements. Principal component analysis was performed for socio-economic variables involved in measuring the wealth status of households. The assumptions of PCA were checked to conduct data reduction. Bartlett's test of Sphericity was checked and it was taken as significant at $p<0.05$ to conduct factor analysis. Sampling adequacy for PCA checked with Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the results in this measurement accepted if it is >0.5. Varimax rotation employed during factor extraction to minimize cross loading of items on many factors. At the end of the principal component analysis, the wealth index was computed as a continuous scale.

Descriptive statistics using measure of central tendency, frequencies, proportions and diagrams was used to check its distribution and describe the study population in relation to relevant variables. Cross tabulation was also performed to see the distribution of different variables in relation to outcome variable. Bi-variate analysis was run after checked chi square assumption using logistic regression to identify candidate variables for multivariable analysis. Variables with p-value < 0.25 in bivariate analysis was considered as candidates for multiple logistic regressions was entered into multivariate logistic regression model to identify the important determinants by controlling possible confounding effects. Backward logistic regression was used to identify variables which have remove variable with smallest contribution to model. It was used P-value <0.05 to show statistical significance and adjusted odds ratio with 95% confidence interval was considered to measure strength of association in final model. Multicollinearity test was done to check between independent variables were intercorrelated using Variance inflation factor (VIF) and value of >10 was considered for diagnosing multicollinearity whereas there were no variables correlated. The goodness-of-fit of the model was checked by Hosmer and Lemeshow significance value more than 0.05 were used to characterize a logistic regression model as better fit, found 0.544.

4.12. Ethical consideration

Ethical clearance was obtained from the institutional review board (IRB) of Jimma University, institute of health Science. A formal letter was obtained from department of population and family health was submitted to Hadiya zone health department then latter obtained for selected woreda from Hadiya zone health department, finally woreda permission was got for the selected kebeles to conduct the study. To ensure confidentiality the study participants was registered using codes but not in names. Mothers was informed that their participation voluntary and based on her choice. Orally informed consent was obtained from respondents prior to the interview.

4.13. Dissemination plan

The findings of this study will be presented to Jimma university institute of health, department population and family health, to Hadiya Zone health department, important stakeholders, and as much as possible, efforts will be taken to publish on scientific journal. Depending on the opportunities, the finding will be presented in conferences or seminar

5. Result

5.1. Socio-demographic characteristics of participants

Out of the 630 total sample size, 613 pregnant mothers participated in this study resulting in a response rate of 97.3%. The age of study respondents ranged from 15 to 49 years and the mean age was 28.28 years with a SD of ± 5.28. A majority of study participants were currently in marital union 504(82.2%) and Protestant followers 459(74.9%) in religion. With regarding to their ethnicity and residents, majority of the respondents were Hadiya ethnic group 514(83.8%) and 458(74.7) were rural residents. The largest proportion, respondents 537(87.6%) were housewife and 277(45.2%) had primary educational status (Table 2).

Table 2: **Socio-demographic characteristics of pregnant women interviewed in Hadiya zone, south Ethiopia, May 2019**

Variables	Characteristics	Frequency (No)	Percentage (%)
Age of respondents	15-24	208	33.9
	25-34	268	43.7
	=>35	137	22.4
Residence of mother	Rural	458	74.7
	Urban	155	25.3
Religion	Protestant	459	74.9
	Orthodox	123	20.1
	Others*	31	5
Ethnicity	Hadiya	514	83.8
	Gurage	67	10.9
	Others**	32	5.3
Educational status	No formal education	181	29.5
	Primary education (1-8)	277	45.2
	Secondary & above(9-12)+	155	25.3
Mothers occupation	House wife	537	87.6
	Merchant	21	3.4
	Government employee	37	6.0
	Others***	18	2.9
Marital status	currently in marital union	504	82.2
	currently not in marital union	109	17.8
Husband occupation	Farmer	497	81
	Government employee	85	13.9
	Others***	31	5.1
Household wealth index	Lowest	122	19.9
	Second	123	20.1
	Middle	125	20.4
	Fourth	121	19.7
	Highest	122	19.9

*Others * catholic, Adventist seventh day, ** Silte, Amhara, ***Private employee, Students*

5.2. Obstetric and related characteristics

With regard to number of pregnancy majority of them 455(74.2%) had more than one pregnancy including the current one. Moreover, from those pregnant women who had more than one pregnancy the majority of them 306(67.3%) had delivered their previous pregnancy at health institution. According to gestational Age almost half of the pregnancy were in the Second trimester 295(48.1%) and in terms of their number of ANC visits 176(28.7%) of them had four and above visits.

Table 3: Obstetric and related characteristics of pregnant women in Hadiya, South Ethiopia May 2019.

Variables	Characteristics	Frequency (No)	Percentage (%)
Number of Pregnancy	Prim –gravida	158	25.8
	Multi-gravida	455	74.2
Place of last delivery (n=455)	Home	149	32.7
	Health facility	306	67.3
Gestational Age	First trimester	100	16.3
	Second trimester	295	48.1
	Third trimester	218	35.6
Number of ANC visit	One visit	102	16.6
	Two visits	192	31.4
	Three visits	143	23.3
	Four and above visits	176	28.7
Reason for ANC visits	For ANC visits only	531	86.6
	For both ANC visit and HIV test	82	13.4

5.3. Access to Health information and health services characteristics

From a total of 613 respondents distance to nearest health facility, 193 (31.5%) of respondents have took less than 30 minute, 240 (39.1%) of respondents took thirty to sixty minutes and 180 (29.4%) of respondents took greater than one hour to walk on foot. Regarding to source of information, 294 (48%) of participants got information from mass media like radio and TV and 319 (52 %) participants got from health extension workers. Concerning to average waiting time to see providers, 138 (22.5%) of respondents reports short time to get providers, 196(32%) of respondents reports right time and 279(45.5%) had reports long time to get providers. According to Privacy during your counselling and testing, 473(77.2%) of respondents reports have kept Privacy whereas rest not.

5.4. Individual related factors

Knowledge of Pregnant Women towards PMTCT of HIV/AIDS

In this study the knowledge of respondents towards PMTCT of HIV assessed with 10 questions and the respondents who answers greater than or equal to 50% of the questions correctly was labelled as good knowledgeable towards PMTCT service and as poor knowledgeable for those who were score below 50%. Based on this findings, majority of respondents 393 (64.1%) had good knowledgeable and 220(35.9%) have poor knowledgeable.

Referral linkage, male partner involvement, fear stigma& discrimination related to HIV

From the total number of respondents that have participated in this study, about 401 (65.4%) of the pregnant women had follow up ANC in health post. From 401 participants those who had follow up ANC in health post, 210 (52.4%) had referred to health center/ hospital for PMTCT of HIV/AIDS services. Regarding to male partner involvement 365(59.5%) partner involved in current pregnant. According to fear of stigma & discrimination related to HIV, 332(54.2%) of participant's fear of HIV test and related to disclosure of result for partner / family, 47.6% of respondent's disclosure to her partner (see table 4).

Table 4: Referral linkage, knowledge, fear stigma& discrimination related to HIV of Pregnant women about PMTCT of HIV/AIDS service, South Ethiopia, May 2019

Variables	**Characteristics**	**Frequency (No)**	**Percentage (%)**
Place of visit the first ANC	Health post	401	65.4
	Health center/ Hospital	212	34.6
Linked /Referred for HIV test services and counselling to health center /hospital	Yes	216	35.2
	No	397	64.8
with whom, did you first go to health facility	Alone	163	26.6
	Partners	123	20.1
	Friends	327	53.3
Partner involvement	Involved	365	59.5
	Not involved	248	40.5
Knowledge towards PMTCT	Good knowledgeable	393	64.1
	Poor knowledgeable.	220	35.9
Stigma related to HIV/AIDS	Fear of stigma	325	53
	Not fear stigma	288	47
Disclosure result Partner/ family	Yes	292	47.6
	No	321	52.4

5.6 Utilization of PMTCT of HIV Service among Pregnant Women

The magnitude PMTCT service utilization among pregnant women who had participated in this study was found to be 277 (45%) with 95% CI: (41.1% - 48.8%).

