ADDIS ABABA UNIVERSITY FACULTY OF MEDICINE
DEPARTMENT OF COMMUNITY HEALTH

THE ASSOCIATION BETWEEN SUBSTANCE ABUSE AND HIV INFECTION AMONG PEOPLE VISITING HIV TESTING AND COUNSELING CENTERS IN ADDIS ABABA, ETHIOPIA

BY

ASSEFA SEME, MD

THESIS SUBMITTED TO FACULTY OF MEDICINE
ADDIS ABABA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE DEGREE OF MASTERS OF PUBLIC HEALTH

JUNE 2002
ADDIS ABABA

.

ADDIS ABABA UNIVERSITY FACULTY OF MEDICINE
DEPARTMENT OF COMMUNITY HEALTH

THE ASSOCIATION BETWEEN SUBSTANCE ABUSE AND HIV INFECTION AMONG PEOPLE VISITING HIV TESTING AND COUNSELING CENTERS IN ADDIS ABABA, ETHIOPIA

BY

ASSEFA SEME, MD

THESIS SUBMITTED TO FACULTY OF MEDICINE
ADDIS ABABA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF THE DEGREE OF MASTERS OF PUBLIC HEALTH

JUNE 2002
ADDIS ABABA

.

DEDICATION

This thesis work is dedicated to my mother, W/r Afrasa Tiqi, who was never tired to teach her fatherless children, and to my sister Aynalem Bekele without whose effort this work would not have been completed.

.

ACKNOWLEDGEMENTS

I would like to extend my sincere gratitude and special thanks to my advisors, Dr. Damen Haile Mariam and Dr. Alemayehu Worku, for their unreserved guidance and constructive comments and suggestions from the inception of research proposal up to final thesis work without whose input this thesis work would not have been materialized.

My heartfelt thanks also go to the Addis Ababa Health Bureau for facilitating the research process by writing letters to each research site. I would like to thank staffs of Oromia Health Bureau, particularly staffs of the Family Health Department for their priceless input to this thesis work.

I wish to express my deep appreciation to all medical directors and managers of all study sites (government, private and NGO), who allowed me to get the necessary information needed for my thesis work. I am very much grateful to the staff of all study sites who have given their precious time to collect the necessary data.

My special thanks go to W/t Beki Asfaw, in the Department of Community Health, for her great contribution to the work of this thesis paper.

Finally, I would like to thank all staff of the Department of Community Health library and for providing important reference materials for this thesis work.

.

TABLE OF CONTENTS

.

LIST OF TABLES

.

LIST OF FIGURES

.

LIST OF ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
CI	Confidence interval
CSW	Commercial sex worker
HIV	Human immunodeficiency virus
HIVCT	HIV counseling and testing
IVDU	Intravenous drug use
MMM	Medical Missionaries for Marry
NGO	Non-Governmental Organization
NRNC	Non-regular non-commercial
OR	Odds ratio
SD	Standard deviation
SPSS	Statistical package for social science
STD	Sexually transmitted disease
UNAIDS	Joint United Nation’s Program on AIDS
US	United States
USA	United States of America
VCT	Voluntary counseling and testing
WHO	World Health Organization

.

LIST OF ANNEXES

.

Abstract

The magnitude of HIV/AIDS in Ethiopia is ever increasing. It is also believed that the use of substances is increasing in some major towns including Addis Ababa. However, data regarding the relation of substance abuse and HIV infection is lacking.

A case-control study was carried out in Addis Ababa from December 2001 to February 2002 to explore the association between substance abuse and HIV infection and to determine the prevalence and the factors related to substance abuse among people visiting HIV testing and counseling centers.

Among all visitors for HIV testing and counseling, 227 cases and 726 controls were identified. Cases and controls were compared by socio demographic, socio economic, exposure to substances and risky behaviors that predispose them to HIV infection.

The prevalence of “hard’ drug use was found to be 1.2% with the rate being 3.2% in the cases and 0.54% in the controls. Alcohol drinking was found to be associated with serum HIV positivity after controlling for other confounding variables. While young age of 15 to 24 and being single were found to be associated with serum HIV positivity, having monthly family income was found to be protective against HIV infection. Being male and having sex with commercial sex workers were related to both alcohol drinking and khat chewing.

From the study, we concluded high prevalence of alcohol and khat abuse among people visiting HIV counseling and testing centers. Alcohol was found to be a significant risk factor for HIV infection among people visiting HIV testing and counseling centers. The need of health education to bring behavioral changes and further study to identify the prevalence and role of substance in exposure to HIV infection in the community is recommended.

.

1. INTRODUCTION

AIDS is today a major threat to the world's population- to its overall social, economic, and political wellbeing, as well as to the individual health of hundreds of millions of people. It has became the most devastating disease humankind has ever seen. More than 60 million people have been infected with the virus since the epidemic began (1).

The joint United Nations Program on AIDS estimated the number of people living with HIV worldwide to be about 40 million by the end of 2001, of which 28.1 million were found in Sub-Saharan Africa. Another 7.5 million people living with HIV are found in South-east Asia and Latin America (1).

This most recent UNAIDS/WHO estimate shows that, in 2001 alone, **5** million people were newly infected with HIV of which 3.4 million infections were in Africa. More than 70% of the people living with HIV/AIDS, 78% of active AIDS cases and 68% of new infections have occurred in Sub-Saharan Africa. More than 80% of the women worldwide and 87% of the children infected with HIV/AIDS are in sub Saharan Africa, as are 95% of the world’s AIDS orphans. Similarly, 2.3 million deaths due to HIV/AIDS were in Africa from the total estimate of 3 million deaths globally only last year (1, 2).

Ethiopia is one of the Sub-Saharan African countries where there is high rate of HIV/AIDS infection next to South Africa and Nigeria. While for every 13 adults one is estimated to be infected in the whole country, more than one out of every six adults is estimated to be infected in urban areas. In the year 2000, it was estimated that there were about 2.6 million people infected with HIV (3).

.

In Sub Saharan Africa, more than 85% of HIV transmission is heterosexual. Other routes include perinatal transmission and through exposure to contaminated blood, which account for the remaining 15% of the transmission.

It has been reported in many different studies that HIV/AIDS infection is common among substance abusers in the western world. Drug abuse is one of the primary ways of HIV spread. More than **5%** of all HIV infections are related to injecting drug use with infected needles. In many parts of the world, excluding Africa, injecting drug use is fast becoming one of the main modes of HIV transmission (4).

In the Russian Federation, more than half of all reported cases of HIV/AIDS to date have been injecting drug users. Drug use has an intimate connection with HIV. The connection occurs when drugs are injected using contaminated equipment. However, the risk of HIV transmission is not limited to drugs that are injected. Drugs, that can be swallowed or inhaled, normally alter people's judgment, and can lead to risky sexual behaviors, such as unprotected sex (intercourse without a condom), having multiple sexual partners, prolonged and traumatic sex, which can also result in HIV transmission (4, 5).

Though many African countries are on drug transit routes, the extent of drug-related problems in Africa is not clear. Drug use, especially injecting drug use, does not appear to be a major public health problem for much of Africa. However, a number of hospital admissions for drug-associated problems have recently increased in some cities. In Nigeria, for example, heroin and cocaine related problems have been highlighted in a number of reports (6). International drug traffickers are currently importing a broad range of drugs to many African countries. Of more importance is the rapidly increasing use of alcohol in Sub-Saharan Africa and the fact that

.

alcohol use is associated with a loss of sexual inhibition. In a study conducted on women who were abused by their spouses, 69% identified alcohol/drug abuse as the main cause of conflict leading to abuse. On the other hand, sexually transmitted diseases and work related injuries were identified to be higher among drinkers than non-drinkers in patients seen at Harare's Primary health clinic (6, 7, 8).

In Ethiopia, the four important transmission mechanisms for HIV are sexual contact, peri- natal transmissions, blood transfusions, and unsafe injections (3). Even though the problem of substance abuse (including drug abuse) is reported to be on the increase in major urban areas of Ethiopia, the available data on the relation of substance abuse and HIV status is minimal. Therefore, this study tends to explore the association between HIV status and substance abuse among people visiting HIV counseling and testing (HIVCT) centers in Addis Ababa.

.

