# ADDIS ABABA UNIVERSITY
# SCHOOL OF GRAGUATE STUDIES


Assessment of Acceptability of Provider Initiated HIV Counseling and Testing Among Tuberculosis and non -Tuberculosis Patients in Shashemene Town, West Arsi Zone, Oromia Region, Ethiopia

By
Emiru Adeba (BSc)

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master of Public Health

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## Abstract

**Background**: HIV counseling and testing is fundamental to both HIV/AIDS prevention and treatment. Patients need to know their sero-status to benefit from available care and treatment options. Provider Initiated HIV Counseling and Testing has been implemented in most health facilities utilizing Directly Observed Treatment Short course to increase uptake of HIV counseling and testing as the most important opportunity. Different factors might affect the up take of PIHCT services which demand timely assessment.

**Objective:** the objective of the study was to assess the acceptability of PIHCT and factors influencing its service uptake among TB and non TB patients in Shashemene town of West Arsi Zone.

**Methods:** Institution-based, comparative cross-sectional study was conducted from January to Feburary 2010, on 237 TB patients attending Tuberculosis clinics and 236 non TB patients who were offered PIHCT from outpatient department in Shashemene hospital and Shashemene health center. Data were collected using consecutive sampling until the required sample size was attained using structured questionnaire

**Results:** Majority of the participants were male 136(57.4%) among TB and150 (63.3%) among non TB, in the age group 25-34 years 79(33.3%) among TB and 93(39.4%) non TB, musilim by religion 116(50%) among TB and 116(50%) among non TB. Among 473 study participants 86.3% (89.9% TB vs 82.6% non TB) had accepted PIHCT. TB patients are more likely to accept PICHT than non TB patients at AOR= 2.4; 95% CI (1.3, 4.6). Those who support importance of PIHCT were more likely to accept PIHCT at AOR=14; 95% CI (6.1, 33.4) than those who are against PIHCT.

**Conclusions:** The acceptance rate of PIHCT is relatively higher in this study; TB patients were more likely to accept PIHCT than non TB patients. The programme needs to be strengthened in all settings for both TB and non TB patients since HIV testing and counseling stands out as paramount both in treatment and in prevention of HIV/AIDS.

## List of abbreviations

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| ANC | Antenatal Care |
| ART | Antiretroviral Therapy |
| BSS | Behavioral Surveillance Survey |
| CPT | Cotrimoxazole Preventive Therapy |
| DOTs | Directly Observed Treatment short course |
| EPHA | Ethiopian Public Health Association |
| ETB | Ethiopian birr |
| FMOH | Federal Ministry of Health |
| HIV | Human Immunodeficiency Virus |
| ICC | Invassive Cervical Cancer |
| NGO | Non Governmental Organization |
| NTP | National Tuberculosis Programme |
| OI | Opportunistic Infections |
| OPD | Out patient department |
| PIHCT | Provider Initiated HIV Counseling and Testing |
| PLWHA | People Living with HIV/AIDS |
| PMTCT | Prevention of Mother to Child Transmission |
| PTB | Pulmonary Tuberculosis |
| TB | Tuberculosis |
| UNAIDS | Joint United Nation Program on HIV/AIDS |
| VCT | Voluntary Counseling and Testing |
| WHO | World Health Organization |

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# 1. Background

## 1.1. Introduction

Tuberculosis (TB) is a leading cause of morbidity and mortality among people living with HIV/AIDS (PLWHA). Untreated human immuno-deficiency virus (HIV) infection leads to progressive immunodeficiency, and increased susceptibility to infections including TB. HIV is fuelling the tuberculosis epidemic particularly in Africa, where TB incidence rates are still rising across the continent at a rate of 3-4% annually.TB had tripled or quadrupled in Sub-Saharan Africa (SSA) due to the deadly synergy effect between TB and HIV, since 1990 (1- 5).

HIV infection is now the most important single predictor of TB incidence in SSA. The region accounts for 70% of the world's 14 million people who are co-infected with TB and HIV. Death rate in patients treated for tuberculosis in sub-Saharan Africa has risen in the last 10-15 years, the most important reasons being concomitant HIV infection. Between 20% and 30% of HIV infected patients with smear positive pulmonary tuberculosis (PTB+) die within 12 months of starting treatment. In Ethiopia, it is estimated that HIV/AIDS accounts for 32% of the estimated 141,000 TB case incidences in 2005. The prevalence of HIV co-infection among adult TB cases is estimated to be 40% in urban areas of Ethiopia. A study conducted in Addis Ababa in 1998 showed HIV co infection was 45.3% among PTB+ patients (6 - 11).

Despite close epidemiological links between HIV and TB, the public health responses have largely been separated. In addition, because of the low priority given to voluntary counseling and testing (VCT) in the past, access to this service has been limited in countries most severely affected by HIV. According to the 2003 World Health Organization (WHO) report, only 3% of the 4.4 million TB cases were reported to have been HIV tested world wide (7, 12, 13).

Due to the under utilization of the client initiated HIV counseling and testing the revised UNAIDS / WHO policy statement on HIV testing recommended that provider initiated HIV counseling and testing (PIHCT) should be implemented in clinical settings. For instance, only 10% of patients knew their sero-status in the world in 2003. In Ethiopia,

the second round behavioral surveillance survey (BSS) reported that only 5% of the general population (15-49 years of age) being ever tested for HIV in 2005 (14 - 17).

HIV pandemic presents a massive challenge to the control of TB. On the other hand, TB is also one of the leading causes of morbidity and mortality in PLWHA in Ethiopia. HIV testing and counseling stands out as paramount to tackle these problems in treatment and prevention activities. Results of VCT acceptability assessments in the general population as well as among TB patients showed wide variability. The National guideline for management of opportunistic infections and ART in adolescents and adults in Ethiopia recommends HIV counseling and testing as a routine care for TB patients. Shashemene City Administration Health Bureau is implementing PIHCT in response to the high HIV prevalence among TB patients, and in an attempt to increase the uptake of HIV testing and antiretroviral treatment (ART) (15, 18, 19, 20).

### 1.2. Rationale of the study

HIV pandemic presents a massive challenge to the control of TB. On the other hand, TB is also one of the leading causes of morbidity and mortality in PLWHA in Ethiopia. HIV testing and counseling stands out as paramount to tackle these problems in treatment and prevention activities. Results of VCT acceptability assessments in the general population as well as among TB patients showed wide range of acceptability. The National guideline for management of opportunistic infections and ART in adolescents and adults in Ethiopia recommends HIV counseling and testing as a routine care for TB patients (15, 18, 19, 14, 20).

Examining and understanding factors that influence PIHCT utilization is crucial to improve use of services; hence its impact on the long run, among the health institutions and the public is vital and is a timely activity to strengethen HIV preventionand control efforts. Although there are few studies that examined acceptability of PIHCT in Ethiopia, acceptability of PIHCT among TB and non TB patients, and factors influencing its uptake has been overlooked. The results of this study would be useful for planning and implementation of PIHCT.

## 2. Literature review

### 2.1. Global HIV and TB epidemiology

AIDS has killed more than 25 million people since it was first recognized in 1981. It makes one of the most destructive epidemics in recorded history.The AIDS pandemic has claimed 3.1 million lives; more than half a million (570,000) being children at the end of 2005. The total number of PLWHA reached its highest level; an estimated 40.3 million people are now living with HIV in 2005 (21, 22).

Sub-Saharan Africa has just over 10% of the world's population, but is home to more than 60% (25.8 million of 40.3 million) of people living with HIV. TB and HIV are now the overlapping epidemic in SSA. There were an estimated 8.3 million new cases of TB worldwide; nearly two million people die from the disease each year and 12% are attributable to HIV. Generally, there are between 16 and 20 million cases globally; 95% of TB cases and 98% of the deaths occur in developing countries. In some sub-Saharan African countries, up to 70% of the patients with smear positive pulmonary TB are HIV-positive. A study in rural Malawi showed that 77% of TB patients were HIV positive (21-24).

HIV infection is driving the TB epidemic, but TB programmes have focused on TB case finding and treatment, with little attention to HIV/AIDS interventions. Although TB is the leading cause of HIV related morbidity and mortality, HIV/AIDS programmes have generally paid little attention to TB prevention and control. There has been a poor concreted coordination in prevention and control of both diseases (3).

### 2.2. HIV and TB in Ethiopia

In Ethiopia, HIV was first detected in 1984 in stored sera. The first two HIV/AIDS cases were reported in mid-1986. Since then, the epidemic has spread to the general population in both urban and rural areas. Ethiopia's epidemic is concentrated mainly in urban areas, where HIV prevalence among pregnant women has averaged at 12–13% since the mid-1990s. The average prevalence rate of HIV infection in the adult population is estimated to be 3.5% with a much higher proportion in urban (10%) areas than in rural areas (1.9 %) in 2005. Indeed, the large part of the AIDS burden is shifting to rural communities

where more people are now being infected with HIV than in urban areas. Ethiopia is a country where AIDS caused an estimated 34% of all young adult deaths in 2005, and 66.3% of all young adult death (15-49 years) in urban Ethiopia.The burden of TB in Ethiopia is also one of the highest in the world. The incidence of TB has risen in recent years, partly as a result of the impact of the HIV/AIDS epidemic (9, 25, 17, 24).

The HIV pandemic presents a massive challenge to the control of TB in Ethiopia. It has accounted for an estimated 38% or 54,000 of all new TB cases in 2003. This proportion is expected to continue to rise in the coming years, contributing to a total projected TB case load of 180,000 in 2009. According to recent Ministry of Health (MOH) estimation, the prevalence of HIV co-infection among adult TB cases was 21% in Ethiopia. In 1998, the prevalence of HIV in TB was 45.3% among PTB+ in Addis Ababa as described by one study (9, 11, 25, 26).

### 2.3. The impact of HIV on tuberculosis

HIV fuels the tuberculosis epidemic in several ways. HIV promotes progression to active TB both in people with recently acquired and with latent *M tuberculosis* infections (25). HIV is the most powerful known risk factor for reactivation of latent tuberculosis infection to active disease. HIV infected people are more susceptible to TB infection when they are exposed to *M tuberculosis* (6, 25, 27).

The life time risk of active tuberculosis in persons with TB infection alone is estimated to be only 5-10%, but the annual risk of developing TB in a PLWHA who is co-infected with *Mycobacterium tuberculosis* ranges from 5 to 15 % with an estimated life time risk above 30%. HIV also increases the rate of recurrent TB, which may be due to either endogenous reactivation (true relapse) or exogenous re-infection. The increasing TB cases in PLWHA pose an increased risk of TB transmission to the general community, whether or not HIV-infected (2, 5, 22, 23, 27).

To summarize, HIV has impact on TB patients and programmes hence having great implication for TB control policies. The impact of HIV on patients includes the effect of HIV on diagnosis and on the pattern of HIV related TB, response of HIV infected TB

patients to TB treatment, and the quality and continuity of care for TB patients. The impact on national TB programmes (NTP) includes increased case load, impaired NTP performance, and increased need for access to ART and difficulties in reaching TB control targets. On the other hand, TB also accelerates HIV disease progression, and is associated with decreased survival. TB specific mortality is four fold higher among HIV-infected patients than among the uninfected patients (6, 26, 28).

### 2.4. Client initiated HIV counseling and testing

Client initiated HIVcounselling and testing (also called VCT) involves individuals actively seeking HIV counseling and testing at a facility that offers this service. HIV testing in combination with appropriate counseling is an important tool in the public health response to AIDS. Counseling and testing programs designed to promote knowledge of sero-status can facilitate behavioral change, assist partners to negotiate safer sexual practice and allow early access to care, treatment and support for the HIV infected (29).

Recent improvements in ART and prophylaxis for opportunistic infection have given new urgency to identify HIV infected persons. However, the current reach of HIV testing services remains poor in low and middle-income countries. In addition, those who have been tested learned that they were too late to benefit from these advantages. For instance, in a study conducted in Zambia in 1999, where the HIV sero prevalence among the general adult population was 20%; only 6.5% of adults were previously tested for HIV. Only 3% of 4.4 million reported TB cases in the world were reported to have been HIV tested in 2003, and fewer than 1,349 HIV positive TB patients started on ART. There are few developing countries where more than 10% of the adult population has been tested for HIV, whereas one-quarter to one third adult population have been tested in countries with low HIV prevalence (29, 15, 16, 30).

In Ethiopia, the second round behavioral surveillance survey (BSS) reported that only 5% of the general population (15-49 years of age) being ever tested for HIV in 2005. The up take of HIV testing among TB patients was only 6.6% in northwest part as reported by Akililu and 41.4% in Addis Ababa as reported by Melaku. Accordingly, several pilot

projects and clinical trials have been implemented in several countries and documented that the uptake of HIV testing in TB clinics was high (24, 28, 30, 31, 32)

### 2.5. Provider initiated HIV counseling and testing, and factors influencing its utilization

Until 2002 most HIV counseling and testing has been done in centers designated for VCT. These centers can be located in the community or within a health care facility such as a district hospital. In either instance, clients choose to seek VCT and the first user of the test result is the client, who uses the information to make personal life decisions. The majority of clients are HIV-negative, and counseling focuses on risk behaviors and risk reduction (33).