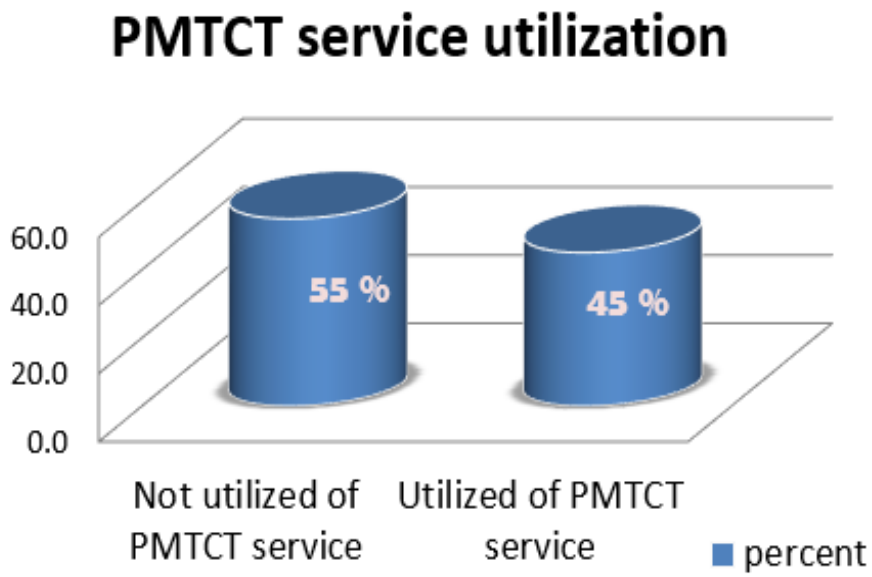

Figure 4: Level of PMTCT service utilization among pregnant women in Hadiya Zone,May 2019

From total number of respondents 479(78.1%) of women offered counselling of HIV test and 277 (45%) were tested. From those pregnant women who had tested of HIV current pregnancy 99.3% received their test result either in oral or in written form. And from those received their test result 98.5% were negative. From the total number of pregnant women who had received their result only 1.5% (n = 4) were found to be Positive. And those pregnant women who were found Positive, all of them began using ARV drugs for the purpose of PMTCT of HIV service. Whereas from those women who had not tested during currency pregnancy mentioned that the main reasons for believing not have risk for HIV, wanting to have discussion with partner/ family, lack of service, fear of stigma and discrimination and fear of HIV test.

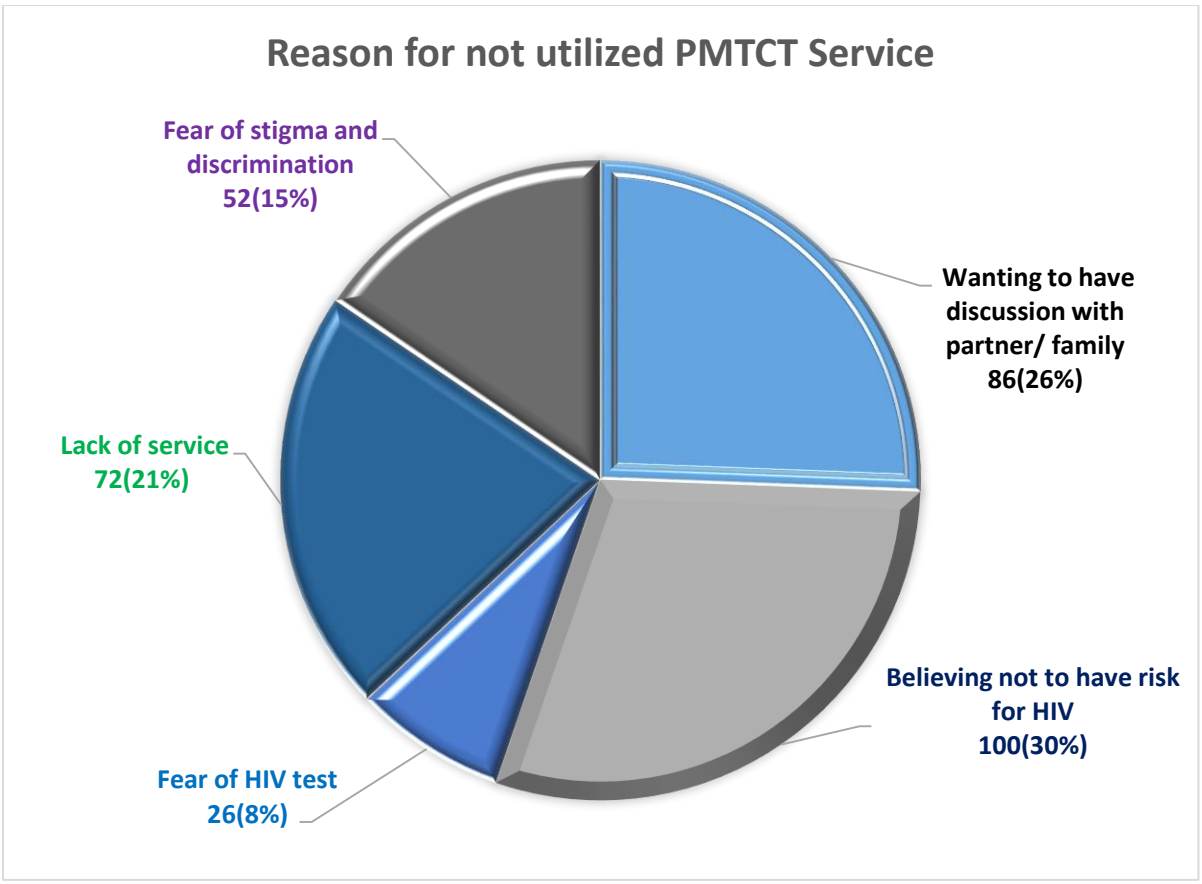

Figure 5:Reason for not utilized PMTCT service among pregnant women in Hadiya Zone, South Ethiopia, May 2019

Table 5: Utilization of PMTCT of HIV/AIDS service among pregnant women in Hadiya Zone, South Ethiopia, May 2019.

Variables	Characteristics	Frequency (No)	Percentage (%)
Offered counselling on HIV test during current pregnancy	Yes	479	78.1
	No	134	21.9
Have been tested in currency pregnancy	Yes	277	45.2
	No	336	58.8
Main reason for not being tested	Wanting to have discussion With partner/ family	86	25.6
	Believing not to have risk for HIV	100	29.7
	Fear of HIV test	26	7.7
	Lack of service	72	21.5
	Fear of stigma and discrimination	52	15.5
Have you received your HIV test result(n=277)	Yes	275	99.3
	No	2	0.7
Result of test	Positive	4	1.5
	Negative	271	98.5
If positive have you began using ARV drugs for PMTCT	Yes	4	100

Bivariate Analysis for factors Associated with Utilization of PMTCT Service among Pregnant Women

Age, residence, maternal educational status, occupation of mothers, husband occupation marital status of mothers, house wealth index status, number of pregnancy, number of ANC visits, gestational age, distance from health facility, source of information from mass media, from wealth workers', referral linkage, waiting time, privacy kept during ANC, male partner involvement, knowledge towards PMTCT, fear of stigma, place of first ANC visits and disclosure for partner were analysed in bivariable analysis. From those only residence of respondents, educational status of mothers, marital status of mothers, gestational age, number of ANC visits, distance from health facility, male involvement and privacy during ANC visits & tested were associated with utilization of PMTCT service in bivariate analysis (see table 6).

Table 6: Bivariate analysis of factors associated with utilization of PMTCT service among pregnant women in Hadiya Zone, South Ethiopia, May 2019.