2. LITERATURE REVIEW

2.1 MAGNITUDE OF HIV/AIDS

According to UNAIDS/WHO estimate, 5.8 million people in 1997, 5.4 million people in 1999 and 5 million people in 2001 were newly infected with HIV. There are about 40 million people worldwide living with HIV or AIDS - more than 90% of them in developing countries. About 14 million people have already died from the disease since the beginning of the epidemic, and most of these deaths were from Sub Saharan Africa. At the end of 2001, UNAIDS and WHO estimated that of the 40 million people living with HIV/AIDS worldwide, over 70% were found in Sub-Saharan Africa and more than 15% found in South East Asia, while the rest of the world accounted only for 14%. About 14 000 people around the world are being newly infected with HIV each day with 95% of the infections being in developing countries. Nearly, 12 000 of the infections occur in persons aged 15 to 49 years and 50% of the infections occurring in the age group of 15 to 24 years (1, 2, 3, 5).

In Ethiopia, according to the Ministry of Health report, about 3 million adults and children were living with HIV/AIDS at the end of 1999 of which the number of adults aged 15 to 49 years living with HIV/AIDS was 2.9 million (9).

2.2 HIV AND SUBSTANCE ABUSE

In recent years, researchers have began to explore the intersection of substances abuse and sexual 'risk behaviors,' (activities that put people at increased risk for sexually transmitted diseases), unintended pregnancies and sexual violence (10). Substance abuse and HIV/AIDS infection seem to be interrelated. Many people report that substances such as alcohol and drug

.

often go hand-in-hand with sexual activity - a predisposing factor for HIV/AIDS. There is currently great interest in looking at whether substance could be a specific risk factor for HIV/AIDS. Drugs of abuse and alcohol have been suggested as possible risk factors, possibly acting as both catalysts for high-risk sexual and injecting behaviors, as well as directly impairing immune competence (11). Substance abuse is closely associated with prostitution and HIV/AIDS cases have been concentrated in people that practice this high-risk activity (7). In the Americas, substances such as cocaine, cannabis, heroin, and multiple drugs (alcohol and psychotropic drugs) are commonly utilized (12). The abuse of alcohol, cocaine, cannabis, and psychoactive drugs by women is reported to be growing in Bolivia in parallel with HIV/AIDS. Studies have also indicated that HIV-infection and use of alcohol and drugs are increasing among Brazilians, and a rise in the incidence of AIDS among injecting drug users as well (7).

The extent of drug-related problems in Africa is not clear, although it should be noted that many African countries are on drug transit routes. To date, drug use, especially injecting drug use, did not appear to be a major public health problem for much of Africans. However, the number of hospital admissions for drug-associated problems is increasing in some cities where it primarily affects more affluent segment of the community (13).

Illicit drug use in Africa is related with cannabis and other natural psychoactive plants. Cannabis is a widely abused drug in the world. It is the most commonly used drug by adult smokers in rural areas in African region. Women in Cameroon often use cannabis pessaries in the vagina to increase the sexual desire of their partners (7). This practice can contribute to alteration of the vaginal mucosa and increase in exposure to HIV.

.

International drug traffickers now import a broad range of drugs, including heroin and cocaine, to many African countries. In South Africa, these trends have been accelerated by immigration, especially of other Africans and particularly Nigerians (14). Demand for these drugs has been established in South Africa, including among the urban lower classes. Most people smoke crack cocaine, a stimulant drug with pro-sexual effects. These sexual effects, together with very strong addictive potential, have led to very high HIV seroprevalence in user populations. Addiction often leads female users into prostitution, and prostitutes are the main conduits for the spread of both the drugs and HIV infection (7, 14).

Alcohol abuse is increasing in Sub-Saharan African countries in recent years. The fact that alcohol abuse is associated with a loss of sexual inhibition with a consequence of involvement in risky sexual behaviors that predispose to HIV infection is a major issue that needs due attention. Although few data are available on this issue, there is growing concern about alcohol abuse and HIV infection in Africa (13).

In Ethiopia**,** drugs like alcohol and khat are commonly consumed in both urban and rural areas. Unlike the developed world, the use of “hard” drugs such as heroin, cocaine and other narcotics were not considered important (12). Studies on substance abuse in selected urban areas of Ethiopia showed 82% of street children, commercial sex workers, and street vendors as having used addictive drugs or substances. The study also revealed that khat, alcohol, hashish, tobacco, and solvents were the most abused substances (15).

2.2.1 INJECTING DRUGS USE

Injecting drugs are among the substances commonly abused by people. In many parts of the world, injecting drug use is the major mode of HIV transmission. This is the case in a number

.

of Asian countries including Malaysia, Viet Nam, Yunnan Province in China, and the northeastern states of India; a number of Latin American countries; and some western European countries such as Spain and Italy (5).

In the Russian Federation, more than half of all reported HIV cases to date have been injecting drug users (5). Intravenous drug users (IVDUs) have been identified as a significant risk for HIV infection because of their practice of injecting using blood-contaminated syringes and needles. Thirty-three percent of the AIDS cases in the United States acquired HIV by injecting illegal drugs (17, 18). Furthermore, it is recognized that some drug use can lead to increased sexual risk behavior either through behavioral or physiological mechanisms, which can also result in HIV transmission (5, 19).

Of all the different ways that the virus can be passed on, directly injecting a substance contaminated with HIV in the blood-stream is by far the most efficient- much more so, in fact, than through sexual intercourse (5). Together, therefore, drug injecting and HIV can form an explosive combination. In fact, in some parts of the world, injecting drug use has helped kick-start the HIV epidemic. This was the case in Thailand, where during the first nine months of 1988, HIV prevalence rates among injecting drug users in Bangkok shot up from around zero to almost 40%, and in ten years since, approximately a million people in Thailand have become infected with HIV/AIDS (5). Similarly, the prevalence of HIV infection among injecting drug users, in different cities of Indonesia, was reported to range from 15% to 53% (1, 5).

Drug injection and prostitution are associated with a number of serious health risks. Drug users may also engage in prostitution to obtain money to buy drugs or even directly in return for drugs. Several studies have suggested that the use of drugs may be associated with an increased

.

likelihood of various health risk behaviors and some have attributed this to some sort of 'disinhibitory' effect (7, 14, 19 20).

HIV transmission with non-sterilized injecting equipment of intravenous drug users has not been documented as a major mode of HIV transmission in Africa. Unlike the developed countries, where up to 27% to 33% of HIV-1 infected individuals are intravenous drug users or have had sexual contact with intravenous drug users, injectable drug users are not commonly found in Africa (17). This low incidence of drug use has been attributed to *the expense* of the drugs and injecting equipment and *social barriers* to drug-using behavior (17, 21).

2.2.2 ALCOHOL ABUSE

Alcohol is possibly the most available and accessible drug throughout the world. It is the most commonly used drug for all groups and alcohol abuse has long been a problem in most countries of the world. Rapid social changes have contributed to an increase in alcohol dependence and alcohol related problems. Alcohol is the most abused substance in Honduras with substance abuse listed as one of the country's top ten health priorities (7). HIV infection has become the focus of much concern in the Bahamas due to the rapid increase in the number of infected people and AIDS cases among alcohol abusers (7). Unsafe heterosexual practices and intravenous drugs are the most important modes of HIV transmission among alcohol abusers (7).

Different studies have revealed that low socio economic situations, life stresses, lack of success, peer pressure, unemployment, lack of social support and related factors could lead to substance abuse (7, 20, 21). Some people may drink or use drugs to gain courage, reduce sexual inhibition, increase sociability, relief pressure, enhance sexual arousal or justify behaviors that

.

might otherwise feel is uncomfortable or unwise – without considering the potential consequences (10). Substances make certain individuals feel more capable of coping with a variety of life stresses. A study conducted in South London indicated that many prostitutes use drugs and alcohol in order to help them cope with the most unpleasant demands of their work (20). Another study done in Kenya has shown that a change in social attitudes is leading to acceptability of alcohol use by women and women's alcohol abuse is especially linked to the distilling of liquor. This is because of the low socio economic situation (7).

Alcohol abuse reduces personal thinking capacity and judgment. Many sexually active young people report that alcohol or drugs have influenced their decisions about sex (22). Use of alcohol during sexual contact is one condition under which people sometimes do not comply with risk reduction guidelines (23). Alcohol use may affect the transmission of, susceptibility to and effect of HIV in multiple ways. The most important, with respect to transmission, is that acute alcohol use leads to reduction in sexual inhibition accompanied by greater risk-taking, such as engaging in sexual behaviors associated with high risk of receiving or transmitting the virus. These behaviors include unprotected sex, having multiple sexual partners, needle sharing, or use of contaminated needles for injection, prolonged and traumatic sexual intercourse (5, 12, 24). Study done in Australia has shown that current alcohol use was significantly associated with increased needle sharing, and subjects with current alcohol problem were significantly more likely to engage in high-risk needle sharing (needle sharing with a prostitute or stranger) than no risk behavior (16).