In 2002, De Cock and colleagues argued that HIV/ AIDS in Africa should be redefined as a public health and infectious disease emergency and that there should be an increased focus on treatment, advocating for routine and diagnostic HIV testing within health care settings.This approach differs from VCT in that HIV testing is requested by the health care worker and is an integral part of the clinical interaction. There is greater emphasis on 'opting out' (patients undergo an HIV test as part of the diagnostic work-up unless they specifically decline), and there is a higher priority on post-test rather than pre-test counselling, particularly if the patient is HIV-positive. Routine and diagnostic HIV testing is now usually promoted as 'provider-initiated' (opt-out) testing. Many patients tested through PIHCT in TB clinical settings are HIV-positive. Thus, counseling focuses on preventing the spread of HIV and linkage to HIV care and treatment (33).

WHO sets two discrete categories for PIHCT namely diagnostic and routine offer: Diagnostic testing is part of a clinical process of determining the diagnosis of a sick person and it refers to situations where a medical condition (e.g. Tuberculosis) or medical symptoms (e.g. Opportunistic infection or unexplained weight loss) indicate a significant possibility of underlying HIV disease. And routine offer of testing and counseling means, offering an HIV test to all sexually active patients, who present for medical care regardless of their initial reason for seeking medical attention (5).

Access to ART is scaled up in low and middle-income countries. There is a critical opportunity to simultaneously expand access to HIV prevention. HIV prevention continues to be the mainstay of the response to the HIV epidemic. HIV testing and counseling stands out as paramount both in treatment and in prevention of HIV/AIDS (15).

An exploratory cross-sectional survey was conducted in six PMTCT sites in rural Zimbabwe to assess acceptability of routine HIV testing ("opt-out"). Of 520 women sampled, 285 (55%) had been HIV tested during their last pregnancy. Primary education or no education, reporting receiving neither group education in the ANC clinic nor individual pretest counseling, and having attended less than six ANC visits were associated with not having been HIV tested. Among the 235 women not HIV tested in ANC, 79% reported that they would accept HIV testing if opt-out testing was introduced. Factors associated with accepting the opt-out approach were being younger than 20 years of age, having secondary education or more, living with a partner, and the existence of PMTCT of HIV/AIDS service where the untested women delivered. Thirty-seven women (16%) declined routine HIV testing, mainly because of their fear of knowing their HIV status and the need to have their partner's consent. Among the women already tested in ANC (n = 285), 97% accepted the opt-out approach (34).

In Kenya after introducing a routine test offer in 2005, the Machakos District Hospital counseled 2394 patients, of whom 90% chose to test. Fifty-seven percent were HIVpositive. Of these, 566 (46%) began antiretroviral therapy, as compared to 273 patients who had been identified as eligible for antiretroviral therapy as a result of voluntary counseling and testing (35).

A study conduced to assess acceptability of HIV testing in patients with invasive cervical cancer in Kenya revealed that overall, 11% of invasive cervical cancer (ICC) patients were HIV sero positive. The acceptance rate of HIV testing was 99%; yet, 5% of the patients did not want to know their HIV results. Patients younger than 35 years of age were two times more likely to refuse the result of the HIV test. Patients who did not want to know their HIV results were three times more likely to be HIV sero positive. Eighty

four percent of the patients were unaware of their HIV sero positive status. The HIV-1 sero prevalence in ICC patients was comparable to the overall sero prevalence in Kenya (36).

By July 2006, only 45,595 patients were ever started on ART out of an estimated 277,800 eligible individuals in Ethiopia. Slow enrollment in HIV treatment was thought to be due to in part poor utilization of HIV testing (15, 26, 39).

Regarding PIHCT on tuberculosis patients, a study conducted in Arba Minch, Ethiopia to assess acceptability of PICT among patients revealed that 73% were willing to be tested and 58% of those willing accepted the test. The overall acceptability rate was 35%. Fourteen (20.6%) were HIV positive and women were more likely to be HIV infected. Unemployment and self perceived high risk of HIV infection were associated with initial willingness. However, only being unemployed was associated with accepting the test (44)

In addition a study assessing of VCT utilization, and willingness to accept provider initiated HIV counseling and testing among tuberculosis patients in Addis Ababa came up with a result, where by 86.2% of the patients were willing for PIHCT. The only adjusted correlates of willingness for PIHCT were being in older age group, and having demand for HIV testing. Key testing barriers include self trust (41.1%), lack of risk perception for HIV infection (24.4%), fear of learning positive result (13.9%), and stigma and discrimination attached to TB and HIV. Early evidence of widespread support for PITC and moderate acceptance of HIV testing in this study holds significant promise for the control, prevention and treatment of HIV/AIDS and TB (31)

In 2005, only 5% of the general population 15-49 years of age was ever tested for HIV in Ethiopia. The reality is that stigma and discrimination continue to stop people from having an HIV test. In addition, poor access to service, and the wide spread perception that HIV testing offers little benefits to the individual who tests positive in the past also contributed to the under utilization of HIV testing (12, 17, 15)

The fear of learning HIV status, feelings of hopelessness, and senses too late for behavior change was mentioned as factors in under -utilization of testing service shown by several

studies. Studies conducted in Ethiopia on the factors why people may not want to learn their HIV status among youth and pregnant women identified as low risk perception, lack of perceived benefits of VCT, fear of partner's reactions, and unable to cope with positive tests. A population based study in Botswana identified fear of having to change sexual practices with positive HIV test as a perceived barrier for HIV testing (16, 31, 39).

# 3. Objectives

## 3.1. General objective

- To assess the acceptability of PIHCT among TB and non TB patients in health facilities in Shashemene town, West Arsi Zone

## 3.2. Specific objectives

- To assess factors associated with the acceptiblity of PIHCT
- To assess knowledge, attitude and practice towards PIHCT
- To assess knowledge and attitude toward TB/HIV/AIDS

# 4. Methods

## 4.1. Study area and population

The study was conducted in Shashemene town, which is located 250 kilometers south of the capital city, Addis Ababa, situated at a crossroad to Bale, Arsi, Zeway, Awasa and most parts of Southern Ethiopia. The study was conducted from January 01 to Feburary 30, 2010. According to the Central Statistics Authority 102,000 people (51% female and 49% male) were estimated to live in Shashemene town in 2007. The town is divided in to 10 kebeles (the smallest administrative units) with an average population of over 10,000 in each kebele (40, 41).

Currently, TB control program utilizes the Directly Observed Therapy (DOT) for TB patients on intensive phase of treatment strategy and is being run in two health center and one hospital in government health facility. The town started implementing PIHCT as a pilot at Shashemene Hospital TB clinics since 2005. PIHCT has been provided by the health center clinic since 2006, and recently the service has been extended private and NGO's health facilities in the town. According to FMOH report on health and health related indicator, there were 41,507 all type of TB cases registered in Oromia in 2006/7 and the prevalence of TB/HIV co infection in Shashemene was 44% (42, 43).

Shashemene town was selected for this study because of the following reasons; it is a transition town to many parts of southern Ethiopia, many rural and urban migrants are attracted for trading possibilities and seasonal employment and it is the most ethnically mixed town in Ethiopia. Furthermore, the activities of informal sectors are targeted the large mobile people in the area.

## 4.2. Study design

A facility-based, comparative cross-sectional study was conducted among patients attending TB clinic and patients from OPD who were offered with PIHCT.

### 4.3. Study population

For this study, the source population was all TB patients who were registered under DOTS and patients attending OPD who were offered PIHCT during the study period in Shashamane hospital and health center, West Arsi Zone.

### 4.4. Sample size determination

Thes ample size for this study was determined using the formula for the difference between population proportions.The number of population willing to accept PIHCT was the main outcome variable used to calculate the sample size and a study conducted in Arbaminch Town shows the prevalence of willingness to accept PIHCT was 35% among TB patients (44) and 50% among non TB patients were assumed to consider maximum sample size since there is no similar study done, with 5% marginal error and 95% confidence interval, and 80% power. Assuming 15% non-response rate, the minimum sample size was calculated to be 473 for both groups using the following formula:

Formula for sample size calculation: -

$$n = \left( \frac{\left[ Z\frac{\propto}{2}\sqrt{\left(1+\frac{1}{r}\right) * P(1-P)} + Z\beta\sqrt{p1(1-p1) + \frac{p2(1-p2)}{r}} \right]^2}{(p1-p2)^2} \right)$$

n=411+15 %( 411) non response rate = **<u>473</u>**

In which: P1= the proportion of people willing to accept PIHCT among TB patients (0.35)

P2 = the proportion of people willing to accept PIHCT among non TB patients (0.50)

Z1-α/2= value of standard normal distribution corresponding to a significance level of alpha (1.96 for a two-sided test at 0.05 level)

Z1-β/2= value of standard normal distribution corresponding to the desired level of power (0.84 for a power of 80%)

r = the ratio of TB patients to non TB patients

### 4.5. Sampling procedures

Data were collected from the total government health facilities, both hospital and health centers where DOTS are being implemented in Shashemene town i.e. Hospital and health center in Shashemene town over the data collection period. Patients who visited the health facilities and fulfilled the inclusion criteria during the study period for treatment of TB and patients who initiated PIHCT at the out patient departments were interviewed consecutively until the total sample size of the study was completed. The sample size was proportionally allocated to Shashemene hospital and health center based on monthly client size. Study subjects in the selected institutions were stratified by patient status related to presence or absence of TB and sample size for each stratum was equally allocated. To select study subjects within each stratum quota sampling was used. Initially the daily average number of clients visiting the health institution during data collection period was estimated based on the previous daily client flow of the units. This was obtained by referring client registration book/ record for a month prior to data collection.

### 4.6. Data collection

The study utilized closed ended structured questionnaire containing questions on sociodemographic variables, patients' knowledge and attitude related to TB/HIV/AIDS, self risk perception to HIV/AIDS and knowledge and attitude related to PIHCT. The questionnaire was prepared in English and then translated in to Afan Oromo and then back translated into English to check for its consistency.

The structured questionnaire was pre-tested in health centers located out side of Shashemene Town and appropriate adjustments were made accordingly. Trained health workers recruited from the study health facilities collected the data.Training was given to data collectors and supervisors for two days. A supervisor with the principal investigator has supervised the data collection and checked filled questionnaires for consistency and completeness.

### 4.6.1. Inclusion criteria

- All types of TB patients who were following their treatment at the selected health facility and non TB patients who were offered with PIHCT in Shashemene Town.

### 4.6.2. Exclusion criteria

- TB patients who were diagnosed in the Shashemene health facility but transferred out to other health institutions outside Shashemene for follow up.
- TB patients who discontinued their treatment,
- Patients below the age of 18 years old
- Non TB patients who were not offered PIHCT
- Non consented and non voluntary patients

### 4.7. Study variables

Dependent Variables:

· Acceptability of PIHCT under routine care

Independent Variables

· Socio-demographic (age, sex, educational level, occupation, marital status)

· Knowledge on HIV/AIDS/TB and HIV counseling and testing

· Knowledge on PIHCT

· Perceived risk of HIV infection

### 4.8. Operational definitions

**PIHCT- re**fers to HIV counseling and testing which is recommended by health care providers to persons attending health care facilities as a standard component of medical care

**Acceptability**- measured by the proportion of TB and non TB patients accepting PIHCT

**Acceptors** - Among all TB and non TB patients who were interviewed, those who under gone PIHCT

**Non-acceptors**- Among interviewed TB and non TB patients, those who refused to accept PIHCT.

**Risk perception for HIV/AIDS** -respondents feeling of vulnerability of being infected by HIV/AIDS.

### 4.9. Data processing and analysis

EPI INFO version 6 was used for data entry and cleaning, and SPSS16 for Statistical analysis. In the analysis process, frequency distributions of variables were worked out in order to describe them in relation with the study population.

Knowledge on major HIV/AIDS transmission and prevention was weighted for 4 and 3 questions; score greater than 100% (4 out of 4) and 100% (3 out of 3) are defined for existence of adequate knowledge. And again, for HIV/AIDS comprehensive knowledge five variables were measured, namely, existence of disease, weighted mode of transmission, weighted means of prevention, nature of the disease and curability. An average score of 100% are defined as presence of adequate comprehensive HIV/AIDS knowledge

The association between dependent and independent variables (acceptability of PIHCT as dependent and socio demographic variables, knowledge about TB/HIV and self risk perception as independent) was measured by means of odds ratio for which 95% confidence interval was calculated. Variables which showed a statistically significant association ($p<0.05$) were analyzed using multivariate regression.

### 4.10. Data quality assurance

To ensure quality of the data, data collectors were given training on the objective of the study and clarity of the questionnaires for two days by the principal investigator. The questionnaire was pre tested by trained data collectors to check for ambiguity and amendments (arrangement of the questions, options for the questions and skipping pattern) were made accordingly.All the data from each treatment center was checked for completeness, accuracy, and consistency by the principal investigator and the supervisor immediately after the data collection.