Variable	Utilization PMTCT service		
	Utilized N (%)	Not Utilized N (%)	p-value
Residence			
Rural*	195(42.6)	263(57.4)	
Urban	81(52.2)	74(47.8)	0.037
Mother of education status			
No formal education *	57(31.5)	124(68.5)	
Primary education (1-8)	115(41.5)	162(58.5)	0.031
Secondary& above education (9-12)$^{+}$	104(67.1)	51(32.9)	<0.001
Marital status			
Currently in marital union	233(46.2)	271(53.8)	0.198
Currently not in marital union*	43(30.4)	66(60.6)	
Gestation age			
First trimester*	38(38)	62(62)	
Second trimester	121(41.3)	172(58.7)	0.562
Third trimester	117(53.2)	103(46.8)	0.012
ANC visits			
One visit*	28(27.5)	74(72.5)	
Two visits	74(38.5)	118(61.5)	0.058
Three visits	72(50.3)	71(49.7)	<0.001
Four & above visits	102(58)	74(42)	<0.001
Distance from health facility (on foot)			
Less than 60 minute	233(53.8)	200(46.2)	0.006
Greater than 1hour*	76(42.2)	104(57.8)	
Privacy during ANC visits & HIV test			
Yes	221(46.7)	252(53.3)	0.121
No *	55(39.7)	85(60.3)	
Partner involvement			
Involved	183(50.1)	182(49.9)	0.002
Not involved*	93(37.5)	155(62.5)	

** Reference category, p- value < 0.25 & candidate for multivariate analysis*

Multivariate Analysis for factors affecting Utilization of PMTCT Service among pregnant mothers.

Residence of respondents, educational status of mothers, marital status of mothers, gestational age, number of ANC visits, distance from health facility, male involvement and privacy during ANC visits & tested were analysed in multivariable regression, but only educational status of mother, number of ANC visits, distance from health facility and male partner involvement were significant associated with PMTCT service utilization in multivariable logistic regression analysis. The multivariate analysis result showed that pregnant women who educational level secondary & above were 5 times more likely to utilize PMTCT service than pregnant women with no formal educational level [AOR = 5, 95% CI; (3.08-8.16)] was significant at p- value 0.001

According to ANC visits during in current pregnancy, Pregnant women's who had visits four & above times health facility were 4.25 times more likely to utilize PMTCT service [AOR = 4.25, 95% CI; (2.41-7.51)] when as compared to those pregnant women visit one-time health facility was significantly at $p<0.001$.

Concerning to distance, pregnant women who with a distance to health facility less than 60 minutes on foot were 1.93 times more likely to utilize PMTCT service [AOR=1.93; 95% CI = (1.24-3.01)] when as compared to distance greater than 60 minutes at (P=0.004).

Lastly, pregnant women who had involved male partner involved during ANC 1.87 times more likely to utilize PMTCT service [AOR=1.87,95% CI;(1.25-2.57 than those who were not male partner involved in during pregnancy at p-value 0.001(see table 7).

Table 7: Multivariate analysis of factors associated with utilization of PMTCT service among pregnant women in Hadiya Zone, South Ethiopia, May 2019.

Variable	*PMTCT of HIV service*		*COR (95% CI)*	*AOR (95% CI)*
	Utilized N (%)	*Not Utilized N (%)*		
Residence				
Rural*	195(42.6)	263(57.4)	1	
Urban	81(52.2)	74(47.8)	1.48(1.02-2.13)	
Education status of mother				
No formal education *	57(31.5)	124(68.5)	**1**	**1**
Primary education (1-8)	115(41.5)	162(58.5)	1.54(1.04-2.29)	**1.79(1.18-2.73)**
Secondary & above education	104(67.1)	51(32.9)	4.44(2.8 -7.02)	**5.01(3.08 -8.16)**
Marital status				
Currently in marital union	245(48.6)	259(51.4)	1.32(0.87-2.01)	
Currently not in marital union*	31(28.4)	78(7.6)	**1**	
Gestation age				
First trimester*	38(38)	62(62)	**1**	
Second trimester	121(41.3)	172(58.7)	1.15(0.72-1.83)	
Third trimester	117(53.2)	103(46.8)	1.85(1.14-3)	
Number of ANC visits				
One visit*	28(27.5)	74(72.5)	**1**	**1**
Two visits	74(38.5)	118(61.5)	1.66(0.98-2.79	**1.81(1.04-3.18)**
Three visits	72(50.3)	71(49.7)	2.68(1.56-4.62)	**3.22(1.79-5.77)**
Four& above visits	102(58)	74(42)	3.64(2.15-6.18)	**4.25(2.41-7.51)**
Distance from health facility (on foot)				
Less than 60 minute	233(53.8)	200(46.2)	1.78(1.178-2.677)	**1.93(1.24-3.01)**
Greater than 1hour*	76(42.2)	104(57.8)	**1**	**1**
Partner involvement				
Involved	172(47.1)	193(52.9)	1.68(1.21-2.33)	**1.88(1.31-2.69)**
Not involved*	104(41.9)	144(58.1)	1	**1**
Privacy during ANC visits & HIV test				
Yes	221(46.7)	252(53.3)	1.36(0.9231.99)	
No *	55(39.7)	85(60.3)	1	

**Reference category, Model fitness (Hosmer and Lemeshow significance Test=0.544), classification power =66.7*

6. Discussion

In this study it was found that only 45% pregnant women utilized PMTCT of HIV service in current pregnancy with 95% CI: (41.1% - 48.8%). This finding was lower when compared with the national recommendation set of national PMTCT guideline, which recommends that every pregnant woman during ANC visit should get PMTCT service(9). Also this finding was lower than studies conducted in Sebeta 86.9% (30), Adema 70.1% (31), Bahir Dar 61.3% (35) and Mizan Amen 53.7% (36). The possible reason for the difference among the finding might be due to differences in the methodology; this current study considered pregnant women from community based and systematic sampling methods whereas above mentioned studies considered ANC attendant mothers from health facility and used convenient sampling technique methods. Another possible reason might be due to the shortage of access to health service in study settings relatively to above mentioned studies settings. In addition, this finding also lower than studies conducted in South Africa 78 % (18) & Uganda 85.5% (23). The difference might be due to the fact that socio-economical difference. Whereas this finding higher when compared with the finding of the studies conducted in South Gonder 9.7 % (33). This discrepancy due to time gap between this study and above mentioned study as time increase the awareness of people also increase due to accessibilities and availability of health care facility. Also another possible reason due to socio-demography different because this study conducted in both rural and urban setting whereas study conducted in South Gonder was only rural setting. In addition, this finding was higher than the Ethiopian demographic and health surveillance report(EDHS) of 2016 which was 19% (11). The discrepancy could be due to EDHS included more remote areas than from this study area.

Different factors were identified significant associated with utilization of PMTCT service. It was observed from the current study that pregnant woman who had education status Secondary & above education $(9\text{-}12)^{+}$ was 5 times more likely utilize PMTCT services as compared to those who had no formal education and maternal educational level who had primary (1-8) levels were 1.79 times more likely utilize PMTCT services than mother who had no formal education. This finding is supported by finding from study conducted in Afar region, in which women who were could read & write 11 times more likely utilize PMTCT service than couldn't read & write(29). Also, this finding in line with, finding from study conducted in Wollega Zone, pregnant women who had formal schooling were 6 times more likely utilize PMTCT service when as compared to those who had no formal schooling. Likewise, study done in Bahir Dara revealed that more than

diploma educated mothers 1.43 times more utilize PMTCT service than below the diploma (35). This finding also in line study conducted in Kenya, a mother who had educational level secondary & above were 1.4 times more utilize PMTCT service when as compared those who had no formal education (40). This may be due to the fact that as educational level increases health literacy of mother also increases and mothers know what is right and beneficial to them. This may also result in increased decision making power of the mothers & enables to better knowledge and better understanding of benefits of PMTCT service utilization.