A study in California has shown that regular alcohol users have more sexual partners than non-users. Among 523 women who were sexually active, 7.5% reported that they have used alcohol half the time or more (25).

.

2.2.3 COCAINE ABUSE

Cocaine is recognized as a sexual drug. Women describe the highly sexual sensations they are able to achieve after cocaine (7). After intravenous use of central nervous stimulants such as cocaine, both men and women tell of engaging in sexual acts, which they view in retrospect as humiliating and guilt producing. Addicted women in particular are made to perform a wide range of sexual acts in order to obtain cocaine (7, 20). This kind of sexual activity with different partners has an obvious impact on the increase of sexually transmitted diseases (STDs) including HIV/AIDS. Studies in Bahamas have shown that a high percentage of women infected with HIV were cocaine dependent, and keeping their habit by trading sex for drugs (7). Desperate to earn money to buy cocaine, drug-addicted female prostitutes in South Africa serve many clients and engage in practices shunned by their non-addicted peers: such as unprotected and anal sex (14).

In a study conducted in United States of America, an increased risk for HIV through sexual transmission was associated with crack cocaine use, particularly among those who also injected (26). This study also revealed that among 246 cocaine abusers, 45% had never married, 66% were unemployed, 15% were HIV seropositives, and 26% attended college. The higher rate of STDs among cocaine users underscores the involvement of these users in risky sexual behaviors that predispose them to STDs and a potential threat these sex behaviors represent for the transmission of HIV infection (26).

2.2.4 CANNABIS ABUSE

Cannabis is very widely abused drug through out the world. Although people of all ages are at risk, two groups in particular are affected: adult smokers in rural areas of Africa, Asia, and Middle East, and the young in urban and semi-urban areas of the Americas, Europe, and

.

Western Pacific (27). It is the most commonly used drug in Africa. A study on drug use among high school students in Addis Ababa and Butajira revealed that cannabis and cigarette use were more prominent among students in private schools as compared to students in public schools in Ethiopia (12). Another study in Ethiopia indicated that cannabis was the most commonly used drug by traffickers and users within the country and nearly 50% of the users were jobless (21). The use of cannabis is on the increase owing to its low price and its growth locally. This was evidenced by a police report that 98% of the prisoners were arrested because of cannabis use or trafficking (21).

2.2.5 KHAT ABUSE

Khat, commonly known as “chat” in Ethiopia, has been used for prayer and during fasting period of Ramadan among Moslems. However, its use became widespread among many parts and populations (28). Khat, which Ethiopians do consider as an illicit drug, is a cash crop and an important source of foreign exchange next to coffee and skin and hides (12). Even though literatures written on the relation between HIV/AIDS and khat (Catha edulis) use are not available, surveys on the socio economic impact of khat chewing have revealed its negative effect. A study has identified that alcohol and khat were the two drugs commonly ever tried by high school students in both government and private schools in Ethiopia (12).

Insomnia is a common problem after use of khat and sleep disturbance is highly prevalent among current users and is the cause for referral to hospitals and abuse of psychotropic substances to abolish its effect. Insomnia, caused by cerebral-stimulant action of khat chewing, is being overcome by different activities, depending on the local situation, such as indulgence in alcohol and abuse of sedatives and hypnotic drugs. Khat chewing in some areas occurs with the use of other substances such as cigarette and cannabis (21, 28). Alcohol intake following

.

khat chewing, commonly known in Ethiopia as "*chebsi*", is perceived to overcome the effect of khat chewing. Therefore, most khat chewers are believed to drink after chewing. Some people, however, use drugs with sedative or hypnotic effects (28).

2.3 THE IMPACT OF SUBSTANCE ABUSE

The impact or effect of substance abuse on its users and their families has been well documented in various studies. Alcohol dependence, for example, has been observed to create havoc with the health of users and their families (7). Alcohol makes it difficult for the dependent user to judge what is *right or wrong*, what is *good or bad*, and what is *moral or immoral*. At its worst, alcohol abuse can lead to accidents and death. Prolonged alcohol abuse may lead to family disintegration and financial hardship. The emotional development of children and their education may be compromised if parents abuse alcohol. Cases of theft, fraud, assault, murder, and sexual offences due to alcohol have been found to be common. The incidence of domestic violence, child abuse, divorce, neglect, and cruelty to a partner has been associated with alcohol abuse (7, 12).

Substance abuse undermines judgment, reduces choice of sex partners, damages monogamous relationships, and facilitates impulsiveness resulting in unsafe and risky sexual practices that facilitate the transmission and spread of HIV/AIDS (29).

There is strong cross sectional relationship between high-risk sexual activities and use of drugs during sexual intercourse and there are multiple connections between AIDS risk and substance abuse (30). These include:

- Sexual transmission of HIV to partners of substance users

.

- Neonatal transmission by infected mothers who are substance users or partners of substance users
- Increased risk due to inhibition under the influence of drugs or alcohol
- Increased risk due to immunosuppression caused by drugs or alcohol use
- Inability to utilize resources (social, financial, health) because of substance abuse

Many young people reported that drug use has influenced their sexual decision and were involved in risky sexual behaviors because of drugs (22). A study in San Francisco revealed that men at high risk are about 2 to 4 times more likely to have used drugs during sexual activities than men at no risk are. The same study indicated the proportionate increase in risk for risky sexual practices to be greater if the drug used during such activity is illegal (e.g. Marijuana and other drugs) rather than legal and easily available (e.g. Alcohol). There was a strong connection between the frequency and number of substance used and participation in risky sexual activities (23, 26).

Crack has been associated with high-risk sex behaviors and with HIV-infection. High-risk sex behaviors were reported far more frequently among smoking injectors and smokers only than among injectors who did not smoke. Smoking injectors were more likely than the other groups to report frequent drug use in association with high-risk sex behaviors and crack smoking injectors were more likely to report sex with an injector, exchanging sex for drugs and/or money, drug use before or during sex, and unprotected sexual intercourse (26).

2.3.1 SUBSTANCE ABUSE AND INCREASED SEXUAL DESIRE

Different studies have reported that substance abuse increases sexual desire of the users. It is reported that increased alcohol consumption was found to be associated with an increased

.

likelihood of being involved in sexual activity (10). A national survey of Americans aged 18 to59 years showed that 35% of men, aged 18 to 30 years, had sex after consuming 5 to 8 drinks and 45% had sex after consuming eight or more drinks compared with 17% of those who had one or two drinks. The same survey has revealed that, among women aged 18 to 30 years, 39% had sex while consuming 5 to 8 drinks and 57% had sex when consuming eight or more drinks, compared with 14% of women who had one or two drinks. In another study conducted to assess the prevalence of HIV sexual risk behaviors and substance use among 775 runaway and homeless adolescents in San Francisco, Denver, and New York City, 75% have reported having had sex while under the influence of alcohol or drugs (31).

2.3.2 SUBSTANCE ABUSE AND CONDOM NON-USE

It appears that substance use during sexual contact affects the sexual practices of different people, their sexual decision and is one condition under which individuals sometimes decline to comply with risk reduction guidelines. Many people reported that they were engaged in risky sexual behaviors because of substance abuse (22, 23). In a national survey conducted by Kaiser Family Foundation on Youths' Knowledge and Attitudes on Sexual Health, 73% of young people aged 15 to 24 years agreed that condom often don't get used when people are drinking or using drugs (22). In another study, alcohol use was found to be related to willingness to have unprotected sex for money and less condom use. The same study indicated that while two-third of the study participants agreed that they would be more likely to engage in a wider variety of sexual practice after taking alcohol/drugs, 22% of the respondents agreed that they were less likely to use condom after taking alcohol/drugs (20, 26). This study has shown a statistically significant correlation between frequency of drinking and quantity of alcohol consumed and the likelihood of having sex without using a condom after taking drugs.

.

2.3.3 SUBSTANCE ABUSE AND MULTIPLE SEXUAL PRACTICES

Since substance abuse impairs individuals' thinking and judgment the chance of selecting sexual partners will at the same time be compromised. By weakening ego controls, substances like alcohol could elicit behavior likely to increase probability of exposure to HIV (8, 34). In a national survey of Americans aged 18 to 59 years, there was some evidence that heavy alcohol use was associated with multiple sexual partners, which is a primary risk factor for transmission of STDs, including HIV (10). In a study conducted in USA, about 38% of "regular" alcohol users reported having more than one sexual partner in the past year compared to 12% of "light" users and 6% of nonusers (25). Among 71% of cocaine abusers who had sex in the past 30 days, 44% reported having sex with multiple sex partners (26). Majority of seropositive IVDUs in USA were likely to have multiple sexual partners compared to seronegative individuals (35).