### 4.11. Ethical considerations

The ethical approval and clearance was obtained from the Institutional Review Board of the Faculty of Medicine at Addis Ababa University. Permission to undertake the study was obtained from Oromia Regional State Health Bureau and from administrative bodies of Shashemene town including West Arsi Zone Health Bureau. Informed written consent was obtained from all consented study participants. Name of the respondents and any identification were not recorded on the questionnaire. Appropriate measures were also taken to assure confidentiality of the information both during and after the data collection. The full English and Afan Oromo versions of the consent form can be found in annex III.

# 5. Results

## 5.1. Sociodemographic characteristics

A total of 237(50.2%) TB and 236(49.8%) non TB patients participated in the study.About 68% (323) of the participants were from Shashemene hospital, while the remaining 150(32%) were from Shashemene health center. Fiftyseven percent male and 42.6% female TB and 63.6% male and 36.4% female non TB patients were participated in the interview respectively. The mean and median ages of the patients were 30 and 27 years old for TB patients and 30 and 28 years old for non TB patients, respectively.

Nearly half (48.9%) of the respondents were Muslims; followed by, Orthodox Christians 76(32.1%) among TB patients and similarly 49.2% Muslim followed by Orthodox Christian 53(22.5%) among non TB patients by religion. About 57% and 64.8% of the study participants were from Oromo ethnic group followed by Amhara, 41(17.3%) and 37(15.7%) among TB and non TB patients respectively. The rest were Gurage, and few others (Table 1).

Regarding the marital status of the participants, 113(47.7%) were single, 102(43%) was married in union, and 5.5% were widowed among TB patients. While 149(63.1%) were married in union, 83(35.2%) were single and 2(0.8%) were widowed from non TB patients. The educational status of the study group is similar both in TB and non TB patients with 97(40.9%) and 127(53.8%) completed greater than grade eight, 75(31.6%) and 63(26.7%) completed grade five to eight, 33(13.9%) and 30(12.7%) read and write up to grade four and 33 (13.9%) and 30(12.7%) are illiterate respectively. Majority Of the participants were students 63(26.6%) and 56(23.7%) followed by civil servants 32(13.5%) and 42(17.8%) both in TB and non TB patients respectively. Others including merchants, daily laborer, house wife and domestic servants are also participated in both groups (Table 1).

Of the total participants responded to the income variable 65(27.5%) and 50(21%) were reported that they have monthly income of less than 400 Ethiopian birr and 49(20.7) and 73(30.8%) have a monthly income of greater than 400 Ethiopian birr among TB and non

TB patients respectively. Thirty four percent of TB and 59(25%) of non TB patients were not responded to income variables (Table 1).

Table 1: Sociodemographic Characteristics of TB and non TB Patients in Shashemene town, Ethiopia, January to Feburary 2010

| Sociodemographic charateristics(n=473) | TB patients | Non TB patients | TB and non- TB patients |
|---|---|---|---|
| | Number (%) | Number (%) | Number (%) |
| **Age (years)** | | | |
| 15-24 | 97(40.9) | 75(31.8) | 172(36.4) |
| 25-34 | 79(33.3) | 93(39.4) | 172(36.4) |
| 35-44 | 28(11.8) | 48(20.3) | 76(16.1) |
| >45 | 33(13.9) | 20(8.5) | 53(11.2) |
| **Sex** | | | |
| Male | 136(57.4) | 150(63.6) | 286(60.5) |
| Female | 101(42.6) | 86(36.4) | 187(39.5) |
| **Religion** | | | |
| Muslim | 116(48.9) | 116(49.2) | 232(49) |
| Orthodox | 76(32.1) | 53(22.5) | 129(27.3) |
| Protestant | 29(12.2) | 46(19.5) | 75(15.9) |
| Catholic | 15(6.3) | 9(3.8) | 24(5.1) |
| Others* | 1(0.4) | 12(5.1) | 13(2.7) |
| **Ethnicity** | | | |
| Oromo | 135(57.0) | 153(64.8) | 288(60.9) |
| Amhara | 41(17.3) | 37(15.7) | 78(16.5) |
| Gurage | 29(12.2) | 17(7.2) | 46(9.7) |
| Tigre | 14(5.9) | 9(3.8) | 23(4.9) |
| Others** | 18(7.6) | 20(8.5) | 38(8) |
| **Marital status** | | | |
| Married | 102(43) | 149(63.1) | 251(53) |
| Single | 113(47.7) | 83(35.2) | 196(41.4) |
| Widowed | 13(5.5) | 2(0.8) | 15(3.4) |

| | | | |
|---|---|---|---|
| Divorced | 8(3.4) | 2(0.8) | 10(2) |
| Cohabitation | 1(0.4) | 0(0.0) | 1(0.2) |
| **Educational level** | | | |
| Illiterate | 32(13.5) | 16(6.8) | 48(10.1) |
| completed grade 4 | 33(13.9) | 30(12.7) | 63(13.3) |
| Completed grade 5-8 | 75(31.6) | 63(26.7) | 138(29.2) |
| Greater than grade 8 | 97(40.9) | 127(53.8) | 224(47.4) |
| **Occupation** | | | |
| Student | 63(26.6) | 56(23.7) | 119(25.5) |
| Civil servant | 32(13.5) | 42(17.8) | 74(15.6) |
| Merchant | 39(16.5) | 41(17.4) | 80(16.9) |
| House wife | 34(14.3) | 23(9.7) | 57(12.1) |
| Daily laborer | 33(13.9) | 6(2.5) | 39(8.2) |
| No job | 12(5.1) | 26(11.0) | 38(8) |
| Domestic servant | 2(0.8%) | 5(2.1) | 7(1.5) |
| Commercial sex worker | 3(1.3) | 0(0.0) | 3(0.6) |
| Others*** | 19(8.0) | 37(15.7) | 56(11.8) |
| **Health institution** | | | |
| Hospital | 137(57.8) | 186(78.8) | 323(68.3) |
| Health center | 100(42.2) | 50(21.2) | 150(31.7) |
| **Income of the patients#** | | | |
| 0-400ETB | 65(27.5) | 50(21) | 115(24.3) |
| >400ETB | 49(20.7) | 73(30.8) | 122(25.7) |
| No income | 40(17) | 55(23.2) | 95(20.2) |
| No response | 82(34.8) | 59(25) | 141(29.8) |

*-Adventist, Jhova

**-walayita, Kambata, sidamo, Silte ***-farmer, religious worker

#- Poverty line- Income less than one dollar per day and the exchange with regard to the purchasing power in Ethiopian currency for one dollar is 14 birr which is 400 birr monthly. (Human development report 2009/10)

### 5.2. Knowledge and attitude towards TB/HIV/AIDS

Two hundred twenty eight (96.2%) of TB and 230(97.5%) of non TB patients believed that TB is a curable disease. 219(92.4%) of TB and 198(83.9%) of non TB patients were not concerned about possibility of acquiring TB infection. Regarding questions related to population most exposed to TB infection, 218(92%) TB and 190(80.5%) non TB patients said people with intimate contact with TB patients, 156(65.8%) of TB and 123(52.1%) of the non TB patients said the poor people and 90(38%) of TB and 126(53.4%) of non TB respondents believed people living with HIV/AIDS as the most at risk population for acquiringTB infection.

Responses on questions asked about the source of TB infection included; from TB patients 211(89%) and 183(77.5%), from polluted air 122(51.5%) and 152(64.4 %), and from health institution/facility 119(50.2%) and 58(26.4%) by TB and non TB patients respectively. There were still misconceptions on sources of TB infection. Twenty two percent of the sampled TB patients and 46% of non TB patients indicated contaminated water as asource of TB infection. Other reported misconceptions on the route of TB transmission were sexual intercourse, evil spirit and smoking both from TB and non TB patients (Table 2).

Regarding patients' knowledge about the relationship between TB and HIV/AIDS, 177(74.7%) of TB and 171(72.2%) of non TB patients believed that the cases of TB have been increasing after the era of HIV/AIDS. Likewise 54(65.3%) of TB patients and 141(59.7%) of non TB patients agreed that control of HIV/AIDS could help control of TB.

Two hundred thirty five (99.2%) and 233(98.7%) of TB and non TB patients reported that they have heard of the disease called HIV/AIDS respectively, and out those who have ever heard of the disease 217(91.6%) of TB and 193(81.8%) of non TB patients believed that HIV is definitely not a curable disease. Majority of the study subjects have identified sexual intercourse 232(97.9%) and 232(98.3%), sharing of sharp materials 212(89.5%) and 223(94.5%), transfusion of infected blood 213(89.9%) and 216(91.5%),

mother to child during breast feeding 200(84.4%) and 168(71.2%) ,and mother to child during pregnancy 134(56.5%) and 175(74.2%) both by TB and non TB patients as the most common ways of HIV transmission respectively (Table 2). Overall, 15.8% of TB and 10.6% of non TB patients had misconception on transmission of HIV/AIDS.

Among 235(99.2%) of TB and 233(98.7%) non TB patients who reported that they have heard of HIV/AIDS, 232(97.9%) and 220(93.2%) of the participants indicated that abstinence and 217(91.6%) and 230(97.5%) staying with only one uninfected partner as means of HIV prevention method respectively. 206(86.9%)TB and193(81.8%) non TB patients has also mentioned use of condom every time during sexual intercourse as means of HIV prevention method.

Two hundred six (88.4 %) of TB and 194(87.3%) of non TB patients believed that HIV infection could be asymptomatic, and 161(68.2%) of TB and 171(72.2%) non TB patients reported that they knew someone infected with and/or died of HIV/ AIDS.

As to self perceived risk of HIV infection, only 18.1% of TB and 21.6% of non TB patients think that they can be infected with HIV out of which 15TB and 43 non TB patients reported that they have minimal chance of getting infected with HIV, 18 TB and 2 non TB patients reported they were at moderate risk of getting HIV infection and 9 TB and 5 non TB patients reported they were at high risk of getting HIV infection (Table 2).

Adequate knowledge on mode of transmission and prevention of HIV/AIDS were presented after weighted for score of 100%. Seventy five percent (75%) were adequately responded to questions on mode of transmission on HIV/AIDS and 95% on HIV/AIDS prevention. Eight seven percent (87%) of the respondents have adequate comprehensive knowledge on HIV/AIDS. Adequate comprehensive knowledge was defined for an average score of 100% which have taken knowledge on existence of the disease, mode of transmission, prevention and nature of the disease after weighted with equal value for each

Table 2: Tuberculosis and non TB patients' Knowledge and Attitude Related to TB/ HIV/AIDS and perceived risk of HIV infection in Shashemene town, Ethiopia, January to Feburary 2010

| TB/HIV/AIDS related questions | TB patients | Non TB patients | Both TB and non TB patients | |
|---|---|---|---|---|
| | Number (%) | Number (%) | Number (%) | P value |
| **Source of Tuberculosis#** | | | | |
| From TB patients | 211(89) | 183(77.5) | 394(83.2) | 0.01 |
| Polluted air | 122(51.5) | 152(64.4) | 274(58) | 0.8 |
| Health personnel/health unit | 119(50.2) | 58(26.4) | 177(37.4) | 0.01 |
| Contaminated Water | 52(21.9) | 110(46.6) | 162(34.2) | 0.01 |
| Others* | 75(15.8) | 85(17.9) | 160(33.8) | 0.9 |
| **Knowledge on HIV/AIDS** | | | | |
| Heard about HIV/AIDS disease | 235(99.2) | 233(98.7) | 468(99) | 0.9 |
| Know HIV is incurable | 217(91.6) | 193(81.8) | 410(86.6) | 0.6 |
| HIV transmission [know the three mode of transmission] | 196(82.7) | 206(87.3) | 402(83) | 0.7 |
| HIV prevention [know the two major mode of prevention] | 225(94.9) | 217(91.9) | 442(93.4) | 0.7 |
| Can health looking people be infected with HIV | 194(81.9) | 206(87.3) | 400(84.5) | 0.4 |
| **Route of HIV transmission #** | | | | |
| Sexual contact | 232(97.9) | 232(98.3) | 464(98) | 0.8 |
| Sharing of sharp materials with PLWHA | 212(89.5) | 223(94.5) | 435(92) | 0.08 |
| Transfusion of blood | 213(89.9) | 216(91.5) | 429 (90.6) | 0.4 |
| Mother to child by breast feeding | 200(84.4) | 168(71.2) | 369(78) | 0.06 |
| Mother to child during pregnancy | 134(56.5) | 175(74.2) | 409(86.5) | 0.04 |
| Others** | 75(15.8) | 50(10.6) | 125(26.4) | 0.8 |
| **Methods of HIV prevention#** | | | | |
| Abstinence | 232(97.9) | 220(93.2) | 450(95) | 0.01 |
| Staying with only one uninfected partner | 217(91.6) | 230(97.5) | 447(94.5) | 0.01 |
| Use of condom every time during sex | 206(86.9) | 193(81.8) | 399(84.3) | 0.06 |

#-more than one answer is possible

*-sexual intercourse, evil sprit, cold weather and smoking

**-sharing meal with PLWHA, insect bite, wearing of clothes of PLWH

### 5.3. Knowledge and attitude towards PIHCT

Nearly all (96%) of the study participants were aware of the availability of PIHCT in health institutions (94.1% TB Vs 97.9% non TB). The most common sources of information about PIHCT for the participants were health worker/institutions as mentioned by 89% of TB and 91.1% of non TB patients, mass media by74.3%of TB patients and 84.7% of non TB patients followed by friends by 22.4% of TB and 54.2 % non TB patients and family members by 20.3% TB 45.3% of non TB patients (Table 3). Majority of the patients have positive attitude toward PIHCT after it was explained to them by their treatment supervisor. 86.6% TB and70.8% non TB patients were "extremely" in favor of PIHCT. 96.2% of TB and 98.3% of non TB patients agreed that any one should check his/her HIV sero status.