In the current study pregnant women who had visits health facility for ANC four and above times during their current pregnancy were 4.25 times more likely using PMTCT services when compared to visit one times. This finding is consistent with a study in Gonder shown that a mother who had visits health facility for ANC two & above 2.64 times more likely utilize PMTCT service than a mother visit one time (33). This might be due to pregnant women more contact health facility more aware about utilization of service. Another study done in Adema indicated that a pregnant women more than two visits 2.59 times more likely utilize PMTCT service than a women visit one time (31). This due to Pregnant women with more antenatal care visits tend to have more chances of utilize PMTCT service. In addition this finding is supported by the finding from the study conducted in Hawassa, a mother who had four & above visits health facility were 1.04 times more likely utilize PMTCT service when as compared those who had one visit(42). This is due to the fact that as the number of ANC visits increases, clients were more likely to get compressive HIV education and more likely to care about the health of their child and themselves.

This study illustrates that nearest health facility less than 60 minute far from pregnant women home were 1.93 times more likely utilize PMTCT service when compared to mothers who had distance far from more than 60 minute. This finding supported with finding of study conducted in Afar region indicated that a mothers who were distance less than 1km from health facility 6.5 times more likely utilize PMTCT service than a mother who distance greater than 1 km (29). Another similar study done in Ethiopia applying a count regression showed that an increase in walking distance from health facility would decrease the utilization of PMTCT service(45). This might be due to have better accesses during ANC for PMTCT services, better education, information and awareness about the PMTCT service.

Lastly, this study showed that respondents who had male partner involvement during ANC fellow up were 1.88 times more likely utilize PMTCT service when compared with those who had not male involved. This finding is supported by the finding from the study conducted in Wollega Zone, which respondents who had male involvement during ANC visits 4.5 times more likely utilize PMTCT service than those who had not male involves (34) and study conducted in Bahir Dar indicated that indicated that involvement of male partner has significant association with women's acceptance of voluntary HIV counselling and testing, which was 2.76 times more likely utilize PMTCT service when compared to pregnant women who had male not involves (36). This study consistent another similarly study done in Sebata Showed respondents who had discussion about ANC and HIV testing with their husbands were about 6 times more likely to utilize PMTCT service when compared with those who had no discussion with their partners(30).This might be due to when increased male participation, enhanced freely communication about HIV testing and increase couple's communication in disclosure. This also could be due to most HIV tested mothers do not disclose their HIV sero-status due to fear of divorce, domestic violence by their husbands or families. This finding also consistent with the research conducted in Cameroon, which male partner involvement exceeds PMTCT service utilization by 16.8%. This might be due to male involvement potential improving utilization of PMTCT HIV service (20)

7. Conclusion and Recommendation

Conclusion

Over all magnitude of PMTCT of HIV service utilization among pregnant women in the study setting was 45% which was lower coverage when compared with the national recommendation that every pregnant woman during ANC visit should get PMTCT service.

Women who have more follow-up ANC during pregnancy have great chance to utilization PMTCT service whereas majority of pregnant mother long distance from health facility not utilize PMTCT service. Finally, Educational status primary and secondary & above, number of ANC visits, distance less than 60 minute from health facility and male partner involvement were significantly associated with PMTCT service utilization in this study.

Recommendation

Based on the findings of the study, the following activities are recommended to be achieved by the following bodies:

To Health Extension Workers:

- ✓ Should be ensure that all pregnant mothers who get PMTCT service during ANC follow up
- ✓ Should be accomplished by teaching mothers on the availability and importance of PMTCT OF HIV services use through home to home visits and by holding pregnant mothers' conferences every month at health posts.

❖ ***For Health Care Providers***

- ✓ Service providers should give more emphasis for counselling, testing and treating service.
- ✓ Encourage pregnant women to continue ANC service and involve their partners

❖ ***To District and Zonal Education Office:***

- ✓ Special emphasis should be given for female education since educated mothers have better utilize PMTC services than non-educated mothers.
- ✓ This should be accomplished through adult education as short term solutions and female education for sustained long term solution.

❖ ***To Federal MoH and Regional Health Bureau***

- ✓ Should ensure accessibility service in the community by building more health centers as close as possible to the communities within a walking distance.

❖ **To future researcher**

- ✓ I recommended to employ other study design and qualitative method in order to explore the full picture of the factors affecting utilization of PMTCT service

Strengths and limitations of the study

Strengths.

- Standard questionnaire adapts from UNAIDS Best Practice Survey and EDHS
- Wealth index was used by PCA

Limitations

- Since it was cross sectional study so, difficult to assess cause and Effect relationship.
- Recall bias might have also happened during the study interview → only recent information included
- Social desirability bias → tried to mix data collectors from another facility and out of ANC /MCH clinics

Reference

1. WHO. Prevention of Mother-To-Child Transmission (PMTCT) Briefing Note. 2007.
2. WHO. Global information and education on HIV and AIDS. 2012.
3. UNAIDS. President's Emergency Plan for AIDS Relief (PEPFAR) and Partners (2016) 'Start Free, Stay Free, AIDS Free: A super fast track framework for ending AIDS among children, adolescents and young women by 2020.
4. UNICEF: Prevention Of Mother To Child Transmission (PMTCT) in Ethiopia.http://www.unicef.org/supply/index_428555.html/2016.
5. MoH/HAPCO. Multi-sectoral HIV/AIDS Response Monitoring and Evaluation Report. 2012. Addis Ababa, p. 37-50.
6. MoH. National comprehensive PMTCT/MNCH Training Package Reference Manual 5. Ethiopia Federal Ministry of Health; October 2011.
7. UNAIDS. Global data State of the epidemic of HIV/ AIDs. 2018.
8. UNICEF: Elimination of mother-to-child transmission of HIV/ AIDs July 2018.
9. MoH. Ethiopia Country / Regional Operational Plan (COP / ROP) 2017 Strategic Direction Summary. 2017.
10. WHO. Mother-to-child transmission of HIV/AIDs. 2018.
11. DHS Program ICF Rockville, Maryland U. Ethiopia Demographic and Health Survey , Central Statistical Agency Addis Ababa, Ethiopia. 2016.
12. FMOH. Federal Democratic Republic of Ethiopia Ministry of HealthHealth Sector Development Programme IV 2010/11 – 2014/15. 2014;(October 2010).
13. FHAPCO. Ethiopia Country Operational Plan (COP) Strategic Direction Summary. 2016;
14. EFMOH. HEALTH SECTOR TRANSFORMATION PLAN-I REPORT REPORT ANNUAL PERFORMANCE. 2017.
15. ZHD. Hadiya zone health department Annual report. 2018.
16. Ejigu Y, Tadesse B. HIV testing during pregnancy for prevention of mother-to-child transmission of HIV in Ethiopia. PLOS. 2018;1–11.
17. Deressa W, Seme A, Asefa A, Teshome G, Enqusellassie F. Utilization of PMTCT services and associated factors among pregnant women attending antenatal clinics in Addis Ababa , Ethiopia. 2014;1–13.