2.3.4 SUBSTANCE ABUSE AND RISKY INJECTIONS

Substance users are usually involved in risky injections that predispose them to HIV infection. Needle or syringe sharing and use of contaminated needles are the major risky practices among injecting drug users. In a study done in USA to assess HIV infection and risk behaviors among intravenous drug users, a greater percentage of seropositive subjects injected drugs on daily basis reported a higher daily cocaine injection rate (35). These people were more likely to have multiple sex partners, to have history of sexually transmitted diseases, to have ever shared needles and syringes, and to use new needles less frequently as compared to seronegative individuals (35). In a study in Australia, among 74 Heroin users that were interviewed whether or not practicing needle or syringe sharing, 12 (16%) reported sharing needle or syringe with

.

strangers, 12 (16%), have shared with one or more friends, three (4%) have shared with prostitutes and nine (12%) have shared with sexual partners (16).

2.3.5 SUBSTANCE ABUSE AND SUSCEPTIBILITY TO INFECTIONS

Clinically, chronic alcoholics have long been known to be susceptible to increased infections. In laboratory animals, alcohol has been shown to affect the immune system adversely. It is associated with both decrease in the numbers of lymphocytes and a defective response to mitogen challenge. Alcohol may suppress cellular immunity and augment HIV-1 replication in tissue cultures. Alcohol had no effect on the relative proportion of **CD4+** and **CD8+** lymphocytes, but decreased the ability of lymphocytes to produce interleukin-2 and the soluble immune response activity of suppressor cells (24, 32). The known susceptibility of heroin addicts to develop infections suggests that the responsible virus (HIV) will rapidly proliferate within the system of the heroin users (24).

Excessive use of khat was found to be associated with marked socioeconomic problems such as family instability, economic drain, and prolonged absence of fathers from families, malnutrition, and poor educational performance leading to delinquency in some children. Health and nutrition effects of khat include the presence of higher prevalence of both physical and mental problems and lower nutritional levels among khat users than non-users (7, 28). It is obvious that khat use has negative consequences on economic development of a country as time and money of the most productive section of the human resources are affected by the habit of indulging in khat. Although literatures on khat are extensive, and several authors strongly stated the potential adverse effect of khat on socioeconomic aspects, more important is the health of these young and productive sections of the society, which is affected either by the

.

direct effect of the khat or by the indirect effect of khat through exposure to different diseases including HIV/AIDS. The association of HIV infection and khat chewing, however, is not dealt with in Ethiopia.

In general, substance abuse will expose one to STDs and HIV/AIDS by altering one's judgment and thinking capacity, which facilitate high-risk behaviors. The following conceptual framework shows the ways by which substance abuse could expose one to HIV infection.

.

Conceptual framework of the study

Fig 1: Conceptual framework

.

3. RATIONALE OF THE STUDY

In Ethiopia, the magnitude of HIV/AIDS is ever increasing. It is also believed that substance use (including drugs) is increasing in some of the major towns including Addis Ababa. However, data regarding the relation of substance abuse and HIV infection is lacking. This study, therefore, is conducted to explore the relation between substance abuse and HIV infection among those people visiting HIVCT centers in Addis Ababa, and come up with recommendations to enable the responsible bodies and policy makers to design appropriate strategies and measures to control the responsible substances for the transmission and spread of HIV/AIDS in the country.

.

4. OBJECTIVE

General Objective

The general objective of this study is to assess the prevalence of substance abuse and to explore its association with HIV infection among people visiting HIV counseling and testing (HIVCT) centers in Addis Ababa.

Specific Objectives

- To determine the association between substance abuse and HIV infection among people visiting HIVCT centers in Addis Ababa.
- To determine the prevalence of substance abuse among people visiting HIVCT centers in Addis Ababa.
- To identify the type of substances abused by people visiting HIVCT centers in Addis Ababa
- To determine factors related to substance abuse

.

5. METHODS AND MATERIALS

Study area

Geography

The study was conducted in Addis Ababa, the capital of Ethiopia, which is also the capital of Region 14. Addis Ababa has a total population of 2,570,000 in 2001 with population aged fifteen years and above being 1.4 million. Males constitute 48% of the total populations with male to female ratio being about 1: 1.1.

Health facilities

Addis Ababa has 18 hospitals 24 health centers, 161 health stations, 340 clinics and 47 health posts run by government, private, and non-governmental organizations (NGOs) with a potential health service coverage of 93.4% in 2001. The clinics are sub categorized as small, medium, higher, and special. There are 114 small (lower), 94 medium, 66 higher and 66 special clinics. There are few clinics, which are officially licensed by Region 14 Health Bureau to carry out HIV counseling and testing activities. These are clinics, which fulfilled the criteria set by the regional health bureau.

Source population

All people who visited health institutions, which carry out HIV counseling and testing activities in Addis Ababa between December 2001 to February 2002 for medical reasons.

Study population

All people aged 15 years and above who came to HIVCT centers in Addis Ababa, during the same period, to be tested for serum HIV status.

.

Study design

The design of the study was a case-control study design, which compared HIV seropositves and HIV seronegatives on their exposure status to the variables of interest.

Sampling procedures

All health institutions that are officially licensed by region 14 Health Bureau to carry out HIVCT were listed and stratified on the basis of the ownership as private, government and NGO owned health institutions. Three clinics were excluded from the study because of refusal and very low caseload. Therefore, two NGO higher clinics, two government hospitals, one government health center, and three private higher clinics were included in the study. Both cases and controls were those people who visited these health institutions for HIV counseling and testing purposes during the study period. The classification of cases and controls were based on serostatus of those people tested for HIV. Those people with HIV seropositives were designated as *cases* and those with HIV seronegatives were designated as *controls*.

Inclusion and Exclusion Criteria

Inclusion criteria

Cases: HIV seropositivity, age 15 years and above, those who came for HIVCT purpose and who were volunteer to participate in the study

Controls: HIV seronegativity, age 15 years and above, those who came for HIVCT purpose and who were volunteer to participate in the study

Exclusion criteria

Age below 15 years, serum HIV test result of gray zone and those who were not volunteer to participate in the study

.