Most of the participants both from TB (95.8%) and non TB patients (98.7%) believed that PIHCT is important. Among those who believe PIHCT is important, majority of them agreed that PIHCT result in gain access to ART among TB (72.2%) and non TB (76.3%), helps to get care and support if positive among TB (73.8%) and non TB (91.5%), makes it easier for them to get tested among TB (77.6%) and non TB(78.8%), and helps to protect infection among TB(81.9%) and non TB(91.9%). On the other hand, among 56(23.6%)TB and 13(5.5%) non TB patients, who believe that PIHCT has influence on TB treatment service utilization, 39(16.5) TB and 11(4.7%) non TB believed that PIHCT would cause TB patients to avoid seeing health care provider for fear of being tested.

Table 3: Knowledge and Attitude Related to PIHCT among Tuberculosis and non tuberculosis Patients in Shashemene town, Ethiopia, January to Feburary 2010

| Variables | TB patients | Non TB patients | Both TB and non TB patients | |
|---|---|---|---|---|
| | Number (%) | Number (%) | Number (%) | P value |
| **Source of information on PIHCT** | | | | |
| Health worker/institution | 211(89) | 215(91.1) | 426(90) | 0.4 |
| Mass media | 176(74.3) | 200(84.7) | 376(79.5) | 0.3 |
| Friends | 53(22.4) | 128(54.2) | 181(38.3) | 0.02 |
| Family members | 48(20.3) | 107(45.3) | 155(32.7) | 0.01 |
| **In favor of PIHCT** | | | | |
| Extremely | 205(86.5) | 167(70.8) | 372(78.6) | 0.9 |
| Very much | 12(5.9) | 58(25.8) | 70(14.8) | 0.01 |
| To some extent and not at all | 20(7.6) | 11(3.4) | 31(6.6) | 0.07 |
| **Reasons for PIHCT is important *** | | | | |
| To know their HIV sero status | 184(77.6) | 186(78.8) | 370(78) | 0.5 |
| To protect infection | 194(81.9) | 217(91.9) | 411(86.8) | 0.1 |
| If positive, not to transmit to others | 184(77.6) | 195(82.6) | 379(80) | 0.1 |
| If positive ,to get support and care | 175(73.8) | 216(91.5) | 391(82.6) | 0.03 |
| If positive ,to get ART | 171(72.2) | 180(76.3) | 351(74.2) | 0.3 |
| To be free from stress | 124(52.3) | 149(63.1) | 273(57.7) | 0.1 |

*-more than one response is possible

### 5.4. HIV testing among TB and non-TB Patients

It was found that 213 (89.9 %) of TB and 195(82.6%) of non TB patients had ever counseled and tested for HIV. Among those ever tested; 74(34.6%) of TB and 156(80.4%) of non TB Patients were tested before the current illness and the remaining 140(65.4%) of TB and 38(19.6%) of non TB patients had tested for HIV after being diagnosed for TB and their respective diseases. The main reasons for the last HIVtest were reported to be, initiated by health worker 118(55.6%) by TB and 76(32.2%) non TB patients, self initiated (voluntary) HIV counseling and testing by 50(23.5%) TB and

113(47.9%) non TB patients, donation of blood by 14(6.6%) TB and 4(1.9%) non TB patients.

The type of health facility used for HIV testing as reported by patients were 138(64.5%) for TB and 6(3.1%) non TB patients in their current TB treatment centers and/or health facilities they are using during the interview, 50(23%) of TB and 146(75.3%) of non TB patients in other facilities, and 26(12.1%) TB and 42(21.6%) non TB patients in free standing VCT (Table 4)

Table 4: HIV Testing reason, sites, time and Barriers to test among Tuberculosis and non Tuberculosis Patients who had not been tested in Shashemene town, Ethiopia, January to Feburary 2010

| Charachteristics | TB patients | Non TB patients | Both TB and non TB patients | |
|---|---|---|---|---|
| | Number (%) | Number (%) | Number (%) | P value |
| **Reasons for HIV testing** | | | | |
| Initiated by health worker | 118(55.6) | 76(32.2) | 194(41) | 0.3 |
| Voluntary testing by your self | 50(23.5) | 113(47.9) | 163(34.4) | 0.9 |
| Donation of blood | 14(6.6) | 4(1.9) | 18(3.8) | 0.5 |
| Infected with TB | 32(14.9) | 0(0) | 32(6.8) | |
| **When did you get tested for HIV** | | | | |
| Before your illness | 74(34.6) | 156(80.4) | 230(48.6) | 0.9 |
| After your illness | 140(65.4) | 38(19.6) | 178(37.6) | 0.9 |
| **Utilized HIV testing centers** | | | | |
| TB treatment centers | 138(64.5) | 6(3.1) | 144(30.4) | 0.8 |
| Free standing VCT centers | 26(12.1) | 42(21.6) | 68(14.4) | 0.1 |
| Other health facilities | 50(23.4) | 146(75.3) | 196(41.4) | 0.03 |
| **Testing barriers(n=65)** * | | | | |
| No risk perception for HIV infection | 14(32.5) | 7(13.2) | 21(32.3) | 0.01 |
| Fear of partner reaction | 3(7) | 4(7.5) | 7(10.7) | 0.6 |
| Fear of stigma and discrimination | 12(28) | 5(9.4) | 17(26) | 0.7 |
| Partner trust | 5(11.6) | 13(24.5) | 18(27.6) | 0.5 |
| Self trust | 9(20) | 24(45.2) | 34(52.4) | 0.6 |

*-more than one answer is possible

### 5.5. Acceptability of PIHCT and factors associated with its utilization

This study assessed factors associated with acceptability of PIHCT. A logistic regression model was used to examine factors associated with acceptability of PIHCT (having been tested for HIV following supervisor initiation) as dependent variable. A stepwise forward regression analysis was utilized in three steps in order to find out predictors on acceptability of PIHCT. The first step was related to the sociodemographic variables, in the second step knowledge; attitude and risk perception towards TB/ HIV/AIDS was involved, and the last step involved analyzing the joint effects of the variables of socio-demographic, knowledge and self risk perception on acceptability of PIHCT in order to detect weak associations that may be strong during interactions with other Variables. Variables with $P<0.05$ were considered for further analysis.

#### 5.5.1. Sociodemographic determinants of acceptability of PIHCT

The association between sociodemographic characteristics of TB and non TB patients with acceptability of PIHCT was assessed using Univariate and multivariate logistic regression models. In the bivariate analysis, being younger, education status of grade 5-8, being male and TB patient were more likely associated with acceptance of PIHCT. Controlling for other variables in the logistic regression model, being TB patient was strongly associated with acceptance of PIHCT (Table 5).

Table 5: Socio demographic variables of TB and non TB Patients and acceptability of PIHCT in Shashemene town, Ethiopia, January to Feburary 2010

| Variables | PIHCT | | 95% CI | |
|---|---|---|---|---|
| | Acceptor | Non acceptor | COR(95% CI) | AOR(95% CI) |
| **Age(years)** | | | | |
| 15-24 | 152 | 20 | **2.2(1.0,4.9)** | 1.6(0.5,4.8) |
| 25-34 | 151 | 21 | 2.1(0.9,4.6) | 1.9(0.7,4.7) |
| 35-44 | 64 | 12 | 1.5(0.6,3.8) | 1.7(0.6,4.8) |
| >45 | 41 | 12 | 1.0 | 1.0 |
| **Sex** | | | | |
| Male | 250 | 36 | 1.2(0.7,2.1) | 1.3(0.6,2.6) |
| Female | 158 | 29 | 1.0 | 1.0 |
| **Religion** | | | | |
| Orthodox | 113 | 16 | 1.0 | 1.0 |
| Muslim | 202 | 30 | 0.9(0.4,1.8) | 0.9(0.4,2.4) |
| Protestant | 61 | 14 | 0.6(0.2,1.3) | 0.8(0.3,2.3) |
| Catholic | 23 | 1 | 3.2(0.4,25.7) | 0.4(0.1,1.8) |
| **Ethnicity** | | | | |
| Oromo | 253 | 35 | 1.0 | 1.0 |
| Amhara | 69 | 9 | 1.0(0.4,2.3) | 0.8(0.3,2.4) |
| Gurage | 42 | 4 | 1.4(0.4,4.2) | 1.3(0.4,4.5) |
| Tigre | 19 | 4 | 0.6(0.2,2.0) | 0.3(0.1,1.5) |
| **Marital status** | | | | |
| Married | 213 | 38 | 1.0 | 1.0 |
| Single | 195 | 27 | 1.2(0.7,2.1) | 0.6(0.3,1.3) |
| **Educational level** | | | | |
| Illiterate | 36 | 12 | 1.0 | 1.0 |
| completed grade 4 | 51 | 12 | 1.4(0.5,3.5) | 0.9(0.3,2.5) |
| Completed grade 5-8 | **127** | **11** | **3.8(1.5,9.4)** | 2.3(0.8,6.5) |
| Greater than grade 8 | 194 | **30** | **2.1(1.0,4.6)** | 0.9(0.3,2.7) |
| **Occupation** | | | | |
| Civil servant | 68 | 6 | 1.0 | 1.0 |
| Student | 107 | 12 | 0.7(0.2,2.1) | 0.6(0.1,2.2) |
| Merchant | 69 | 11 | 0.5(0.1,1.5) | 0.3(0.1,1.1) |
| House wife | 46 | 11 | 0.3(0.1,1.0) | 0.2(0.1,0.9) |
| Daily laborer | 35 | 4 | 0.7(0.2,2.9) | 0.5(0.1,2.7) |
| No job | 33 | 5 | 0.5(0.1,2.0) | 0.4(0.1,1.8) |

### 5.5.2. Association of sociodemographic characteristics, knowledge and attitude with acceptance of PIHCT

Knowledge related factors like believing that HIV is not curable illness (p=0.6), having ever heard of the disease called HIV/AIDS (p=0.7), believing that one self can be infected with HIV/AIDS (p=0.2), were not significantly associated with acceptability of PIHCT for the over all study participants.

Those believing that HIV infection could be asymptomatic [COR(95%CI=2.4(1.2,4.8)] , patients those who believed that PIHCT is important [COR(95%CI=13.5(6.2,28.9)], believing that control of TB helps to control HIV/AIDS [COR(95%CI=1.9(1.1,3.4)] and knowing any one infected or died of HIV/AIDS [COR(95%CI=3.8(2.2,6.6) ]were significantly associated with PIHCT acceptance in bivirate analysis for the overall study subjects.After variables were controlled for confounding factors using multiple logistic regression analysis only those patients who feel PIHT is important and those who have known some one with/died of HIV/AIDS remain associated with acceptance of PIHCT in the overall study participants (Table 6).

Among all, those respondents who agree PIHCT is important are nearly fourteen times more likely to accept PIHCT when compared to those who were against PIHCT [Adjusted OR=14; 95%CI (6.1, 33.4), those who have known some one with or died of HIV/AIDS are three times more likely to accept PIHCT than those who haven't [Adjusted OR=3; 95%CI (1.6, 5.5) and TB patients are twice as more likely to accept PIHCT than non TB patients [Adjusted OR=2.4; 95%CI (1.3, 4.6). The other variables were not significantly associated with PIHCT acceptability after adjusting for confounders

Table 6: variables related to the knowledge and attitude of TB and non TB patients toward TB/HIV/AIDS and acceptability of PIHCT in Shashemene town, Ethiopia, January to Feburary 2010

| **Variables** | **PIHCT** | | **95% CI** | |
|---|---|---|---|---|
| | **Acceptor** | **Non acceptor** | **COR(95% CI)** | **AOR(95% CI)** |
| Patient status | | | | |
| TB patient | 213 | 24 | **1.8(1.0,3.2)** | **2.4(1.3,4.6)** |
| Non TB patient | 195 | 41 | 1.00 | 1.0 |
| Health looking person be infected with HIV? | | | | |
| Yes | 367 | 51 | **2.4(1.2,4.8)** | 1.8(0.8,3.8) |
| No | 41 | 14 | 1.0 | 1.0 |
| PIHCT is important | | | | |
| Yes | 395 | 45 | **13.5(6.2,28.9)** | **14(6.1,33.4)** |
| NO | 13 | 20 | 1.0 | 1.0 |
| Control of TB helps control HIV/AIDS? | | | | |
| Yes | 315 | 41 | **1.9(1.1,3.4)** | 1.2(0.6,1.8) |
| No | 93 | 24 | 1.0 | 1.0 |
| TB patients increased after HIV/AIDS? | | | | |
| Yes | 306 | 40 | **1.8(1.0,3.7)** | 0.9(0.4,1.8) |
| No | 102 | 25 | 1.0 | 1.0 |
| know PLWHA | | | | |
| Yes | 304 | 24 | **3.8(2.2,6.6)** | **3(1.6,5.5)** |
| No | 104 | 37 | 1.0 | 1.0 |

## 6. Discussion

This study provides information regarding acceptance of PIHCT among TB and non TB patients, their knowledge and attitude towards TB/HIV/AIDS, and factors associated with the utilization of PIHCT services in Shashemene Town, Oromia Region.