18. WHO. Report on primary health care in the Eastern Mediterranean Region: review of progress over. 2018.
19. OJ Ajewole BS& OO, To. Uptake and factors that affect enrolment into the prevention of mother-to-child transmission of human immunodeficiency virus programme in rural Limpopo Province FamPract. 2014;Vol 55 No.
20. George Awungafac,&, Patrick Achiangia Njukeng, Juliana Ajoache Ndasi1 LTM. Prevention of mother-to-child transmission of the Human Immunodeficiency Virus: investigating the uptake and utilization of maternal and child health services in Tiko health district, Cameroon. 2015;8688:1–8.
21. Nwaneri A, Mbagwu A, Adeyemo O, Ndubuisi I. Knowledge Level and Utilization of Prevention of Mother to Child Transmission Services in Enugu , South East. 2018;8(4):67–72.
22. Eze NC, Aliyu AA. Knowledge of Prevention of Mother-to-Child Transmission of HIV and Its Uptake among Antenatal Care Attendees in a Tertiary Hospital in Abakaliki , Nigeria. 2017;3(2):1–8.
23. Mustapha M, Musiime V, Bakeera-kitaka S, Rujumba J, Nabukeera-barungi N. Utilization of " prevention of mother-to- child transmission " of HIV services by adolescent and young mothers in Mulago Hospital , Uganda. 2018;1–11.
24. Munda Elias & Elia John Mmbaga Ahmed Abade Mohamed RSK. prevention of mother to child transmission of HIV infection in Mwanza Region, Tanzania. pan frican Med. 2017;8688:1–9. (January).
25. Tesfaye G, Tufa B, Likisa J, Alebachew M, Temesgen G, Dinsa H. Knowledge , Attitude and Practice towards PMTCT of HIV among Women Ambo, Attending Anc, Hospital. 2014;6(1):1–6.
26. Asefa A, Beyene H. Awareness and knowledge on timing of mother-to-child transmission of HIV among antenatal care attending women in Southern Ethiopia : a cross sectional study. 2013;1–8.
27. Alene M tilahunMalaju and G dagu. Assessment of utilization of provider-initiated HIV testing and counseling as an intervention for prevention of mother to child transmission of HIV and associated factors among pregnant women. 2012;1–8.
28. Lerebo W, Callens S, Jackson D, Zarowsky C, Temmerman M. Identifying factors

associated with the uptake of prevention of mother to child HIV transmission programme in Tigray region , Ethiopia : a multilevel modeling approach. BioMed Cent Ltd. 2014;

29. Akal CG, Afework DT. Status of Prevention of Mother-to-Child Transmission (PMTCT) Services Utilization and Factors Affecting PMTCT Service Uptake by Pregnant Women Attending Antenatal Care Clinic in Selected Health Facilities of Afar Regional State , Ethiopia. 2018;
30. Merga H, Woldemichael K, Dube L. Utilization of Prevention of Mother-to-Child Transmission of HIV Services and Associated Factors among Antenatal Care Attending Mothers in Sebeta Town , Central Ethiopia. 2016;10.
31. Gebremedhin KB, Tian B, Tang C, Zhang X, Yisma E WH. Factors associated with acceptance of provider-initiated HIV testing and counseling among pregnant women in Ethiopia. 2017.
32. Ejigu Y TB. HIV testing during pregnancy for prevention of mother-to-child transmission of HIV in Ethiopia. PLoS ONE 13(8): e0201886. https://doi.org/10.1371/journal. pone.0201886. 2018;
33. Tessema, Kassa Mekibib, Kassa Aska and TTE. Service Utilization of Prevention of Mother to Child HIV Transmission and Associated Factors among Antenatal Care Clients in Dera Woreda Health Institutions, South Gondar, Ethiopia. 2018;11(3):1868–74.
34. Feyera A, Megerssa B, Legesse D, Hailemichael F. Prevention of mother to child transmission of HIV / AIDS : Service utilization and associated factors among selected public health facilities in Horo Guduru Wollega zone, Ethiopia. 2017;8(August):1–13.
35. Berhanu E, Feleke BE, Wasie B. Challenges of PMTCT Service Utilization in Bahir Dar City, Amhara Region. http://dx.doi.org/104314/ejhs.v28i613. 2016;Vol. 28, N(1):779–82.
36. Shewasinad S and SN. Assessment of Factors Affecting “PMTCT” Service Utilization Among Pregnant Women Attending Ante Natal Care at Public Health Facility, Mizan-Aman Town, Bench Maji Zone. EC Paediatr. 2016;3:160–7.
37. Rundasa A. Mother Support Group in Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT) Services at Ambo Hospital. 2015;1–89.
38. Wudineh F, Damtew B. Mother-to-Child Transmission of HIV Infection and Its Determinants among Exposed Infants on Care and Follow-Up in Dire Dawa City , Eastern Ethiopia. 2016;

39. Alemu YM, Ambaw F, Wilder-smith A. Utilization of HIV testing services among pregnant mothers in low income primary care settings in East Gojjam, Ethiopia. 2017;1–8.
40. Otieno A.J.W, KaranjaS.M1 KJ. Socio- cultural Factors Influencing Utilization of Prevention of Mother to Child Transmission of HIV Among Women Attending Antenatal Care Clinics in Rachuonyo North Sub- County-Homa-Bay County , Kenya. 2018;8(4).
41. Diseases I, Tigabu W, Dessie G. Knowledge , Attitude and Practice towards Prevention of Mother to Child Transmission (PMTCT) of HIV / AIDS among Pregnant Mothers at Ni-gist Eleni Mohammed Memorial General Hospital (NEMMGH), Hosanna ,Southern Ethiopia. 2015. 4.
42. Abajobir AA, Zeleke AB. Knowledge , Attitude , Practice and Factors Associated with Prevention of Mother-to-Child Transmission of HIV / AIDS among Pregnant Mothers Attending Antenatal Clinic in Hawassa Referral Hospital , South Ethiopia AIDS & Clinical Research. 2013;4(6).
43. Sasaki Y, Ali M, Sathiarany V, Kanal K, Kakimoto K. Prevalence and barriers to HIV testing among mothers at a tertiary care hospital in Phnom Penh , Cambodia . Barriers to HIV testing in Phnom. 2013;
44. Munda Elias & Elia John Mmbaga Ahmed Abade Mohamed RSK. prevention of mother to child transmission of HIV infection in Mwanza Region, Tanzania. pan frican Med. 2017;8688:1–9.
45. Elias Asfaw Zegeye JM and ZTD. Factors associated with the utilization of antenatal care and prevention of mother- to-child HIV transmission services in Ethiopia:applying a count regression model . 2018;
46. Muchedzi A, Chandisarewa W, Keatinge J, Stranix-chibanda L, Woelk G, Mbizvo E, et al. Factors associated with access to HIV care and treatment in a prevention of mother to child transmission programme in urban Zimbabwe. J Int AIDS Soc [Internet]. 2013;13(1):38. Available from: http://www.jiasociety.org/content/13/1/38
47. Mnyani CN, Chb MB, Sa F, Mcintyre JA, Chb MB, Town C, et al. Challenges to delivering quality care in a prevention of mother-to-child transmission of HIV programme in Soweto. 2013;14(2):64–9.
48. Degefa Tadele Belato, Abera BeyamoMekiso and BB. Male Partners Involvement in Prevention ofMother-to-Child Transmission of HIV Services in Southern Central

Ethiopia: In Case of Lemo District. 2017;

49. Nuri A. Facilitating factors for the Prevention of Mother-To-Child Transmission of HIV Service Utilization among Antenatal care attending Pregnant Women in Public health facilities in Dire Dawa. 2014;
50. WHO G. A Practical Manual,SAMPLE SIZE DETERMINATION IN HEALTH STUDIES. 1991;
51. Sambo LG, Chatora RR. Tools for Assessing the Operationality of District Health Systems. 2003;
52. UNAIDS: Tools; Joint United Nations Programme on HIV/AIDS. Geneva: Joint United Nations WHO, 2015. Geneva, UNAIDS, 2011: Available from: http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20110609 JC2137 -Global-Plan- El.
53. Jacobs, B. et al. (2011) 'Addressing access barriers to health services : an analytical framework for selecting appropriate interventions in low-income Asian countries'. doi: 10.1093/heapol/czr038.
54. Hospital E, Initiative M. Ethiopian Hospital Reform Implementation Guidelines Ministry of Health Ethiopian Hospital Reform Implementation Guidelines. 2010;1(May).
55. Wolfe WR, Weiser SD, Bangsberg DR, Thior I, Makhema JM, Dickinson DB MR. Effects of HIV-related stigma among an early sample of patients receiving antiretroviral therapy in Botswana. AIDS Care. 2011; 18(8):931–933. (PubMed: 17012082).