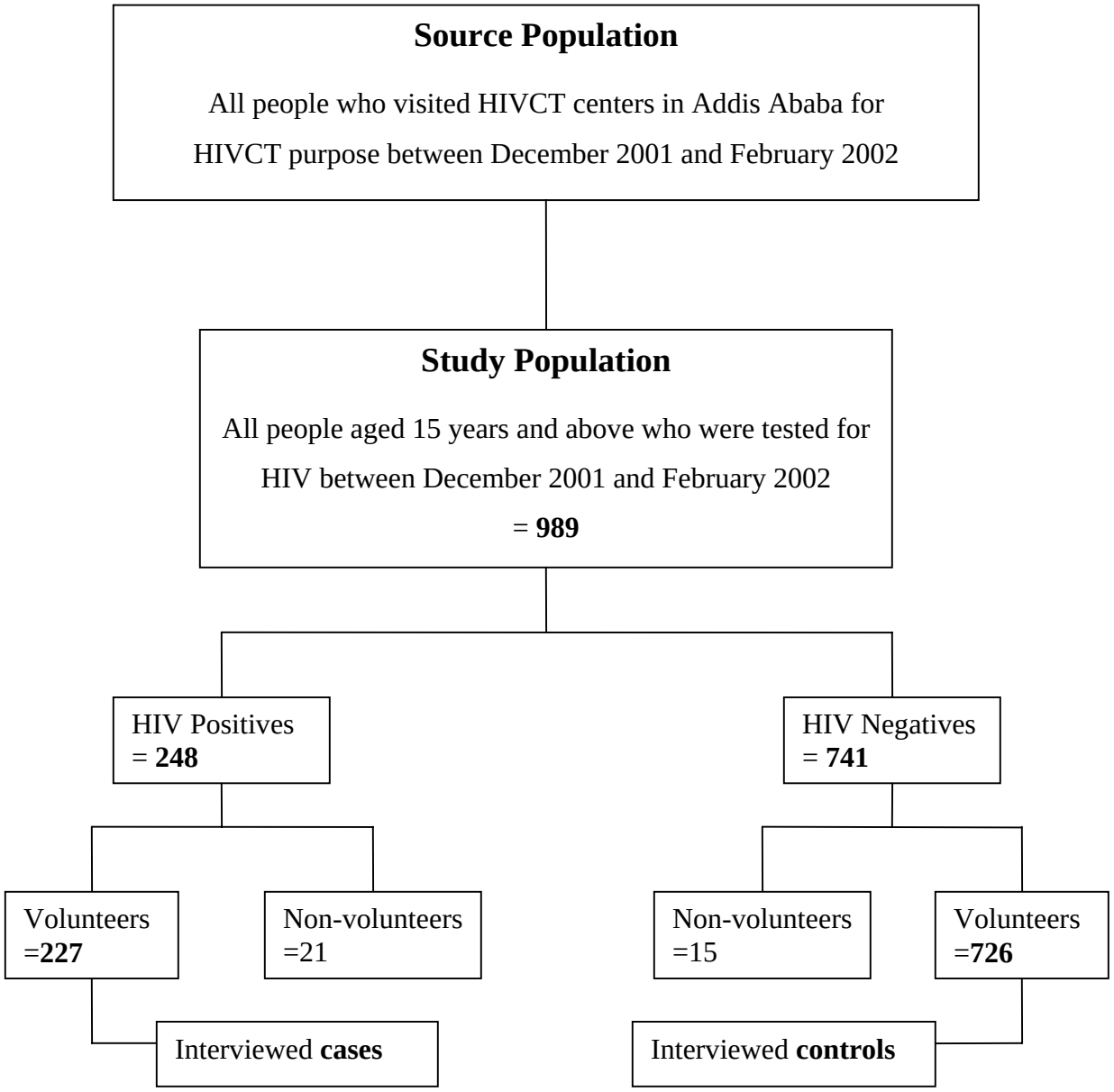


Fig.2. Selection procedures of cases and controls

.

Sample size

The sample size was calculated using the methods of "difference between population proportions" with $\alpha = 0.05$, β=80%, $\mathbf{p_1 - p_2}$= 12%, and **r** = 1:3

- Probability that if the two samples differ this reflects a true difference in the two populations (confidence level or 1-alpha) = 95%
- Probability that if the two populations differ, the two samples will show a "significant" difference (Power or 1-beta) = 80%
- The ratio of case to control (case: control) = 1: 3
- Expected frequency of exposure to substances in controls (HIV negatives) = 44%
- Percent exposure to substances among cases (HIV positives) = 56%

$$n = \frac{\left[Z_{\alpha/2} \sqrt{(1 + 1/r)(p)(1-p)} + Z_{\beta} \sqrt{p_1(1-p_1) + \frac{p_2(1-p_2)}{r}} \right]^2}{(p_1 - p_2)^2}.$$

Where:

$\mathbf{Z_{\alpha/2}}$ = the percentile of standard normal distribution corresponding to the level of significance
$\mathbf{Z_{\beta}}$= the percentile of standard normal distribution corresponding the power of the study
r = ratio of cases to controls
$\mathbf{p_1}$ = the proportion of exposure to substances among the controls
$\mathbf{p_2}$ = the proportion of exposure to substances among the cases
n = the minimum sample size required for the study

Accordingly, the sample size was calculated to be about 191 cases. By considering 25% non-response rate, as the issue is very personal and sensitive, (191 x 25%) = 48, the total sample size required was calculated to be 191 + 48 = 239. Thus, 239 cases and 717 (3 x 239) controls were planned to be interviewed. In actual case, however, only 227 cases and 726 controls completed the interview.

.

Data collection procedures

Data was collected during the pre test counseling and before the serostatus of the individuals was known. The collection of data continued until the required number of cases was identified. All HIV seronegative individuals during the same period were included as controls. Data was collected by using structured questionnaire that was pre tested in four of the health institutions two weeks before the actual data collection. Data collectors were counselors from respective health institutions and were trained on the procedure for two days. The purpose of selecting counselors was to keep individuals' secrecy and to get maximum response.

Data quality assurance

Questionnaires were designed carefully. A designed questionnaire translated first into Amharic and back translated to English to assure its consistency. The questionnaire was pretested in a similar setting before its administration. The collected data was checked for completeness, accuracy, clarity, and consistency by a supervisor and the principal investigator on daily basis. Any error or ambiguity and incompleteness were corrected before the individual is told the test result in his/her visit for the posttest counseling.

Study variables

Dependent

HIV serostatus (HIV positive, HIV negative)

Independent

Socio demographic variables (age, sex, residence, religion, ethnicity), socio economic variables (income, occupation), and risky behaviors (number of sexual partners, substance use, its type, amount, frequency and history of sexually transmitted diseases)

.

Data Entry and Analysis

The collected data was entered using EPI-info version 6.4 statistical package. Analysis was carried out using EPI-info version 6.4 and SPSS version 10 software. Proportions, percentages, and graphs were used for description as appropriate. Odds ratio with confidence intervals were computed to assess the presence and degree of association between HIV serostatus and its determinant. P-Value of 0.05 was set as a cut-off point for the significance of the association between dependent and independent variables. Logistic regression was used to control for the confounding variables.

Ethical Consideration

Ethical clearance was initially obtained from Addis Ababa University Faculty of Medicine Ethical Committee. Official letters were written to each health institution from both Department of Community Health and Region 14 Health Bureau for cooperation. During the interview, each individual was told about the aim of the study and on the possible benefit of the study and informed consent was obtained from each respondent. The result was confidential and the secrecy of respondents was kept because of anonymity and double blind nature of data collection. Respondents were offered health education on the negative effects of substance abuse and were counseled on HIV/AIDS transmission and prevention methods during posttest counseling.

.

Operational Definitions

1. **“Hard” drugs:** Substances such as cocaine, heroin, etc, which are under the international control and produced, trafficked and consumed illicitly.
2. **HIV testing and counseling centers:** Officially licensed health institution (owned by government, private and NGO) by Region 14 Health Bureau to carry out HIV testing and counseling services in Addis Ababa
3. **Khat:** A central nervous system stimulating substance with alkaloid active ingredient, cathinone, and with biologic effect similar to that of amphetamine
4. **Knowledge:** facts, information, understanding, and skill that a person has acquired through experience or education and the ability to remember them
5. **Substance:** Any non-medical drugs used by study subjects such as alcohol, khat, cannabis, heroin, cocaine, marijuana
6. **Substance abuse:** the use of any of these substances by study subjects at any time without medical prescription
7. **Light drinkers**: Study participants who were taking alcoholic drinks twice a week or less
8. **Heavy drinkers**: Study participants who were taking alcoholic drinks daily
9. **Light chewers**: Study participants who were chewing khat twice a week or less
10. **Heavy chewers**: Study participants who were chewing khat daily or every two days

.

6. RESULTS

Description of study participants

Of the total population who has visited the study sites during December 2001to February 2002, 989-study participants were eligible subjects who met the set criteria for the study. From those, 953 participants have completed the interview in all study sites, making a response rate of 96.3%. Among these, 227 (22.9%) were cases and 726 (73.4%) were controls. Twenty-one out of the total 248 cases and 15 of the total 741 controls refused to participate in the study, making a non-response rate of 8.5% in the cases and 2.1% in the controls, respectively. Males were 336 (35.3%) and females were 617 (64.7%). Socio demographic characteristics of the study subjects are presented in table 1.

The mean ($\pm$ SD) age of the cases was 29.5 $\pm$ 7.4 years while that of the controls was 25.5 $\pm$ 6.4 years. Only 44 (4.6%) of the study population was illiterate and the majority of the study population (72.2%) have educational level of grade 9 and above. Ethnically, 518 (54.4%) of the study participants were Amharas followed by Oromos, which were 198 (20.8%). The majority of the study participants (79.0%) were followers of orthodox religion. Seven hundred twenty eight (82.1%) of the study participants reside in Addis Ababa, while 171 (17.9%) were from out side Addis Ababa and the majority of the study population (71.9%) were never married. Nearly half of the study participants (50.2%) were jobless. Five hundred seventy five (60.3%) of the respondents have no private income and 363 (38.1%) of the respondents did not know their family income.

.