More than half (57.8%TB and 56.4%non TB) of the study participant were young age of <29 years old. This might be due the high prevalence of HIV/AIDS infection in this age group which could have made them susceptible to TB. The findings of this study (high prevalence of TB occurred in the young (<29) population) is similar to study done in Adama (45).

The study participants were aware of the curability of TB (96.6%) and identified TB patients (83.1%) as the main source of TB infection both in TB and non TB patients. The study as well identified misconceptions regarding source of TB among the participants. Polluted air (57.8%), Cold weather (15.8%), evil sprit and smoking (17.9%) were reported to be a source of TB infection, which is similar to the finding from the study done in North Gonder in which 66% of the study participants identified polluted air and 12% contaminated water as source of TB infection (32).

In this study, 98.9% of the study participants reported that they have heard of HIV/AIDS. This result is comparable with the results observed among the community (100%) in north Gonder and in Adama health institution (99.1%).The findings are also comparable with a finding from BSS Round-two that revealed 98% of study populations were aware of HIV /AIDS (19, 32, 44).

Assessment of high-risk behaviours in Ethiopia was initiated in the 1990s. High scores especially in knowledge of mode of viral transmission were documented which showed some success in raising awareness in the general population and sub-groups.Adequate knowledge on viral transmission and prevention is believed to be a key factor in fighting the epidemic.Regarding the findings of the respondents' knowledge on mode of HIV transmission and prevention, most of the participants had the correct knowledge. In this

study a substantial proportion of TB patients (88.4%) and non TB patients(87.3%) were aware of asymptotic healthy carriers can be HIV case, knowledge on mother-to-child transmission [during pregnancy (56.5%)for TB and (74.2%) for non TB patients and via breast feeding (84.4%) for TB and (71.2%) for non TB patients] was found relatively higher compared to study done in other area. On the other hand misconceptions regarding HIV transmission like transmission through sharing meal with HIV infected person and mosquito bite (15.8% in TB and 10% in non TB patients) was relatively higher than similar study done in Adama (3.7%). Misconceptions on HIV transmission and poor knowledge about the disease would cause stigma associated with the disease that have impacts on the control of the epidemic (15, 45, 46).

Compared to previous study done in Addis Ababa on premarital VCT acceptability, adequate knowledge on HIV/AIDS prevention is nearly the same. In the present study, the magnitude of adequate knowledge on HIV/AIDS transmission was 75% which is similar to the pervious study 78.8%. (47)

There is a need to increase the rate of HIV testing in Africa as a means of dealing with the AIDS epidemic from a public health standpoint, and in this study nearly all (96%) of the participants have heard about PIHCT and majority (78%) of them support it extremely/very much, which is comparable with a study in Botswana. These will play a pivotal role in scaling up the PIHCT approach nationwide. Majority (93%) of participants feel that PIHCT is important because; it help the clients get ART makes it easier for clients to get tested, and increase number of tested people which are consistent with a study in Botswana (39).

The overall PIHCT acceptability rate of 86.3% of this study was slightly higher than astudy conducted in Adama (81.2%) (42).In the present study the high prevalence of PICHT acceptability could be due to the availability of comprehensive HIV/AIDS care (availability of many free standing VCT centers, increased access to ART, OI and care and support services). Moreover, high knowledge of TB and HIV association could be the possible explanations for the relatively high prevalence of HIV test for the TB

patients. It can be noted that a high theoretical acceptability which may not necessarily true for the high practical acceptability. A study conducted in Arbamich (35%) and Addis Ababa (67%) also demonstrated a low prevalence of practical acceptability of PIHCT (44, 48) .

In pilot and clinical trials, when HIV counseling and testing was routinely offered by health care providers, the acceptability rate of HIV testing is reported to be satisfactorily high, reaching 90-100% for patients attending TB clinics in several countries. For instance, acceptability of HIV testing among TB patients was 91% in Guyana and Mali and 99% in South Africa. Prospective study by Fisher et al showed that intention did predict performing specific HIV-preventive behaviour under study. Therefore, the findings of the present study could be considered as indication of the need for promotion and expansion of PIHCT service to the public at large (1, 24, 37).

Education status of the respondents was significantly associated with acceptance of PIHCT for the less educated group (grade 5-8) which demonstrated lower risk perception. Similar to other studies, illiterates and those who attended primary education were not significantly associated with acceptance of PICHT. This could be explained by the fact that less educated people are likely to have lower risk perception where as more educated TB patients are likely to associate the possible underlying HIV/AIDS infection. However, this study tried to see educational status by re categorizing to above grade 5 and below 5 or above grade 8 and below grade 8 there is no association at all. A study conducted in Botswana showed that educational status was significantly associated with acceptance of HIV testing. Another study conducted among TB patients in Addis Ababa in 2006, also demonstrated that educational status of patients was significantly associated with having been tested for HIV (39, 31).

There was widespread support for PIHCT, with 86.6% TB and70.8% of non TB patients reporting that they were either extremely or very much in favor of PIHCT. Majority of respondents felt that PIHCT would increase uptake of ARV, number of tested patients and would decrease HIV related stigma. Patient who believed that PIHCT is important

OR= 14; 95% CI (6.1, 33.4) and those who knows people living with HIV/AIDS OR=3; 95% CI (1.6, 5.5) were significantly associated with PIHCT acceptability after adjusted for other variables. A similar result was also reported from a population based study on routine testing in Botswana, where 81% of the study TB patients were extremely or very much in favor of routine HIV test. These results, seen with the high acceptability of PIHCT among TB patients (89.9%) and 82.6% among non TB patients in this study, suggest that PIHCT is beneficial in improving access to testing and there by increasing life-saving treatment users. HIV testing in combination with appropriate counseling is an important tool in the public health response to AIDS through providing Counseling and testing programs designed to promote knowledge of sero-status which can facilitate behavioral change, assist partners to negotiate safer sexual practice and allow early access to care, treatment and support for the HIV infected (39, 29).

The most commonly cited perceived barriers for PIHCT among respondents who had not been tested for HIV were lack of HIV risk perception, fear of stigma and discrimination, fear of partner reaction and fear of learning positive result. These findings were almost similar to findings from studies done on VCT in most African countries and in Ethiopia. As HIV can affect TB program performance by resulting TB patients stigmatised leading to delays in seeking care and thus more advanced disease at the time of presentation to health services; difficulties in making an accurate diagnosis of smear-negative TB; HIV-associated morbidity; drug-related side effects; and higher rates of nosocomially acquired drug-resistant TB, which in the routine setting takes too long to diagnose or may not be diagnosed at all. Thus, it would be important to emphasise about reducing stigma attached with HIV/AIDS in order to expand disclosure and control HIVepidemic. BecauseAIDS related stigma would hamper the ability of individuals and society to respond effectively to the epidemic, understanding its social and psychological under pinning is of critical importance (16, 32, 31, 39).

In summary, the acceptability of PICHT is constructive. The younger age group is the majority subgroup participated in the study. Existence of appropriate knowledge on TB/HIV/AIDS and nature of disease asymptomatic nature, transmission, prevention,

access to treatment and the association between the two diseases has shown better acceptability of PICHT.

## 7. Strengths and limitations of the study

### Strengths

1. The study involved all TB patients on DOTS during study period and compared with the non TB patients from out patient department on the acceptability of PIHCT

2. HIV status wasn't asked, so that it can maximize validity of self report on HIV testing

### Limitations

1. Self report might introduce social desirable response

2. Lack of supplementation with qualitative approaches.

3. Practical acceptability was not measured which would have better estimator of acceptance rate.

## 8. Conclusions

- Despite high knowledge on HIV/TB, still there is misconception about disease transmission which requires provission of health education and expanding IEC to raise awareness on the disease transmission in the study participants
- Most of the study subjects have heard about PIHCT and are in favour of the service provided in the TB clinic and OPD for TB and non TB patients respectively.
- There was relatively high acceptability of PIHCT in this study, with TB patients more accepted than non TB patients, which can be taken as constructive in the HIV/AIDS prevention and control program. The key perceived facilitator and barrier for PIHCT willingness were health care provider initiation and thinking self as not being at risk respectively, which was in line with other studies report.
- TB patients are more likely to accept PIHCT than non TB patients and those who support the importance of the service are more likely to accept PIHCT

## 9. Recommendations

- High number of HIV testing following provider initiation observed in this study is encouraging result that needs further strengthening of the service.
- Strengthening of IEC/BCC through different channels especially by using mass media and peer education on TB/ HIV to address barrier to testing.
- FMOH of Ethiopia should make sure that every health facilities are implementing the PIHCT approach to those eligible and work hard on the scale up, as the identified willingness and acceptance in the study was promising for subsequent service provision in line with care, support, treatment and prevention.
- The study takes into consideration only clients' aspect (acceptability) for PIHCT implementation; other studies should be done to assess other aspects like professionals' attitude, infrastructure condition and the like

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# Annexes

## I. Conceptual framework of PIHCT

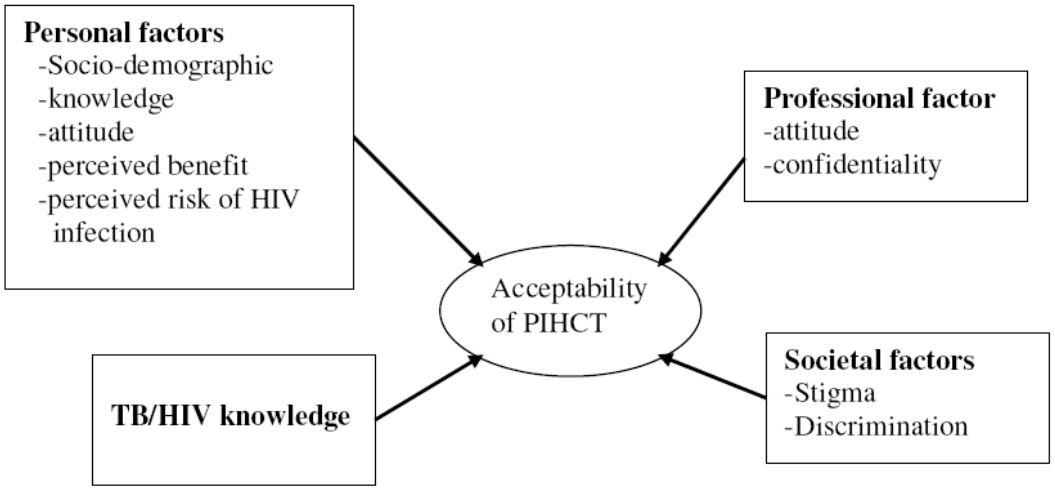


Fig. 1 Hypothesized model for predictors of PIHCT

**II. Structured English version questionnaires**

Addis Ababa University, Faculty of Medicine, School of Public Health questionnaires for assessing the willingness of tuberculosis and non tuberculosis patients to accept provider initiated HIV counseling and testing in Shashemene town, west Arsi zone of Oromia regional state

## A. INFORMATION SHEET

Good morning/good afternoon! My name is _____. I am graduate student of Public Health at Addis Ababa University, faculty of Medicine, School of Public Health and we are now conducting a survey in this institution (----------) to explore the willingness of tuberculosis and non tuberculosis patients to accept provider initiated HIV counseling and testing. We believe that this study will help to bring change in the willingness to accept provider initiated HIV counseling and testing among TB and non TB patients. You are selected to be one of the participants in this study and you will help us by answering the questions we ask you. We assure you that whatever answers you give us are kept strictly secret. We do not need your name and address. We also inform you that you have the full right to withdraw from study or stop the interview at any time and/or skip any questions that you do not want to answer. Your refusal will not have any effect on services that you or any member of your family receives. However, your participation is important to fulfill the study and design appropriate TB/HIV health services for Shashemene and other similar setups. You may find some of the questions too personal and difficult to talk about, but your experience will be very helpful for other people. The interview takes approximately 30-45 minutes. Do you have any question to ask?

Thank you very much!

Are you willing to participate in this study?