Annex 1: English version Questionnaire

Jimma University Institute of Health, college of health science, Population and Family Health Department

Questionnaire for data collection on assessment PMTCT services utilization and factors affecting of among pregnant women in Hadiya zone, southern Ethiopia

Informed consent form

Dear respondent:

Hello, my name is_____. This questionnaire is prepared to conduct a study on assessment utilization of PMTCT of HIV services and factors affecting among pregnant women in Hadiya zone, southern Ethiopia. I am here to enrol and take interview from eligible study participants like you and fill in the questionnaire forms prepared by researcher. I am happy to inform you that you are one of the chosen study participants to participate in this study. The purpose of this study is to assess utilization of PMTCT of HIV services and factors affecting among pregnant women in Hadiya zone. The information in this questionnaire will be kept strictly confidential, will not be told to any one and only the research team will have access to the information you gave but your name and address will not be recorded or identified even by the research team. This questionnaire will be filled only if you agree to take part in the study. However, your genuine and true responses you give value for success of the study and also will help for better understanding of the problem that would eventually help in designing appropriate intervention to solve the problems and I sincerely ask you to give your genuine and true responses to the questions provided.

So, do you agree to participate in this study?

Yes/agree ----------No/disagree ----------

Date of data collection---------- Starting time _____End time_____

Name of data collector---------- signature----------

Name of supervisor---------- signature----------

Annex 2: Consent form under 18 years

Participants information sheet and informed voluntary consent form for guardians of mother's age less than 18 years.

My name is_____ I am working as a data collector for the study being conducted in this community by Abebe Dune who is studying for her master degree at Jimma University, the institute of health, faculty of public health, population and family health department. I kindly request you to give me your attention to explain you about the study and being selected as study participant.

1. *Title of the study*: Utilization of PMTCT of service and associated factors among pregnant women in Hadiya zone, Southern Ethiopia

2. Purpose of the study: The findings of this study will provide relevant information regarding utilization of PMTCT service and associated factors among pregnant women. The aim of this study is to write a thesis as a partial requirement for the fulfilment of a master's program in Reproductive health for the principal investigator.

3. Procedure and duration: I will interview your daughter using questions to provide me with relevant data that is helpful for the study. There are about 54 questions to answer where I will fill the questions by interview your daughter. The interview will take about 30 minutes, so I kindly request you to permit and spare me this time for interview.

4. Risk and Benefit: The risk of being participating in this study is very minimal, but only taking few minutes from her time. There would not be any direct payment for participating in this study. But the findings from this research may reveal important information for the local health planners.

5. Confidentiality: The information that she will provided me will be confidential. There will be no information that will identify her in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual person. The questions will be coded to exclude showing names. No reference will be made in oral or written report that could link participants to the study.

6. Right: Participation for the study is fully voluntary. They have the right to participate or not to participate in the study. If they decide to stop, they have the right to withdraw from the study at any time and this will not label them for any loss of the benefits which they otherwise are entitled. Mothers or Guardians have the right not to answer for any questions that they don't want to answer.

7. Contact address: If there are any questions or enquiries any time about the study or the procedure, please contact: Principal investigator:

Abebe Dune, mobile phone: +251973693396. Email:abebemisha10@gmail.com

8. Declaration of informed Voluntary Consent; I have read or it was read for me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any questions. I have been given the opportunity to ask questions for things that may have been unclear. I will inform that my daughter that have the right to withdraw from the study at any time or not answer any question that they do not want. Therefore, I declare my voluntary consent on behalf of my daughter to participate in this study with my initial signature as indicated below.

Name and Signature of participants: _____Date_____

Name and Signature of Data Collector: _____Date_____

SAMPLE ENGLISH QUESTIONNAIRE

Questionnaire on Assess utilization PMTCT services & factors affecting among pregnant women

Questionnaire code_____ Name woreda and kebele _____ //_____

Part I: ***Questionnaire on Socio demographic characteristics of respondents***			
s.no	Question	Response	Go to
101	Age of mother in completed years	…….	
102	Residence of mother	1. Rural 2. Urban	
103	What is your religion?	1. Orthodox 2. Protestant 3. Muslim 4. Others(specify)_____	
104	What is your ethnicity?	1. Hadiya 2. Gurage 3. Kembata 4. others (specify)_____	
105	Mother of education level	1. No formal education 2. Primary education (1-8) 3. Secondary education (9-12) 4. Above secondary education (12^{+})	
106	What is your occupation?	1. House wife 2. Merchant 3. Government employee 4. Private employee 5. Student 6. Others(specify)_____	

107	What is your current marital status ?	1. Married 2. Single 3. Divorced 4. Widowed	
108	Husband occupation	1. Farmer 2. Merchant 3. Government employee 4. Private employer's 5. Others……	
	Socio- economic on household wealth index identification questionnaires		
	House characteristics		
109	What is the main source of drinking water for member of your household?	1. Pipe 2. Non pipe	
110	What kinds of toilet facility do most members of your household use?	1. Flush toilet 2. Traditional pit 3. Ventilated improved pit latrine (VIP) 4. No facility/bush/field → 5. Other (specify)_____	113
111	Do you share this toilet facility with other HH	1. Yes 2. No	
112	If yes Q111, how many HH use this facility including HH members	1. Less than 10 HH 2. More than 10 HH 3. I don't know	
113	Does your household have?	Yes No Radio 1 2 Electricity 1 2 Television 1 2 Telephone/cell phone 1 2 An electric mitad 1 2 A kerosene lamp/ 1 2 A bed/table 1 2 Own the house living in 1 2 Own a bicycle 1 2 A motorcycle 1 2 A car or truck 1 2 Have farm land 1 2	
114	Does the Household have the following animals?	1, yes 2 .no oxen cows	

		Horse /mule Goats /sheep Chicken Donkey	
115	Main floor material of the house	1. Earth/sand 2. Reed/bamboo 3. Parquet or polished wood 4. Cement 5. Carpet 6. Other __	
116	How many rooms in your house are used for sleeping?	No. of rooms…….	
117	Main roof material of your house	1. Corrugated iron 2. Cement/concrete 3. Wood and mud 4. Thatch 5. Reed/bamboo 6. Plastic sheet 7. Other ----------	
118	How many people live in your household?	……..	
Part II Reproductive history			
201	Number of pregnancies including current one	1. Prim gravida (one) 2. Multigravida(two-five) 3. Grand multigravida (> six)	
202	If multigravida where was your last delivery?	1. Home 2. Health center 3. Hospital	
203	How many completed months gestation you are?	1. Up to 3 months 2. Up to 6 months 3. Up to 9 months	
204	How many ANC visits do you have?	1. One visit 2. Two visits 3. Three visits 4. Four visits and above	
205	What are the reason for visiting	1. For ANC service only 2. For ANC and HIV test	

	Part III Access to services and health information related factors		
301	Travel time to the health facility for HIV test service	1. Less than 30 minute 2. 30-60 minute 3. Greater than 1hour (distance on foot.)	
302	The amount of waiting time to see counsellor and test	1. Long 2. Just right 3. Short	
303	From where do you got health information	1. Mass media (radio, TV and Magazine 2. Health workers (HEWs, health professional 3. Others	
304	Was there enough privacy during your counselling?	1. Yes 2. No	
Part IV: - Individual factors			
A	***Knowledge towards PMTCT***		
A401	Do you know that HIV can be transmitted from a mother to her child?	1. Yes 2. No → 403 3. I don't know	
A402	If 'Yes 401 "When can HIV be transmitted from a mother to her child?	1. During pregnancy 2. During child birth (delivery) 3. During breast feeding 4. I don't know 5. Others, specify	
A403	Have you heard about PMTCT?	1. Yes 2. No	
A404	From where do you heard about PMTCT of HIV/AIDS? (don't read the alternative & more than one choice ispossible)	1. Mass media (Radio, TV) 2. Health worker 3. Friend/relative/peer/neighbour's 4. Others(specify……..	
A405	What service do know/ heard	1. HIV counselling 2. HIV testing	