Table 1: Socio demographic characteristics of study subjects, Addis Ababa, 2002

Characteristics	HIV Positives (n= 227) No. (%)	HIV Negatives (n= 726) No. (%)	Total (n= 953) No. (%)
Sex			
Male	81 (37.5)	255 (35.1)	336 (35.3)
Female	146 (64.3)	471 (64.9)	617 (64.7)
Age (in years)			
15-19	8 (3.50)	75 (10.3)	83 (8.70)
20-24	47 (20.7)	310 (42.7)	357 (37.5)
25-29	75 (33.0)	197 (27.1)	272 (28.5)
30-34	50 (22.0)	68 (9.40)	118 (12.4)
35-39	25 (11.0)	48 (6.60)	73 (7.70)
40-44	11 (4.80)	17 (2.30)	28 (2.90)
45-49	4 (1.80)	10 (1.40)	14 (1.50)
50 and above	7 (3.10)	1 (0.10)	8 (0.80)
Educational Status			
Illiterate	21 (9.30)	23 (3.20)	44 (4.60)
Read and write	7 (3.10)	6 (0.80)	13 (1.40)
Grade 1-6	31 (13.7)	56 (7.70)	87 (9.10)
Grade 7-8	31 (13.7)	89 (12.3)	120 (12.6)
Grade 9-12	109 (48.0)	428 (59.0)	537 (56.3)
Above grade 12	28 (12.3)	124 (17.1)	152 (15.9)
Religion of respondents			
No religion	3 (1.30)	3 (0.40)	6 (0.60)
Orthodox	195 (85.9)	558 (76.9)	753 (79.0)
Protestant	18 (7.90)	95 (13.1)	113 (11.9)
Catholic	1 (0.40)	3 (0.40)	4 (0.40)
Moslem	10 (4.40)	63 (8.70)	73 (7.70)
Others	0 (0.00)	4 (0.60)	4 (0.40)
Ethnicity			
Amhara	128 (56.4)	390 (53.7)	518 (54.4)
Oromo	53 (23.3)	145 (20.0)	198 (20.8)
Gurage	24 (10.6)	98 (13.5)	122 (12.8)
Tigre	19 (8.40)	79 (10.9)	98 (10.3)
Others	3 (1.30)	14 (1.90)	17 (1.80)
Residence/ Address			
Addis Ababa	192 (84.6)	590 (81.3)	728 (82.1)
Out side Addis	35 (15.4)	136 (18.7)	171 (17.9)
Marital status			
Ever married	131 (57.7)	137 (18.9)	268 (28.1)
Never married	96 (42.3)	589 (81.1)	685 (71.9)

.

The median age at the first marriage was 20 years for HIV positives and 21 years for HIV negatives. The median age at first sexual intercourse, however, is 18 years for cases and 19 years for controls. (Table 2)

Table 2: The mean and median age at first marriage and first sexual intercourse of people visiting HIVCT centers in Addis Ababa, 2002

	HIV Positives n=227		**HIV Negatives n=726**	
Description	Mean(SD)	Range	Mean(SD)	Range
Age at first marriage				
Male	25.4 (4.4)	15-35	27.3 (5.7)	16-40
Female	19.5 (3.3)	12-29	19.9 (3.9)	13-30
Total	21.2 (4.6)	12-35	22.4 (5.8)	13-40
Age at first intercourse				
Male	18.3 (2.9)	11-25	18.9 (8.8)	11-30
Female	18.5 (2.5)	14-27	19.3 (2.8)	10-28
Total	18.4 (2.7)	11-27	19.2 (2.9)	10-30

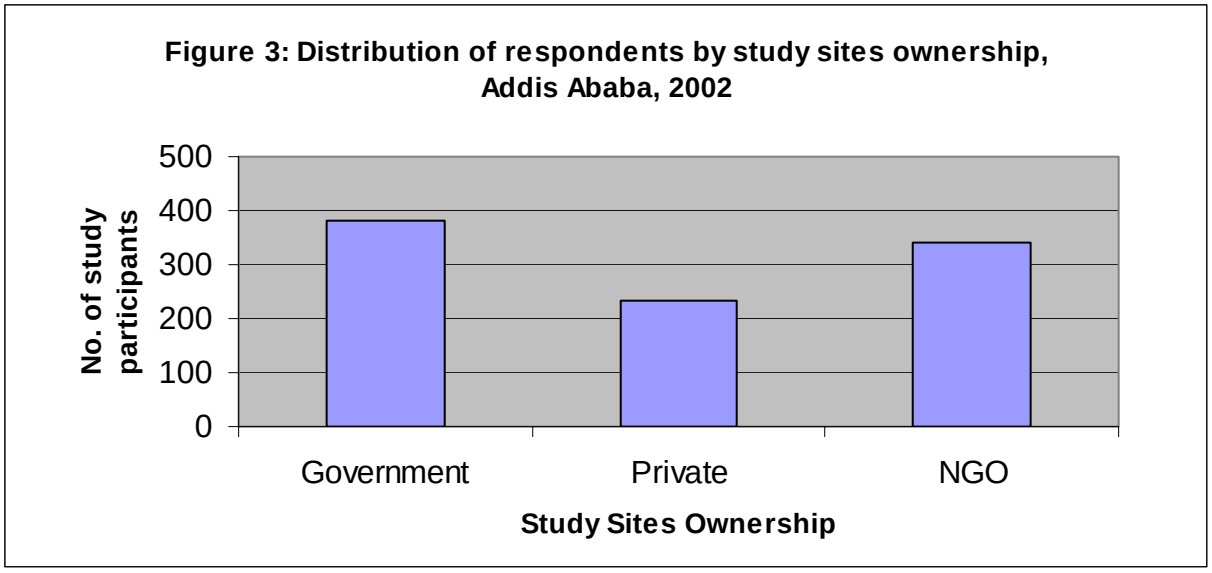
The overall prevalence of HIV among those people visiting HIV counseling and testing centers was found to be 25.1%. This includes all people visiting health institutions owned by government, private, and non- governmental organizations that carry out HIV counseling and testing during the study period (Table 3).

.

Table 3: Prevalence of HIV in different health institutions that carry out HIV counseling and testing in Addis Ababa, 2002

Ownership of Health institutions **(n=8)**	Total No. of people tested for HIV **(n= 989)**	Total No. of HIV Positives **(n= 248)**	No. of interviewed HIV Positives **(n=227)**
Government	404	84 (20.8)	76 (18.8)
Private	246	49 (19.9)	36 (14.6)
NGO	339	115 (33.9)	115 (33.9)
Total	**989**	**248 (25.1)**	**227 (22.9)**

Of the total respondents 381 (40%) were from government, 233 (24.4%) were from private, and 339 (35.6%) were from non-governmental organizations. While no study participant refused to respond in health institutions owned by NGOs, the non-response rates in government and private HIVCT centers were 23 (5.7%) and 13 (5.3%), respectively.



.

The majority of the cases were from Mary Joy clinic (33.1%), Kazanchis Health Center (14.9%), St. Marry laboratory (13.3%), and Tikur Anbesa Hospital (12.5%).

Table 4: Distribution of study population by study sites, Addis Ababa, 2002

Health Institutions	HIV positives n= 248	HIV negatives n=741	Total n=989
Tikur Anbesa Hospital	**31 (12.5)**	139 (18.8)	170 (17.2)
Yekatit 12 Hospital	17 (6.80)	39 (5.30)	56 (5.70)
Beth Zatha Higher Clinic	18 (7.30)	183 (24.7)	201 (20.3)
Tirat Higher Clinic	7 (2.80)	6 (0.80)	13 (1.30)
Arsho AIDS Laboratory	23 (9.30)	9 (1.20)	32 (3.20)
Kazanchis Health Center	**37 (14.9)**	141 (19.0)	178 (18.0)
Marry Joy Clinic	**82 (33.1)**	152 (20.5)	234 (23.7)
St. Marry Laboratory	**33 (13.3)**	72 (9.70)	105 (10.6)

The prevalence of substance abuse among the study participants varies depending on the substance being abused. However, the overall prevalence of illicit drugs use among the study participants was found to be 1.2%. The prevalence of substance abuse among HIV positive individuals (3.2%), however, is greater than the prevalence of drug abuse among the HIV negative individuals (0.54%).

The majority of the cases 125 (55.1%) drank alcohol in the past one year and the overall prevalence of alcohol use among people visiting HIV testing and counseling centers in Addis Ababa was found to be 429 (45.0%). The prevalence of khat use is more than twice as high

.

among the cases as in the controls, 72 (31.7%) versus 104 (14.3%). Among the "hard drugs" cannabis is the drug most tried by the cases in the past one year 6 (2.6%) (Table 5).

Table 5: Types of substances abused by people visiting HIV testing and counseling centers in Addis Ababa, 2002

Types of substances abused	HIV positives n= 227 (%)	HIV negatives n=726 (%)	Total n=953 (%)
Alcohol	**125 (55.1)**	304 (41.9)	**429 (45.0)**
Khat	**72 (31.7)**	**104 (14.3)**	176 (18.5)
Cannabis	**6 (2.60)**	1 (0.14)	7 (0.73)
Marijuana	1 (0.44)	1 (0.14)	2(0.21)
Cocaine	0 (0.00)	1 (0.14)	1(0.10)

Majority of the cases 71 (56.8%) has drank "tela" a locally available form of drink followed by beer and draught 68 (54.4%) and 41 (32.8%), respectively.