Yes ☐ No ☐

If yes go to next page

**<u>መረጃ መስጫ ቅፅ</u>**

**በአድስ አበባ ዩኒቨርሲቲ የህክምና ፋኩልቲ የህብረተሰብ ጤና ትምህርት ዘርፍ በሻሸማኔ ሆስፕታልና ጤና ጣቢያ የቲቢ ታማሚና ቲቢ ታማሚ ያልሆኑ በሽተኞች በጤና ባለ ሙያ አነሳሽነት የሚደረግ የኤችይቪ ምክርና ምርመራ የአቀባበል ሁኔታ ለማጥናት በጥናቱ ላይ የተሳታፊዎች የፈቃደኝነት መጠየቅያ ቅፅ::**

**ጤና ይስጥልኝ ! ስሜ _____ይባላል:: እኔ በአድስ አበባ ዩኒቨርሲቲ' የህክምና ፋኩልቲ' የህብረተሰብ ጤና ትምህርት ክፍል የድህረ ምረቃ ተማሪ ስሆን' አሁን በዚህ የጤና ተsም(_____) የሳንባ ነቀርሳ /ቲቢ/ በሽታ ሕክምናቸዉን በመከታተል ላይ ያሉትና የሳንባ ነቀርሳ /ቲቢ /በሽታ ታማሚ ያልሆኑ በሽተኞችን በጤና ባለ ሙያ አነሳሽነት የሚደረግ የኤችይቪ ምክርና ምርመራ የአቀባበል ሁኔታ ለማጥናት ቃለመጠይቅ እያደረግን ነዉ::ይህ ጥናት የሳንባ ነቀርሳ በሽተኛና ከሳንባ ነቀርሳ ዉጭ ህክምናቸዉን በመከታተል ላይ ለምገኙ ሰዎች በጤና ባለ ሙያ አነሳሽነት የሚደረግ የኤችይቪ ምክርና ምርመራ የአቀባበል ሁኔታ ለማሻሻል ይረዳል ብለን ተስፋ እናደርጋለን:: እርሶ ለዚህ ጥናት በአጋጣሚ የተመረጡ ስሆን ለምንጠይቆት ጥያቀዎች መልስ ይሰጡናል ብለን ተስፋ እናደርጋለን::ስምዎና አድራሻዎ በዚህ መጠይቅ ዉስጥ የማይጠቀስ መሆኑንና የሚሰጡን መረጃ ሁሉ በምስጥር ተይዞ ለጥናት አገልግሎት ብቻ የምዉል መሆኑን ላረጋግጥልዎ እወዳለሁ:: እርሰዎ በዚህ ጥናት ላይ የመሳተፍ ፣ያለመሳተፍና ወይንም በማንኛዉም ወቅት ቃለ መጠይቁን የማቋረጥ ሙሉ መብት አለዎት:: ነገር ግን እርሰዎ በጥናቱ ላይ ተሳትፈዉ የሚሰጡን መረጃ ጥናቱን ዉጤታማ ለማድረግና የቲቢ/ኤችይቪ የሕክምና አገልግሎት አሰጣት ላይ ለዉጥ ለማምጣት ከፍተኛ ጠቀሜታ አለዉ::ቃለ መጠየቁ በግምት 30-45 ደቂቃ ይወስዳል:: የሚጠይቁን ጥያቄ አለዎት?**

**በጣም አመሰግናለሁ!**

**በጥናቱ ላይ ለመሳተፍ ፍቃደኛ ነዎት?**

1. **አዎን** 2 .**አይደለሁም**

**ፍቃደኛ ከሆኑ ወደምቀጥለዉ ገፅ ይለፉ**

## B. CONSENT FORM

I, the undersigned have been informed that the purpose of this particular research project is to study the willingness to accept provider initiated HIV counseling and testing among TB and non TB patients. I have been informed that I am going to respond to this question by answering what I know concerning the issue. I have been informed that the information I give will be used only for the purpose of this study; my identity, the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or not to respond to questions I am not interested. Furthermore I have been informed that I can stop responding to the questions at any time in the process.

Based on the above information I agree to participate in the research voluntarily with the hope of contributing (on behalf of one) to the effort of knowing the willingness to accept provider initiated HIV counseling and testing among TB and non TB patients

Signature: _____

Date: _____

**Address of investigator**

Name: - Emiru Adeba

Addis Ababa University

Faculty of Medicine

School of Public Health, MPH student

E.mail:- adebaemiru@yahoo.com

**IRB contact address**

Tele: - 011 553 87 34

E.mail:- aaumfirb@yahoo.com

Addis Ababa University

**<u>የተሳታፊዎች ፈቃደኝነት ማረጋገጫ ቅፅ</u>**

**እኔ ፊርማዬን ከዚህ በታች የማኖረው የጥናቱ ዋና ዓላማ የቲቢ ታማሚና ቲቢ ታማሚ ያልሆኑ በሽተኞች በጤና ባለ ሙያ አነሳሽነት የሚደረግ የኤችይቪ ምክርና ምርመራ የአቀባበል ሁኔታ ለማጥናት መሆኑን ተረድቸና የማቀዉን ጥያቄ ብቻ እንድመልስ የተነገረኝ መሆኑን አረጋግጫለዉ:: እኔ የሚሰጠዉ መረጃ ለጥናት ዓላማ ብቻ የሚዉልና መረጃዉ በሚስጥር እንደምያዝ ተነግሮኛል :: በዚህ ጥናት ላይ የመሳተፍ ፣ያለመሳተፍና ወይንም በማንኛዉም ወቅት ቃለ መጠይቁን የማቋረጥ ሙሉ መብት እንዳለኝ ጭምር ተነግሮኛል::**
**ከላይ በተነገረኝ መረጃ መሠረት በሙሉ ፈቃደኝነት በጥናቱ ላይ ለመሳተፊ በፊርማዬ አረጋግጣለሁ::**
**የቃለመጠይቅ ተሰሳታፊ ፊርማ_____**
**ቀን_____**

**<u>ጥናቱን የሚያካሄድ ባለሙያ አድራሻ</u>**

**ስም:- እምሩ አደባ**

**በአድስ አባባ ዩኒርሲቲ የህክምና ፋኩልቲ የህብረተሰብ ትምህርት ክፍል ተማሪ**

**<u>የ'IRB' አድራሻ</u>**

**ስልክ ቁጥር** :-011 553 87 34

E.mail:- aaumfirb@yahoo.com

**<u>አድስ አባባ ዩኒyርሲቲ</u>**

**Part I sociodemographic variables**

| NO | Questions | Coding classifications | Remark |
|---|---|---|---|
| 101 | How old are you at your last Birthday? | Years (full yrs) | |
| 102 | Sex of the patient | Male---1<br>Female---2 | |
| 103 | What is your religion? | Orthodox – 1<br>Muslim -- 2<br>Protestant -- 3<br>Catholic -- 4<br>Other (specify) -- 5 | |
| 104 | To which ethnic group do you belong? | Oromo – 1<br>Amhara -- 2<br>Gurage -- 3<br>Tigre -- 4<br>Other (specify) -- 5 | |
| 105 | What is your current marital status? | Married – 1<br>single -- 2<br>Divorced -- 3<br>Widowed -- 4<br>Unmarried couples -- 5 | |
| 106 | What is your current educational status? | Illiterate---1<br>Read and write-grade 4---2<br>Completed grade5-8 ---3<br>>Grade 8---4<br>No response -- 99 | |
| 107 | What is your occupation? | Civil servant – 1<br>Household wife -- 2<br>Daily laborer -- 3 | |

| | | | |
|---|---|---|---|
| | | Domestic servant -- 4<br>Commercial sex worker -- 5<br>Student -- 6<br>Merchant -- 7<br>No job -- 8<br>Others(specify) -- 9 | |
| 108 | What is your average monthly income? | ----------Birr Eth<br>No income -- 1<br>No response -- 99 | |

**Part two: Knowledge, attitude and opinions on TB/HIV/AIDS**

| No | Questions | Coding classifications | Remark |
|---|---|---|---|
| 201 | Have you ever been concerned of being Infected with TB? | yes –*1*<br>no – 2<br>no response – 99 | |
| 202 | Which segment ofpopulation is at risk of Getting TB? (Multiple response is possible, needs probing) | the poor people -- 1<br>those who live with TB patients – 2<br>people living with HIVAIDS -- 3<br>other(specify ) -- 4<br>no response -- 99 | |
| 203 | From where can some one get TB? (Multiple response is possible, Needs probing) | From TB patients – 1<br>Health personnel/health unit -- 2<br>Polluted air -- 3<br>Contaminated Water -- 4<br>Having Sexual intercourse -- 5<br>Evil sprit -- 6<br>Other(specify) -- 7<br>No response -- 99 | |
| 204 | Do you belief that TB can be cured? | Yes – 1<br>No -- 2<br>Other -- 3<br>No response -- 99 | |

| | | | |
|---|---|---|---|
| 205 | Is the prevalence of TB increasing after the era of HIV/AIDS | Yes – 1<br>No-- 2<br>No response – 99 | |
| 206 | Do you think control of HIV/AIDS helps for the Control of TB? | Yes – 1<br>No -- 2<br>No response – 99 | |
| 207 | Have you ever heard of HIV or the disease called AIDS? | Yes – 1<br>No -- 2<br>No response – 99 | |
| 208 | Can HIV be cured? | Yes – 1<br>No -- 2<br>No response – 99 | |
| 209 | How is HIV/AIDS transmitted?<br>(Multiple response is possible, Needs probing) | Sexual intercourse –1<br>Mother to Child during pregnancy -- 2<br>Mother to Child during breastfeeding – 3<br>Mother to Child during Child birth(delivery)4<br>Transfusion of infected blood/blood contact 5<br>Sharing of Sharps with someone who is infected(Needles, etc) -- 6<br>shaking hands a person living with HIV/AIDS -- 7<br>wearing clothes of a person living with HIV/AIDS -- 8<br>sharing a meal with a person living with HIV/AIDS -- 8<br>Insect bite(e.g. Mosquito bite) -- 10<br>Other(Specify) -- 11<br>No response – 99 | |
| 210 | How can people protect themselves from being infected by HIV?<br>(Multiple response is possible, Needs | Avoiding Sex (abstinence) – 1<br>Using a condom every time during sex -- 2<br>Staying with only one uninfected partner | |

| | | | |
|---|---|---|---|
| | probing) | faithful -- 3<br>Others (specify) -- 4<br>I do not know -- 88<br>No response – 99 | |
| 211 | Do you know anyone who is infected with HIV or who has died of AIDS? | Yes – 1<br>No -- 2<br>No response – 99 | |
| 212 | May a healthy looking person be positive for HIV? | Yes – 1<br>No -- 2<br>No response – 99 | |

**Part three: - Personal risk perception**

| No | Questions | Coding classifications | remark |
|---|---|---|---|
| 301 | Do you think you can be infected with the HIV? | Yes – 1<br>No -- 2<br>No response – 99 | |
| 302 | What are your chances of getting infected with HIV? | Low—1<br>moderate -- 2<br>high -- 3<br>No response – 99 | |
| 303 | If the answer is moderate or high, what are the reasons? | I had sexual contact with out condom-- 1<br>I had sexual contact with HIV positive person – 2<br>I had multiple sexual partner—3<br>I had injection with un sterile needle – 4<br>Other specify -- 5<br>No response – 99 | |
| 304 | If your response is no to question number 301,what are the reasons | I am faithful to my sexual partner -- 1<br>no injection with un sterile needle --2<br>I always use condom – 3 | |

| | | | |
|---|---|---|---|
| | | Abstained from sex--4<br>other --5<br>No response -- 99 | |

**Part four: Provider Initiated HIV counseling and testing (PIHCT).**

| | | | |
|---|---|---|---|
| **401** | Have you ever heard of provider initiated HIV counseling and testing(PIHCT)? | Yes – 1<br>No -- 2<br>No response -- 99 | |
| **402** | If your response to Q401 is yes, where did you get the Information? (Multiple response is possible, Needs probing) | Health workers – 1<br>Mass media -- 2<br>Family member -- 3<br>friends -- 4<br>Other(specify)-- 5 | |
| **403** | Do you agree that any one should check his /her HIV sero-status? | Yes – 1<br>No -- 2<br>No response – 99 | |
| **404** | If your answer to Q401 is yes to what extent do you support Importance of PIHCT? | Very strongly – 1<br>Strongly – 2<br>Somewhat--3<br>I am against -- 4<br>I am strongly against -- 99 | |
| **405** | Do you feel that PIHC is important | Yes----1<br>No----2<br>No response----99 | |
| **406** | If yes to Q# 405, What are reasons for the feeling that PIHCT is necessary? (Multiple response is possible,Needs probing) | To know the HIV status – 1<br>To protect yourself from infection -- 2<br>If positive, not to transmit to others -- 3<br>If positive, to get care and support --4<br>If positive, to get ART -- 5<br>To be free from stress -- 6<br>Other (specify) -- 7<br>No response – 99 | |

| | | | |
|---|---|---|---|
| **407** | Do you feel PIHCT affect TB service Utilization? | Yes---1<br>No----2<br>No response---99 | |
| **408** | If yes to Q# 407 problems occurs of PIHCT on TB service utilization? | TB patient will not come to health facility for the fear of HIV test---1<br>Violate the right of TB patient---2<br>Gender based violence on females---3<br>Others-4<br>No response---99 | |
| **409** | At which time should one be tested for HIV? (Multiple response is possible, Needs probing) | When one is sick – 1<br>Before marriage -- 2<br>If only has multiple partners -- 3<br>At any time -- 4<br>Other (specify) -- 5<br>No responses – 99 | |
| **410** | Who are people in need of HIVtest? (Multiple response is possible, Needs probing) | Female commercial sex workers -- 1<br>Drivers -- 2<br>People with history of unprotectedsex --3<br>TB patients -- 4<br>Those with multiple partners -- 5<br>Any one sexually active -- 6<br>Those who are sick -- 7<br>Others (specify) -- 8<br>No responses -- 99 | |
| **411** | I don't want to know the result, but have you ever been tested for HIV? | Yes -- 1<br>No -- 2<br>No response -- 99 | |
| **412** | If your response to Q411 is yes, what was the reason of having HIV test? | Voluntary testing by yourself -- 1<br>advised by health worker -- 2<br>Donation of blood -- 3<br>Infected with TB -- 4 | |