		3. HIV treatment	
A406	Is there any way HIV positive pregnant women can prevent transmission from her to the fetus?	1. Yes 2. No →	408
A407	If yes Q406 What ways of prevention do you know?	1. Medication (ART Prophylaxis) 2. Avoid breast feeding 3. Operation (Caesarean section) 4. I don't know 5. Others	
A408	Once you are HIV negative is it necessary to have HIV testing in each pregnancy?	1. Yes 2. No 3. I don't know	
A409	What is the benefit of PMTCT service for pregnant women?	1. To know her status 2. To prevent transmission to her husband 3. To prevent transmission to her fetus 4. To get treatment and care 5. I don't know	
A410	What would be the best option for feeding an infant born to HIV positive mother? (Do not read, circle what she says)	1. Stop breastfeeding and provide formula food (if affordable) 2. Continue breast-feeding exclusively until six months 3. Mix both breast as well as supplementary feeding 4. Provide the new-born with whatever is available in the house 5. Other (specify)……....	
B	***Referral linkage and male partner involvement***		
B410	Where did you visit the first ANC during current pregnancy	1. Health post 2. Health center 3. Hospital 4. Others ……	
B411	did you linked/referred to HIV test services to health center /hospital?	1. Yes 2. No	

B412	with whom, did you first go to this health facility?	1. Alone (by myself) 2. partners 3. friends 4. others……	
B413	`Do you support the idea that your current partner about ANC service and HIV testing?	1. Yes 2. No 3. I haven't currently partner	
B414	If the response is yes, should the partner be tested with the pregnant women?	1. Yes 2. No	
C	**HIV/AIDS related Stigma & Discrimination**		
C415	If you were supposed to be tested and results turn out to be positive, would you notify results to your Husband/Family or others	1. Yes → 2. No	501
C416	If No Q415 what reasons?	1. Losing friends 2. Being treated like an outcast by the community 3. Being treated badly at work 4. Experiencing break-up of marriage 5. Suffering from physical abuse by partner 6. Losing one's job/livelihood 7. Being treated badly by health professionals 8. being neglected by family	
Part V: Utilization of PMTCT service.			
501	Have you been tested during current pregnancy?	1. Yes 2. No	
502	If "No", what is your reason for not being tested?	1. Believing not to have risk for HIV 2. Wanting to have discussion with partner/ family 3. Lack of service 4. Fear of stigma and discrimination 5. Fear of HIV test	
503	Have you received your HIV test result?	1. Yes 2. No	
504	If yes, What was the result of your HIV test?	1. Positive 2. Negative	

505	If positive have you began using ARV drugs for PMTCT?	1. Yes 2. No	
506	If no, why don't you are taking ARV drugs for purpose of PMTCT?	1. I don't believe that ARV prophylaxis is effective 2. Fear of being identified as PLWHA by people (husband, family, or neighbour) 3. Fear of Drug side effect 4. Other(specify).....	

Now I have finished my questions! Thank you very much!

Annex 3: Hadiyissa version Questionnaire

Xumaato

Ii summi _____ yamamoomo.

An waarummok Jimmi yuniverstee'iisette, waarum quuxi, eebaganne uwwakkam losanuwiinse mat annann annann soroobuwwa issimma. An kaba keese lamfoor meenti bikina mat mat xammichcha xa'meenatte. Ka soroobimi mashka'i lamfoor ihakami ammane, lamfoor ihimmi sawwitee ixxenne warook amo'i haalati mah ihuk da'e ka ni Hadiyyi Zoonanne woroo'n giir giichchi Itophphe'enne 2011H.D soroobimminatte.

Ee bikkina atim ka amo'ikaa ciiluwikaa leho gatisimmina isakam soroobina xa'minoom xa'michchuwwa dabarimine hara'mamtakkona maashoomine xa'moommo.

Kiininse aa'inoom maaxaqq wocca te'im ayyi sawwitem at iittit bee'eka mull manina higinsaa uwinoombee'an ihukkisa xoxxoolinsaa kulleena iitinoommo. Keese ka xa'michchuwwa dabattona isoommok giddisaateyyo, hassilas ayyi ammanem uuwlisimma xantooto. Ka sawwitenne iitamtilas asheerimma xanoommo. Xale'i caak ihaakkoo hanqo'i dabachcha uwwitoo'isina maashoominne edaa tiisiisoommo. Kusoroob jimm yuniverste'iinse hanqqooma siidaakohane ihukisam la'inseena hansoommo.

"Ashsheerim xansiisoo?"

Xansiisoohan ihulass xamima asheere. Xansiisoobelas galaxitaka'aa uulisehee.

Xa'mmaanch summi_____ xishshaqqi_____ xa'makko'i ball_____

Xa'michchi annann mare'e (koodda) ___ ___

Luxx baxanchcha: Xa'mamaa'n hegeeq heechch gatti xa'michchuwa.			
Xigo	Xa'mmicha	Dabachi	
101	Umuri mee'o	----------hiinchcho	
102	Hee'lakkam beyyo	1. Haxxi ulla 2. Beero'o	
103	Ama'nnati maruchcho?	1. Ortodoksa 2. Protestaanta 3. Islaanchcho 4. Mulekk yolass----	
104	Ki giichch maruchcho	1. Haddiya 2. Guraage'e 3. Kambaata 4. Mulekk yolass----	
105	Ki losa'n gaball	1. Mahim losan bee'e 2. Matti saaddentti affebe'e losamohane 3. Honni baxxanchi toomo lammo gullamohane 4. Tomminse lammi baxxanchinse lobbokka lossamohanne	
106	Ki baxx maruchcho?	1. Min amatte 2. Nagadekkichotte 3. Addi'l baxanchchotte 4. I gaginnete baxoomoki 5. Losaanchotte 6. Mulekk yolass-----	
107	Min issim duuha'i hinkide?	1. Min issaammo 2. Min isumoyyo 3. annann ihaamo 4. Mi'n annichchi lehaakko	
108	Kii min mannichi lossani gaballi mee'o	1. Mahim losan bee'e 2. Matti saaddentti affebe'e losamohane) 3. Hossi baxxanchi toomo lammo gullamohane 4. Tomminse lammi baxxanchinse lobbokka lossamohanne 5. Mullaneme…….	

Baxanich lammara : Minni ammaxxa'aa.			
Ammaxxi hagarra'aa			
109	Wa'ii aggi	1.Bobanne 2. Bobannaniyyo	
110	Ki'nnuwwi hinkido'i shu'm mine awwaaxitakamok?	1. Wo'i baxoo shu'm mine 2. Losammi ba'lli shu'm mine 3. Hafachchi aago'isa ihaako ba'lli shumi mine 4. Shu'm min bee'e → 113 5. Mullek yoolasi----------	
111	Immani maha	1. Eyyaa 2. Aa'ee	
112	111 eyyaa ihullassi meeii manni awaxxokko	1. 10 hoffokki 2. 10 lobbokki 3. Laummoyyo	
113	Ki'n mine yookki luwwi	Yookko bee'e Reedooni 1 2 Maabiraati 1 2 Televezhiini 1 2 Edensaanchi/silki 1 2 Doollabi injee'l gala'a 1 2 Kuraazi 1 2 Ara'i/ xarapheezi 1 2 Gaqi mine 1 2 Bishtiliiki 1 2 Doqidoqe'e 1 2 Kaame'i 1 2 Abuulli uulli 1 2	
114	Minni dinnatuwwi	1. Yokko 2. bee'ee Mirgo'uwwi Saayyi Farashi/buquchi Fella'i/gereebbi Antabaa'i Hallichchi	
115	Mi'ni gaxxi	1. Buchcha 2. Lee'mi sinqixxa 3. Xaawula 4. Simminto'o 5. Qara'a/sale'e	