Study participants were assessed on their knowledge about the use of condoms, types of sexually transmitted diseases (STDs), and HIV transmission and prevention methods. Respondents were designated as knowledgeable in that specific situation if he/she mentioned three uses of condoms correctly, four types of STDs included in the questionnaire correctly, five methods of HIV transmission and three methods of HIV prevention correctly.

Seven-hundred twenty-seven (76.3%) of the respondents have correctly answered the three uses of condoms (20.1% of the cases Vs 56.2% of the controls). One hundred seventy-four (76.7%) of the cases and 482 (66.4%) of the controls have correctly answered four types of sexually transmitted diseases that were included in the questionnaire. Only 94 (41.4%) of the cases and 279 (38.4%) of the controls knew all five methods of HIV transmission included in the

.

questionnaire. However, 178 (78.4%) of the cases and 552 (76%) of the controls knew the three methods of HIV prevention included in the questionnaire (Table 6).

Table 6: Knowledge assessment of study participants on use of condom, types of STDs, HIV transmission and prevention methods and its association with HIV seropositivity, Addis Ababa, 2002

Have knowledge on	Cases n= 227 (%)	Controls n=726 (%)	OR (95% CI)
Use of Condom			
Yes	191 (**84.1**)	536 (73.8)	**1.88 (1.25, 2.84)**
No	36 (15.9)	190 (26.2)	1.00
Types of STDs			
Yes	174 (**76.7**)	482 (66.4)	**1.66 (1.16, 2.38)**
No	53 (23.3)	244 (33.7)	1.00
HIV transmission			
Yes	94 (41.4)	279 (38.4)	1.13 (0.83, 1.55)
No	133 (**58.9**)	447 (**61.6**)	1.00
HIV prevention			
Yes	178 (**78.4**)	552 (**76.0**)	1.15 (0.79, 1.67)
No	49 (21.6)	174 (24.0)	1.00

While 51 (22.5%) and 41 (18.1%) of the cases had reported having genital discharge and genital ulcer in the past one year, respectively, only 57 (7.9%) and 26 (3.6%) of the controls have reported having respective problems in the past one year.

Respondents were asked the reasons for their requirement of the HIV test. Majority of the respondents 626 (65.7%) had visited the centers to know their serum status followed by visa application 268 (28.1%). While 46 (20.3%) of the cases gave “being sick” as the main reason for visiting HIVCT centers, only 20 (2.8%) of the controls had mentioned ‘being sick” as the main reason for their visit (Table 7).

.

Respondents were also asked on whether alcohol drinking could increase their sexual desire or not. Ninety three of the total 125 (74.4%) of HIV seropositive individuals who drank alcohol acknowledged that alcohol intake increases their sex desire as compared to only 42.8% (133 out of 304) of HIV seronegative drinkers.

Table 7: Distribution of respondents by reasons for seeking HIV testing and counseling, Addis Ababa, 2002

Reasons	HIV positives n=227(%)	HIV negatives n=726 (%)	Total n=953 (%)
Know own status	**124 (54.6)**	**502 (69.1)**	**626 (65.7)**
Suspect oneself	**57 (25.1)**	**83 (11.4)**	**140 (14.7)**
Not trust partner	16 (7. 0)	43 (5.9)	59 (6.2)
Sick	**46 (20.3)**	**20 (2.8)**	66 (6.9)
Premarital test	14 (6.2)	92 (12.7)	106 (11.1)
For visa application	**26 (11.5)**	**242 (33.3)**	**268 (28.1)**
Referred	3 (1.3)	4 (0.6)	7 (0.7)
Confirm previous result	17 (7.5)	6 (0.8)	23 (2.4)
Test before pregnancy	0 (0.0)	4 (0.6)	4 (0.4)
Pregnant	4 (1.8)	0 (0.0)	4 (0.4)
Partner death	13 (5.7)	7 (1.0)	20 (2.1)
Job exposure to disease	3 (1.3)	6 (0.8)	9 (0.9)
Raped	1 (0.4)	4 (0.6)	5 (0.5)
Job seeking	4 (1.8)	64 (8.8)	68 (7.1)

The odds of serum HIV positivity among “heavy” drinkers and “light” drinkers were 4.83 and 1.57 times as high as the odds of non-drinkers, respectively. Similarly, the odds of serum HIV positivity among “heavy” chewers and “light” chewers were 7.02 and 2.22 times as high as the odds of non-chewers (Table 8).

.

Table 8: Distribution of respondents by intensity of alcohol drinking and khat chewing in Addis Ababa, 2002

	HIV Serostatus		
	HIV positives	**HIV negatives**	
	n (%)	**n (%)**	**OR (95% CI)**
Alcohol drinking			
Non drinkers	102 (44.9)	422 (58.1)	1.00
Light drinkers	111 (48.9)	292 (40.2)	**1.57 (1.14, 2.16)***
Heavy drinkers	14 (6.2)	12 (1.7)	**4.83 (2.03, 11.53)***
Khat chewing			
Non-chewers	155 (68.3)	622 (85.7)	1.00
Light chewers	51 (22.5)	92 (12.7)	**2.22 (1.49, 3.33)***
Heavy chewers	21 (9.2)	12 (1.6)	**7.02 (3.22, 15.53)***

* Significant

The unmatched case-control analysis was done on 227 cases and 726 controls that completed the interview. Cases and controls were compared by age, sex, educational level, marital status, monthly income and occupation, substance abuse (alcohol drinking, khat chewing, use of "hard" drugs), and ever use of condom. Age of 25 years and above, ever use of "hard" drugs, ever drinking alcohol and khat chewing were positively and significantly associated with HIV seropositivity in bivariate analysis. On the other hand, age of 15–24 years, educational level of grade seven and above, being single, having monthly income and ever use of condom were negatively and significantly associated with serum HIV positivity in bivariate analysis. Sex of the respondents, having private monthly income, having occupation and illiteracy and primary education or less, however, were not significantly associated with HIV positive serostatus in the bivariate analysis (Table 9).

.

Table 9: Variables evaluated, for possible association, with HIV serostatus among people visiting HIVCT centers in Addis Ababa, 2002

Variables	HIV Serostatus		Crude OR (95% CI)	Adjusted OR (95%CI)
	HIV +ves (n= 227)	HIV -ves (n= 726)		
Sex				
Male	81	225	1.02 (0.74, 1.42)	1.06(0.69, 1.63)[a]
Female	146	471	1.00	
Age				
15 - 24	55	385	**0.28 (0.20, 0.40)**	**2.07 (1.35, 3.16)**[a]
≥ 25	172	341	1.00	
Education				
Illiterate	21	23	1.00	
Read and write	7	6	1.28 (0.32, 5.23)	1.27 (0.33, 4.92)[a]
Primary Education	31	56	0.61 (0.27, 1.35)	1.63 (0.65, 3.68)[a]
Sec. Education	140	517	**0.30 (0.15, 0.58)**	1.83 (0.90, 3.95)[a]
Above grade 12	28	124	**0.25 (0.11, 0.54)**	**2.26 (1.05, 5.81)**[a]
Marital status				
Never married	96	589	**0.17 (0.12, 0.24)**	**2.97 (2.00, 4.41)**[a]
Ever married	131	137	1.00	
Have monthly private income				
Yes	87	261	1.11 (0.80, 1.52)	1.03 (0.60, 1.76)[a]
No	140	465	1.00	
Have monthly family income				
Yes	106	397	**0.73 (0.53, 0.99)**	**0.54 (0.29, 0.99)**[a]
No	121	329	1.00	
Have occupation				
Yes	107	368	0.85 (0.62, 1.16)	1.57 (0.91, 2.71)[a]
No	120	350	1.00	
Ever used "hard" drugs				
Yes	8	4	**6.59 (1.78, 26.26)**	1.26 (0.20 7.93)[b]
No	219	722	1.00	
Ever drink Alcohol				
Yes	125	304	**1.70 (1.25, 2.32)**	**2.48 (1.65, 3.72)**[b]
No	102	422	1.00	
Khat chewing				
Yes	72	104	**2.78 (1.93, 3.99)**	1.27 (0.88, 1.83)[b]
No	155	622	1.00	
Ever used condom				
Yes	77	247	**0.60 (0.43, 0.84)**	1.26 (0.86 1.83)[b]
No	144	276	1.00	

[a] Adjusted for socio demographic variables

[b] Adjusted for variables of substance abuse and condom use

.

In order to know the independent effect of specific variable on the out come, logistic regression was done using SPSS statistical package. After controlling for possible confounding variables in multivariate logistic regression, age 15–24 years, educational level above grade 12, being single, alcohol drinking and having no family income were found to be significantly associated with HIV serum positivity.