| | | | |
|---|---|---|---|
| | | Others(specify) -- 5<br>No response -- 99 | |
| **413** | If your response to Q411 is yes, when did you do your last test for HIV? | Before my illness – 1<br>After my illness -- 2<br>Other(specify) -- 3<br>No response -- 99 | |
| **414** | If your response to Q411 is yes, where did you do your test? | Your TB treatment center – 1<br>Other health facilities -- 2<br>Free standing VCT centers -- 3<br>Other (specify) -- 4<br>No response -- 99 | |
| **415** | If your response to Q411 is no, what are your reasons for not to be tested? (Multiple response is possible, Needs probing) | Fear of stigma and discrimination follow the positive result -- 1<br>Fear of partner's reaction -- 2<br>Unable to cope with the positive result --3<br>I am not risk person for HIV -- 4<br>Health worker do not tell me about VCT -- 5<br>Difficult to pay for VCT service -- 6<br>Absence of VCT center in TB treatment center -- 7<br>Belief as Being tested is not useful -- 8<br>Not sure of the confidentiality -- 9<br>Don't want to know the result -- 10<br>Partners trust -- 11<br>self trust -- 12<br>Other (specify) -- 13<br>No response -- 99 | |
| **416** | Did your TB treatment supervisor initiate you for HIV counseling and testing any time during your TB treatment follow-up? | Yes – 1<br>No -- 2<br>No response -- 99 | |

| | | | |
|---|---|---|---|
| **417** | If your response to Q416 is yes, have you had HIV counseling and testing following your supervisor initiation? | Yes – 1<br>No -- 2<br>No response -- 99 | |
| **418** | If your response to Q416 is yes, did you receive counseling before testing? | Yes – 1<br>No -- 2<br>No response -- 99 | |
| **419** | If your response to Q416 is yes, were you post test HIV counseling? | Yes – 1<br>No -- 2<br>No response -- 99 | |

That is the end of our interview. Thank you very much for taking time to answer these questions.

**III.Structured Afan Oromo version questionnaires**

## Birqaba Afaan Oromoo

Yunversiitii Finfinneetti, Faakaaltii Medikaalaa, mana barumsaa Fayyaa Hawasaatti gaaffilee hospitalaa fi buufata fayyaa magaalaa shashamannee kessaatti tajaajila gorsa fi qorannoo dhiigaa hiv/eedsiitif kaka'umsa ogeessa fayyaatiin godhamu ilaalchisee haala fudhatama tajaajilichaa irratti qo'annoo dhukubsatoota dhibee sombaan qabamanii jiranii fi dhibee biroo kan tajaajila armaan olittii eerame akka isaan fudhatan kan kakaasu giddutti qo'annoo godhamu

**II. Gaaffiilee**

**Gaaffii fi debii raawwachuun duratti unka eeyyama hirmaattota ittiin mirkaneesamu**

Yuniversiitii Finfinneetti , Faakaaltii Medikaalaa ,mana baruumsa Fayyaa hawaasaa,

Hospitalaa fi buufata fayyaa magaalaa shashamannee kessaatti tajaajila gorsa fi qorannoo dhiigaa HIV/eedsiitif kaka'umsa ogeessa fayyaatiin godhamu ilaalchisee haala fudhatama tajaajilichaa irratti qo'annoo dhukubsatoota dhibee sombaan qabamanii jiranii fi dhibee biroo kan tajaajila armaan olittii eerame akka isaan fudhatan kan kakaasu giddutti qo'annoo godhamu.

Maqaa buufata fayyaa----------

Koodii gaaffiin waraqaa kun ittiin adda ba'u ----------

**seensa**: maqaan kiyyaa ----------jedhama. Ani dhukubsatoota dhibee sombaan qabaamanii qorichaa dhibee kana asi mana tajaajilaa fayya kana irraa fudhataa jiran ----------(maqaa bakka tajaajilli fayyaa kun itti kennamu) fi dhukubsattoota dhibee biraa irraa qabamani tajaajilaa fayya barbaacha gara mana yaalaa kana dhufanii oggessaa fayyaatiin akka isaan tajaajilaa gorsaa fi qorannoo dhigaa dhibee HIV/AIDS rawwataanif itti himamee gidduttii haala fudhatama tajajila gorsaa fi qorannoo dhiigaa dhibee HIV/AIDS kaka'umsa ogeessa fayyaatin raawwatamuu fi sababoota haala fudhatama tajajilaa kana dangessan qo'achuufaan gaaffii tokko tokko isin gaafachuuf dhufeen jira. isin hirmaatota gaaffiin kun dhiy'aatuuf kessaa isaan tokko dha .Haallii gaaffii kunis kan inni raawwatu bifa gaaffii fi deebiitiin ta'a. Dhimma kana ilaalchisee odeeffannoo isin nuuf kenitaan icciitiidhaan qabamee qo'annoo kana qofaaf akka itti fayyadamnu ta'a. kanaafuu gaaffiilee waraqaa kanarratti maqaan kee kaan hin barreefamne yoo ta'uu gaaffiileen waraqaa kee kun kan warra kaanii irraa koodiidhaan akka addaa ba'u ta'a .yoo firiin qo'aannoo kanaa kan barruulee saayinsii irratti kan ba'u ta'ellee akka waligalaatti kan hirmaatota qo'annoo kanaatuu dhiyaata. gaaffii fi deebiin kun kan raawwatu ifaa fi bilisaan yeeroo ta'u mirga hirmaachun fi dhiisuun guutummaa guututti kan eegame ta'a ykn erga calqabdee illee iddoo barbaaddettii addaan kutuu ni dandeessa. kana gochuukeefis sirras ta'e maatii keerra tajaajila mana yaala kana keessaa sinii kennamu ilaalchisee rakkoon ga'u tokkollee akka hin jirre siif mirkaneessun barbaada. Garuu hirmaannaan kee kaayyoo qo'annoo kana galmaan ga'uu dhaafis ta'e tarsiimoo tajaajila fayyaa dhibee soombaa fi HIV/eedsii irratti kennamu fooyyessuu irratti bakka guddaa qaba. Waan ifa siif hin ta'iin akka sii ibsamu yoo qabaatte gaaffii gaafachuu hin sodaatiin.

Tolee, nan hirmaadha ☐

Lakkii, hirmaachuu hin fedhu ☐

**Unkaa walii galtee**

Ani mallattoo kiyya armaan gadiitti kanan kaaye fayiidaa qo'annoo kana ifa waan naa godhamiiruf, mata dureen qo'annoo kanaas Hospitalaa fi buufata fayyaa magaalaa

shashamannee kessaatti tajaajila gorsa fi qorannoo dhigaa HIV/AIDStif kaka'umsa ogeessa fayyaatiin godhamu ilaalchisee haala fudhatama tajaajilichaa ilaalchisee qo'annoo dhukubsatoota dhibee sombaan qabamanii jiranii fi dhibee biroo kan tajaajila armaan olittii heerame akka isaan fudhatan kan kakaasu giddutti qu'annoo godhamu ta'u isaa natti himameera. Anis gaaffiin beekuufi na ilallatu akka deebiisuuf ifa naa godhaniiru. Kana malees odeeffannoo ani keennu qo'annaa kana qofaaf akka itti fayyadaman, icciitiin akka ta'u natti himameera. Gaaffii fi deebii dhiisuu akka danda'u, gaaffii deebisuu hin barbaadne akka irra darbuu danda'us natti himaameera. Yeroon barbaadettis gaaffii gidduutti dhiisuu mirga akkan qabu naaf ibsameera.

Odeeffannoo armaan olii irratti hunda'uudhaan, qo'annoo kana keessatti feedhii kiyyaan qo'annoo mata dureen isaa fayyaa walhormaataa fi barbaachisummaa fayyaa wal hormaata namoota HIV/Eedsii waliin jiratan qoricha umurii dheeressu fudhachaa jiran irratti hirmaachuuf walii gaaluu nan mirkaneessa.

Malattoo_____

Guyyaa_____

**Adireesii qoratichaa**

Maqaa:-Immiruu Adabaa
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**Kutaa tokkoffaa:-dhimmaa hawassummaa ilaalchisee**

| Lak. | Gaaffillee | Koddii debbii | Ibsa |
|---|---|---|---|
| 101 | umuriin kee meeqaa? | Waggaa gutuu (__) | |
| 102 | Saala dhukubsatichaa | dhiiraa---1<br>dhalaa---2 | |
| 103 | Amantaan kee maalii? | ortodoksii – 1<br>Musiliimaa -- 2<br>protestaantii -- 3<br>kaatolikii -- 4<br>kan biroo(haa ibsamu) – 5 | |
| 104 | Qomoon kee maalii? | Oromoo – 1<br>Amaaraa -- 2<br>Guraagee -- 3<br>Tigree -- 4<br>kan biroo(haa ibsamu) -- 5 | |
| 105 | Yeroo ammaa haallii ga'ela kee maal fakkaataa? | Kan fudhee/herumee – 1<br>Kan hin fuune/heerumnee -- 2<br>Fudhee/heerumee kan ba'e/baate/ -- 3<br>Kan abbaan manaa /haatii maana irraa du'e/duute—4<br>Hiriyoota wal hin fudhiin jiraan – 5 | |
| 106 | Yeroo ammattii sadarkaan baruumsa kee maal fakkaata? | Dubbisuu fi barreessuu-hanga kutaa 4ffaa---1<br>Kutaa 5-8 ---2<br>Kutaa 8ffaa oli---3<br>Dubbisuu fi barreessuu kan hin dandenye--4<br>Deebii kan hin laane -- 99 | |
| 107 | Jiruun kee maalii? | Hojjetaa mootummaa – 1<br>Haadha manaa-- 2<br>Hojjetaa/ttuu guyyaa -- 3<br>Hojeettuu mana -- 4 | |

| | | | |
|---|---|---|---|
| | | Hojjetoota mana bunaa -- 5<br>barataa-- 6<br>daldalaa -- 7<br>hojii hin qabu -- 8<br>kan biroo(haa ibsamu) -- 9 | |
| 108 | Galiin manaa kan waliigalaa ji'attii meeqaa? | ----------qarshii ittiyoophiyaatti<br>Galii hin qabuu -- 1<br>Deebii kan hin laane -- 99 | |

Kutaa lammeffaa: beekumsa, ilaalcha fi yaada dhunfaa dhibee sombaa fi HIV/AIDS irratti qabdaan

| Lak. | Gaaffilee | Koodii deebii | Ibsa |
|---|---|---|---|
| 201 | Dhibee sombaan nan qabama jettee yaaddee beektaa? | eyyee –*1*<br>lakkii – 2<br>Deebii kan hin laane -- 99 | |
| 202 | Namoota kamtu dhibee Sombaatiif saaxilamee jiraa? (deebii bayy'een ni danda'ama,) | Namoota harka qaleeyyii -- 1<br>Namoota dhukubsataa dhibee sombaa waliin jiraatan– 2<br>Namoota dhibee HIVAIDS waliin jiraatan --3<br>Kaan biroo(haa ibsaamu ) -- 4<br>Deebii kan hin laane -- 99 | |
| 203 | Namni tokko dhibee sombaan maal irraa qabamuu danda'aa?(deebiin tokkoo ol danda'ama) | Dhukubsataa dhibee sombaa irraa – 1<br>Ogeessaa fayyaa/bakkaa tajaajilli fayyaa itti kennamu irraa -- 2<br>Qileensa xurawaa irraa -- 3<br>Bishaan faalame irraa -- 4<br>Walqunnamtii saalaa rawwachuun -- 5<br>Hafuura hamaa irraa -- 6<br>Kan biroo(addabasii ) -- 7<br>Deebiin hin laatamne -- 99 | |
| 204 | Dhibee sombaa irraa fayyuun ni | eeyyee – 1 | |