		6. Muleki yoolas	
116	Mee'i iinsi baxxanchuwwi yookko?	Iinsi baxxanchuwwi xigo----------	
117	Mi'n iimman baxxamuki luwwi	1. Qorqoro'innete 2. Simminto'inne 3. Xaawulinne 4. Lee'mi sinqixxi 5. Huqqine 6. Laaskitinne 7. Mulleki yoolas---	
118	Ki mine hee'oo manni xigi mee'o?	……	
	Baxxanich la'amo:- Qaranchi ammaxamaako xamamichchi		
201	Kaa illagenni mee'ii kore lammi forri ekka	1. Mattaqqee 2. Laamminiss onti korri affebe'e 3. Lohhinse lobi korre	
202	Laamminiss loobi kore fore gattilassi hannonne fore gattittokki	1. Minninne 2. Faayya'ommi minnene 3. Hossipittallanne	
203	Lammi fore ekkittanisse mee'ii agganna	1. matti-saaxxi agganna 2. lohhi agganna 3. honnissi agganna	
204	Mee'ii kore manni fore mo'anchi bikinna moo'ammittenna mattatte	1. matti kore 2. lammi kore 3. sassi kore 4. sorri kore 5. matti koremmi marummoyyo	
205	Mahinnate xummi mine matokkokki	1. manni folli bikkina moamenna 2. manni folli bikkina edissa moamena	
	Saxxi baxxancha; fayyaommi minninisse yokk qellimmi bikkina		
301	Fayya'ommi minnisse yokki qellomma	1. 30 daqqiqqinssi hoffanne 2. 30- 60 daqqiqqa 3. 60 daqqiqqinissi lobbanne	
302	Xumma moaamo keno sidenna yokki annanni	1. Lobakkatta 2. Dannamo 3. Gunda	
303	Xummi bikkinna hannisete maccessotokki	1. Raddinnisse	

		2. Xummi baxxannise 3. Mulluwinsse	
304	Moammittitt ammanne dannanissa egerakkaa he'akko'onnihhe	1. Eyya 2. Aa'ee	
Baxxanchchi soro:- Ammanissi chillichonne higokki eddissi bikkinna nihhi hegeqissinneiggaqqissinne			
A Ammanissi chillichonne higokki eddissi bikkinna laaiimma			
A401	Eddissi ammanniss chilichonne hiiggo'iissa laqqohonnihe	1. laa'oommo 2. laa'oommoyyo →	403
A402	Xammichi 401 laqqolassi hinkki ammanne higokokki	1. lammi folli ammanne 2. fore gattaku'uyya (qaraku'uyya 3. annunna ichchisaku'uyya 4. laa'mmoyyo 5. mulleka…….	
A403	Ammannissi chillichonne higoo'beessa eggarakkammi gogo machechessahinnihe?	1. Eyya machessammo 2. Machesummoyyo	
A404	Ammanssi chillichonne higokki eddissi jabbi bikkinna hanniniss machesitto	1. Raddinnisse 2. Fayyaommi xaxxixxi minnisse 3. Ee'ii bashuwwinissi 4. Mulli kenninissimmi….	
A405	Mahi mahi bikkina machesate	1. Soggixxammanchi bikkina 2. Moa'ammichi bikkina 3. Qarare awwaxximmi bikkina	
A406	Eddissi yokki ammannissi chillichonne higibee'issa issimma xannakkammo	1. Eyya xanakkammo → 2. Xannakkamoyyo	408
A407	Xammichi 406 eyya ehullassi mahhi gogginne horrimma xannakammo	1. Qararrinni 2. Annunna horrimminni 3. Qarammo ammanne orracho dikkiminne 4. La'uummoyyo	
A408	Lammi foromannone edissa mo'ammitohare bee'ullassi mulli ammanne moo'ammittenna hassisso	1. Eeyyaa 2. Hasisoyyo 3. La'ummoyyo	
A409	Ammannissi chillichonne higoo'ii bee'iisa issimmi awwaddi mahinnatte	1. La'ommoyyo 2. Annichi gaga la'oonna 3. Ammanissi min anna higoo 4. Bee'issa 5. Ammaa chillanne higo beeissa	

A410	Eddissi yokki ammannissi qarramukki chilluwwinna maha issimmi ellokko	1. Annunna uwwimma urrimma 2. Lohhi agganni affebee annunna uwwimma 3. Annunna hurribata hammaraka,a uwwimma 4. Minnenne siddammukki luwwa hunnidammi uwwimma 5. Mulli kennimmi……	
B Lammi fore mento asse'imma min annichchi matteyammicha			
B410	Luxxi moo'ammicha hanonnette mo'ammittittokki	1. Kabale'e xummi minene(h.post) 2. Xumma egeranchchi minene(h.center) 3. Hossipitallane 4. Mulli be'yyonne…….	
B411	Kabele'e xummi egeranchi minene moa'nittilassi edissi bikinna mo'ammittonna mulli beyo ase'akka he'akko'o	1. Eyyaa 2. Asse'akko'oyyo	
B412	Ayyennette xummi egeranchchi mine mattitookki?	1. Eggagginemmi / mullammi 2. I'ii minni annichchinnemmi 3. I'ii beshinnemmi 4. Mu'lli kenninne	
B413	Kiminni anichchi lammi foli amanene eediss bikinna mo'ammitonna haramo'onnihe	1. Eyya 2. Aa'ee 3. Kaba anchi be'e	
B414	Eyya ihullassi kimminni annich mo'amma he'ukkonnihe	1. Eyya 2. Mo'ammukkoyo	
C	**Eedissi bikinne waroo yayanchcha**		
C415	Hinno yinnonaa eeddissa ma'ammitta he'uuttanni kii minni annichchinna kuttohonnihe / abbarossinna	1. Kurrommo ⟶ 2. Kurrommoyyo	501
C416	Kuttobeeanni ehulassi mahinna	1. Eebishshi anan ehommi bikina 2. Jorri illinne mooammommi bikkinna 3. Baxxi baganne shigigammomi bikinna 4. Aggixxanchchi mateyyommi bi'oobikina 5. Eeii mannichi baganne hundi ammannemmi shigigammommi bikkina 6. Baxxo hogommi bikkinna 7. Jorri ellenne xummommi minnenne mo'ammo bikkina 8. Yayyammommi bikkinna	

Onniti baxxanchi:- Ammannissi chillichonne higobee'issa uuwwakkammi Awwaxxi bikkinna			
501	Kaa fayyaoommi ammanne eddissi bikkina mo'ammittahinne	1. Eyya 2. Aa'ee	
502	Aaee ehullassi mahinna	1. Mahhimma bee.e bikkinna 2. E'eii minni annichinne atorarrenna 3. Awwaddi bee'ii bikkinna 4. Hawojji affo bikkinna 5. Moammicha badommi bikkinna	
503	Mo'annittannika misha massita	1. Eyya 2. Aa'ee	
504	Massittilassi mishi marricho	1. Bee'ee 2. Yakko	
505	Yollassi qararre ashettahhinnihe	1. Eyya 2. Aa'ee	
506	Qarrarre ashetti bee'llassi mahiina	1. Yayyakami bee'iissinna 2. Qaralli bikkinna la'oommi bee'e bikinna 3. Qararri fayyisokko yaa amannommi bee'I bikkina 4. Mullekki…….	

Gullammo gallaxxommo!

Declaration:

I, the undersigned, declare that this Thesis is my original work and has not been presented for a Degree in this or any other University, and all source of materials used for this thesis have been fully Acknowledged.

Name: Abebe Dune

Signature_____ Date_____

Place: Jimma University

Date of Submission_____

This Thesis has been submitted with my approval as the University Advisor.

Name of the First Advisor: _____

Date_____ Signature_____

Name of Second Advisor: _____

Date_____ Signature_____