| | | | |
|---|---|---|---|
| | danda'ama jettee amantaa? | lakki -- 2<br>Kan biroo(addabasii ) -- 3<br>Deebii hin qabu -- 99 | |
| 205 | Erga dhibeen HIV/Eedsii dhufee baay'iinni dhukubsatoota dhibee sombaa dabaleeraa? | eeyyee – 1<br>lakki-- 2<br>deebii hin qabu -- 99 | |
| 206 | Dhibee HIV/eedsii to'annoo jala olchuun dhibee sombaa to'annoo jala olchuuf ni gargaara jettee yaddaa? | eeyyee – 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| 207 | Wanta HIV ykn dhibee Eedsii jedhamu dhageessee beektaa? | eeyyee – 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| 208 | Dhibee HIV irraa fayyuun ni danda'amaa? | eeyyee – 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| 209 | Dhibeen HIV/Eedsii akkamitti dadarbaa?(deebbiin tokkoo ol ni danda'ama) | Wal qunnaamtii saalaatiin –1<br>Haadhaa gara da'imatti yeroo ulfaa – 2<br>Haadhaa gara da'imatti yeroo harmaa hosiftutti – 3<br>Haadhaa gara da'imattii yeroo da'umsaatti--4<br>Dhiigaa arjoomuutiin/dhiiga wal tuquun -- 5<br>Waantota qara qaban nama dhibee kanaan qabamee jiru waliin fayyadamuu -- 6<br>Nama dhukubsataa dhibee HIV tokko waliin harka wal qabachuun -- 7<br>Huccuu nama dhibee HIV/Eedsiin qabamee jiruu tokkoo ufachuun -- 8<br>Nama dhibee HIV/eedsiin qabamee jiruwaliin nyaata nyaachuun -- 9<br>ilbiisa nama hidduun(fkn. Bookee busaa) --10<br>Kan biroo(addabasii )-- 11 | |

| | | | |
|---|---|---|---|
| | | Deebii hin qabu -- 99 | |
| 210 | Namoon Dhibee HIV/Eedsiitiin qabamuu irraa akkamitti of eeguu? (deebiin tokkoo ol ni danda'ama, ) | Walqunnaamtii saala irra of eeguun – 1<br>Yeroo walqunnaamtii saalaa raawwatanitti kondomii fayyadamuudhaan -- 2<br>Wal amantiidhaan tokkofi tokko ta'uudhaan jiraachuudhaan -- 3<br>Kan biroo(addabasii )-- 4<br>Hin beeku -- 88<br>Deebii hin qabu – 99 | |
| 211 | Nama dhiibee HIV/eedsiitiin qabamee jiru ykn dhibee kanan du'e beektaa? | eeyyee– 1<br>lakki-- 2<br>deebii hin qabu -- 99 | |
| 212 | Namni fayyaa qabeessa fakkaatu tokko Dhibee HIV/eedsiin qabamee argamuu danda'a? | eeyyee – 1<br>lakki-- 2<br>deebii hin qabu -- 99 | |

**Kutaa 3$^{ffaa}$: - gaffilee wan isaan hubu danda'u addabafachu ilalatu**

| Lak. | Gaaffilee | Koodii deebii | Ibsa |
|---|---|---|---|
| 301 | Dhibee HIV dhaan nan qabama jettee yaaddaa? | eeyyee– 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| 302 | Carraan ati dhibee HIV/Eedsiin qabamuu dandeessu hammam? | xiqqaa—1<br>giddugaleessa-- 2<br>guddaa -- 3<br>deebii hin qabu -- 99 | |
| 303 | Deebbiin kee giddugalessaa ykn guddaa yoo ta'e sababiin isaa malii?/ | Kondomii malee walqunnaamtii saalaa rawwadheera-- 1<br>Nama dhibee HIV/eedsiin qabamee jiru dukaa walqunnaamtii saalaa rawwadheera – 2<br>Hiriyyaan wal qunnaamttii saalaa waliin rawwadhu baay'een qaba—3 | |

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| | | Marfee qulqulluu hin taaneen qoricha waraannadheen ture– 4<br>Kan biro(addaa basii) -- 5<br>Deebii hin qabu -- 99 | |
| 304 | Deebiin kee gaaffii lak.301 lakki kan jedhu yoo ta'e sababiin isaa malii? | Hiriyyaan walqunnamtii saalaa waliin rawwadhuuf amanamaa dha -- 1<br>Marfee qulqulluu hin ta'iinin qorichaa waranadhee hin beeku --2<br>Yeroo hundumaa wal qunnamtii saalaa kondomiidhaanan raawwadha – 3<br>Waal qunnamtii saalaa raawwadhee hibeeku4<br>Kan biro(addaa basii) --5<br>Deebii hin qabu -- 99 | |

**Kutaa 4ffaa: tajaajila gorsa fi qorannoo dhiigaa HIV/eedsii kaka'umsa ogeessaa fayyaatiin raawwatamu**

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| **401** | Wanta tajaajila gorsaa fi qorannoo dhiigaa HIV/eedsii kaka'umsa ogeessa fayyaatin raawwatamu dhagessee beektaa? | eeyyee – 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| **402** | Deebiin kee gaaffii lak. 401 eeyyee kan jedhu yoo ta'e odeefannoo isaa eessaa argatee? (deebiin tokkoo ol ni danda'ama,) | Ogeessaa fayyaa irraa – 1<br>miidiyaa irraa -- 2<br>Maatii kee irraa -- 3<br>Hiriyyaa kee irraaa-- 4<br>Kan biroo (addaa basii) -- 5 | |
| **403** | Namni kamiyyuu qorannoo dhiigaa HIV gochuu akka qabu itti waliigaltaa? | eeyyee – 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| **404** | Yoo deebiin ke gaaffii lak. 401 eeyyee kan jedhu ta'e faayidaa kaka'umsa ogeessaa fayyaarratti kan | Baay'ee chimseen – 1<br>Chimseen – 2<br>walkeessa--3 | |

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| | hunda'e gorsa fi qorannoo HIV/eedsii hamam deeggartaa? | hin degeru -- 4<br>chimseen hin degeru -- 99 | |
| **405** | Kaka'umsaa ogeessaa fayyaa irratti kan hunda'e tajaajilii gorsaa fi qorannoo HIV/eedsii faayidaa qabeessaa jettee yaadaa? | eeyyee----1<br>lakki----2<br>deebii hin qabu----99 | |
| **406** | Yoo deebiin kee gaaffii lak.405 eeyyee kan jedhu ta'e sababiin barbaachisumaa isaa maali jettee yaadaa ? (deebii tokkoo ol ni danda'ama) | Maalummaa HIV dhigaa koo keessaa baru– 1<br>Dhibee HIV of irraa ittisuf -- 2<br>Yoon dhibee kanan qabamee jiradhe nama biratti akka hin dabarsineef -- 3<br>Yoon dhibee kanan qabamee jiraadhee gargaarsa fi tajaajila barbachisaa argachuuf -4<br>Yoon dhibee kanan qabamee jiradhe qorich dhibee kanaa jalqabuuf -- 5<br>Yaaddoo irraa bilisa ta'uuf -- 6<br>Kan biro(addaa basii) -- 7<br>Deebii hin qabu -- 99 | |
| **407** | Tajaajillii kaka'umsa ogessaa fayyaatin gorsa fi qorannoo dhigaa HIV/eedsii raawwachuun fayyadamuu tajaajila dhibee sombaa irratti dhiibbaa qaba jettee yaadaa? | eeyyee---1<br>lakki----2<br>deebii hin qabu---99 | |
| **408** | Yoo deebiin kee gaaffii lak.407 eeyyeen kan jedhu ta'e rakkina tajaajillii kaka'umsa ogeessa fayyaa irratti hunda'een gorsa fi qorannoo HIV/eedsii raawwachuun tajaajila dhibee sombaa irrattii qabu maalii? | Dhukubsatoonni dhibee sombaa sababa sodaa qorannoo dhiigaa HIVttif gara mana tajaajila fayyaa hin dhufan---1<br>Mirga dhukubsatoota dhibee sombaa sarbuu ta'a---2<br>Jeequmsa garaagarummaa saalaa irratti hundaa'etu dubartoota irra ga'a---3<br>Kan biroo(addaa basii) -4<br>Deebii hin qabu---99 | |

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| **409** | Namni tokko yeroo kamitti dhiigaa isaa dhibee HIVtiif qoratamuu qaba? (deebiin tokkoo ol ni danda'ama) | Yeroo dhukubsatutti – 1<br>Gaa'ela dura -- 2<br>Nama maamila walqunnamtii saalaa waaliin godhu baay'ee qabu -- 3<br>Yeroo fedhetti -- 4<br>Kan biroo(addaa basii) -- 5<br>Deebii hin qabu – 99 | |
| **410** | Eenyu namni dhiigaa isaa dhibee HIVtiif qorachiisuun barbaachisu? (deebbin tokkoo ol ni dandda'amatest? | Nama mana bunaa hojjetu/ttu -- 1<br>konkolaachiftoota-- 2<br>namoota seenaa walqunnamtii saalaa ofeeggannoo hin qabne raawwatan--3<br>Dhukubsatoota dhibee sombaa -- 4<br>Namoota maamila walqunnamtii saalaa waliin godhan baay'ee qaban -- 5<br>Nama walqunnamtii saalaa raawwachuu danda'u -- 6<br>Nama dhukubsataa ta'e kamiyyu -- 7<br>Kan biroo (addaa baasii) -- 8<br>Deebii hin qabu -- 99 | |
| **411** | Bu'a qorannoo keetii baruu hin barbaadu, garuu kana dura qorannoo dhiigaa HIVtiif raawwattee beektaa? | eeyyee -- 1<br>lakki -- 2<br>deebii hin qabu -- 99 | |
| **412** | Yoo deebiin kee gaaffii lak.411 eeyyeen kan jedhu ta'ee sababiin isaa maalii? | Fedhii keedhaan qoratamuu -- 1<br>gorsa ogessaa fayyaa -- 2<br>Dhiigaa namaa arjoomuuf -- 3<br>Dhibee sombaatin waanan qabameef -- 4<br>Kan biroo (adda baasii) -- 5<br>Deebii hin qabu -- 99 | |
| **413** | Yoo deebiin kee gaaffii lak.411 eeyyeen kan jedhu ta'e qorannoo isa dhumaa yoom raawwattee? | Dhukubsachuu koo duratti -- 1<br>Dhukubsachuu koon booda -- 2<br>Kan biroo (adda baasii) -- 3 | |

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| | | Deebii hin qabu -- 99 | |
| **414** | Yoo deebiin kee gaaffii lak.411 eyyeen kan jedhu ta'e eessatti qorannoo kana raawwatte? | Bakka qoricha dhibee sombaa ittifudhadhuu 1<br>Tajaajila fayyaa biroo keessatti -- 2<br>Bakka tajaajila gorsa fi qorannoo dhiigaa HIV walaba ta'e jirutti -- 3<br>Kan biroo (adda baasii) -- 4<br>Deebii hin qabu -- 99 | |
| **415** | Yoo deebiin kee gaaffii lak.411 lakki kan jedhu ta'e sababiin ati itti hin qoratamneef maalii?(deebiin tokkoo ol ni danda'ama) | Sodaa jireenya hawasummaa irraa adda baasuu fi wal qooduu -- 1<br>sodaa Walitti dhufeenya hiriyyaa -- 2<br>soda bu'a qorannoo dhiigaa pozatiivii ta'e waliin jiraachuu --3<br>Ani nama dhibee HIV/eedsiif saaxilame miti4<br>ogeessonni fayyaa wa'e bu'aa qorannoo kana natti hin himne -- 5<br>Qarshii qorannoo kana wan hin qabneef -- 6<br>Tajaajillii gorsaa fi qorannoo HIV/eedsii wan mana yalaa dhibee sombaa waan hin jirreef 7<br>Qoratamuun faayidaa qabeessa miti jedhee waanan amanuuf -- 8<br>Bu'an qorannoo dhiigaa kooti dhoksaan isaa waan na shakkisiiseef -- 9<br>Bu'a qorannoo kana waanan baruu hin barbadneef -- 10<br>Hiriyyaa amanuu -- 11<br>Ofitti amanuu -- 12<br>Kan biroo (adda baasii) -- 13<br>Deebii hin qabu -- 99 | |
| **416** | Itti gafatamaan yaalii dhibee sombaa kee kaka'umsa gorsaa fi qorannoo dhiigaa HIV/eedsiitif si kakasee | eeyyee-- 1<br>lakki -- 2<br>Deebii hin qabu -- 99 | |

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| | beekaa yeroo atii yaalii dhibee sombaa hordofaa turtetti? | | |
| **417** | Yoo deebiin kee gaaffii lak.416 eeyyee kan jedhu ta'e ,gorsaa fi qorannoo dhigaa HIV/eedsii kaka'umsa ittigafatamaa yaalii dhibee sombaa keetiin raawwatteettaa? | eeyyee—1<br>lakki -- 2<br>Deebii hin qabu -- 99 | |
| **418** | Yoo deebiin kee gaaffii lak.416 eeyyee kan jedhuu ta'e, qorannoo dhigaa dursitee gorsa fudhatee? | eeyyee—1<br>lakki -- 2<br>Deebii hin qabu -- 99 | |
| **419** | Yoo deebiin kee gaaffii lak.418 eeyyee kan jedhu ta'e,gorsa booda qorannoo fudhatteettaa? | eeyyee—1<br>lakki -- 2<br>Deebii hin qabu -- 99 | |

Kun dhuma gaaffii fi deebii keenyaadha .baay'ee galatoomi yeeroo kee fudhatee deebii kana na lachuukeef.

**Declaration of Principal investigator**

I the under signed MPH student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health. All the source of materials used for this thesis and all people and institutions who gave support for this work is fully acknowledged.

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**Approval of the primary Advisor**

This Thesis work has been submitted for examination with my approval as university advisor.

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