There was no statistically significant difference between cases and controls on the knowledge about HIV transmission and prevention methods ($p = 0.21$ and $p=0.23$, respectively). Knowledge of the cases and controls on the use of condom and types of STDs, however, has shown a statistically significant difference ($p=0.0013$ and $p=0.0018$, respectively).

Khat chewing was positively and significantly associated with male sex, having monthly private income, having job, ever drinking alcohol, ever use of condom and having sex with commercial sex workers in bivariate analysis. However, only male sex, being single and having sex with commercial sex workers were positively associated with khat chewing in logistic regression after controlling for possible confounding variables. Table 10 shows both crude and adjusted Odds ratios of the association of khat chewing and different exposure variables.

.

Table 10: Association of different variables with Khat chewing among people visiting HIVCT centers in Addis Ababa, 2002

Variables	Khat chewed		Crude	Adjusted
	Yes	**No**	**OR (95% CI)**	**OR (95% CI)**
Sex				
Male	90	246	**2.26 (1.60, 3.19)**	**2.35 (1.56, 3.53)**
Female	86	531		
Age (years)				
15 – 24	69	371	0.71 (0.50, 1.00)	1.02 (0.68, 1.52)
≥ 25	107	406		
Educational Status				
Illiterate	3	41	1.00	
Read and write	5	8	8.54 **(1.37, 59.1)**	**0.13 (0.02, 0.65)**
Primary Education	21	66	4.35 (**1.13, 19.6)**	**0.28 (0.08, 0.99)**
Sec. Education	117	540	2.96 (0.86, 12.2)	0.34 (0.10, 1.14)
Above grade 12	30	122	3.36 (0.91, 14.6)	0.36 (0.10, 1.29)
Marital Status				
Never married	113	572	**0.64 (0.45, 0.92)**	**1.58 (1.05, 2.38)**
Ever married	63	205		
Have monthly private income				
Yes	78	270	**1.49 (1.06, 2.11)**	0.96 (0.59, 1.58)
No	98	507		
Have monthly family income				
Yes	153	690	**0.84 (0.50, 1.41)**	1.27 (0.76, 2.13)
No	23	87		
Has occupation				
Yes	104	371	**1.58 (1.12, 2.23)**	1.03 (0.62, 1.72)
No	72	406		
Ever drunk Alcohol				
Yes	123	306	**3.57 (2.47, 5.16)**	1.62 (0.81, 3.26)
No	53	471		
Ever used condoms				
Yes	88	236	**1.61 (1.12, 2.31)**	0.76 (0.41, 1.40)
No	79	341		
Sex with CSW				
Yes	24	20	**3.34 (1.65, 7.20)**	**2.95 (1.45, 5.99)**
No	46	132		

.

Ever drinking alcohol was significantly and positively associated with male sex, having occupation, ever use of condom, having sex intercourse with commercial sex workers and khat chewing in bivariate analysis. However, after controlling for confounding variables in the logistic regression, male sex, having no monthly private income and having sex with commercial sex workers were found to be significantly and positively associated with ever drinking alcohol. Table 11 shows both crude and adjusted Odds ratios of the association of alcohol drinking and different exposure variables.

.

Table 11: Association of different variables with ever drinking alcohol among people visiting HIVCT centers in Addis Ababa, 2002

Variables	Alcohol Drunk		Crude	Adjusted
	Yes	**No**	**OR (95% CI)**	**OR (95% CI)**
Sex				
Male	210	126	**3.03 (2.28, 4.03)**	**2.77 (1.99, 3.84)**
Female	219	398		
Age				
15 – 24	173	267	0.65 (0.50, 0.85)	1.05 (0.78, 1.43)
$\geq$ 25	256	257		
Educational Status				
Illiterate	21	23	1.00	
Read and write	8	5	1.75 (0.42, 7.46)	0.58 (0.16, 2.12)
Primary Education	39	48	0.89 (0.40, 1.96)	1.44 (0.68, 3.06)
Sec. Education	278	379	0.80 (0.42, 1.54)	1.38 (0.73, 2.62)
Above grade 12	83	69	1.32 (0.64,, 2.72)	1.16 (0.57, 2.38)
Marital status				
Never married	295	390	0.76 (0.56, 1.01)	1.29 (0.92, 1.80)
Ever married	134	134		
Have monthly private income				
Yes	16	14	1.41 (0.65, 3.10)	**0.71 (0.47, 0.96)**
No	413	510		
Have monthly family income				
Yes	384	459	1.21 (0.79, 1.85)	0.98 (0.64 1.50)
No	45	65		
Had occupation				
Yes	254	221	**1.99 (1.52, 2.60)**	1.05 (0.70, 1.58)
No	175	303		
Khat chewed				
Yes	123	53	**3.57 (2.47, 5.16)**	1.62 (0.80, 3.25)
No	306	471		
Ever used condoms				
Yes	197	127	**1.88 (1.38, 2.55)**	0.68 (0.37, 1.24)
No	190	230		
Sex with CSW				
Yes	38	6	**3.06 (1.15, 8.57)**	**2.40 (1.03, 6.21)**
No	120	58		

.

7. DISCUSSIONS

HIV/AIDS is the major problem and a big challenge to the world today. It is an obstacle to both the health and development of people in the world. Its combination with substance abuse including drugs and alcohols – a devastating combination, had further aggravated the situation and facilitated its transmission (1, 4).

The estimated adult HIV prevalence in Ethiopia varies between 5% in the rural and 13.4% in other urban areas of Ethiopia. Addis Ababa has a prevalence of 16.8 (3). The current study has revealed that the overall prevalence of HIV among individuals aged 15 years and above visiting HIVCT centers is 25.1%, which is higher than the prevalence in the general population in Addis Ababa. The high prevalence of HIV among these people cannot be a surprise either because majority of these people came to the testing centers to know their status or because they suspected themselves, 626 (65.7%) and 140 (15.7%), respectively. Thus, these are self selected people, probably who were involved in some form of risky activities that had exposed them to HIV infection.

Similar to other African countries (36), majority of the people visiting HIVCT centers in this study were shown to be young people aged 20 to 29 years old which accounted for about two-third of the total study populations. This high number of young people visiting the testing centers indicates that this group might have suspected themselves that they acquire the infection and wanted to know their serum status. This group also needs to work abroad as they have no job in the country in which case they need to be tested.

In countries where HIV prevalence is high and where there are numerous deaths attributed to AIDS, it is common for many to develop feelings of hopelessness and a misconception that

.

behavioral change is futile. In these settings, the power of positive behavioral change messages may be reinforced by effective HIVCT services (36). The high rate 626 (65.7%) of respondents visiting HIVCT centers to know their own status might indicate the increased need for voluntary counseling and testing (VCT) in Ethiopia.

As high as 268 (28.1%) of the respondents reported that visa application was their primary reason to visit HIVCT centers. The purpose of visa application is to find job abroad. This is also consistent with our finding because most of our respondents were jobless or did not have monthly income of their own, 478 (50.2%) Vs 575 (60.3%), which could be their main reason for seeking job abroad.

In many societies, age at first marriage marks the point in a woman's life when childbearing becomes socially acceptable. Age at first marriage is used as a proxy for the onset of individual's exposure to first sexual intercourse, in the absence of premarital intercourse, and risk of STDs including HIV/AIDS (33). The earlier one gets married or started intercourse, the higher the chance of being exposed to different sexually transmitted diseases, including HIV/AIDS. Even though it is not statistically significant, our study has shown that the median age at first marriage among HIV positive males and females to be 1.5 years and 1 year earlier than the median age of HIV negative males and females, respectively. There was no difference in the median age of first sexual intercourse between male cases and controls; however, female cases had sexual intercourse 1 year earlier than female controls.

HIV transmission by non-sterilized injecting equipment and intravenous drug use has not been documented as a major mode of HIV transmission in Africa. Unlike the developed countries where up to 30% of HIV infected individuals are IVDUs or have had sexual contact with

.

IVDUs, injectable drugs are not commonly used in Africa (17). The present study also supports this in that no case of HIV seropositive has reported use of injectable drugs.

Drug abuse has been incriminated as a potential exposure factor to HIV/AIDS by causing loss of inhibition and involvement in risky sexual behaviors, such as unprotected sex, multiple sexual partners, prolonged and traumatic sex, and risky injections (4, 5, 7, 19). More than 74% of HIV seropositives in this study have acknowledged that alcohol drinking increases their sex desire, which might be responsible for their exposure to HIV infection. This finding is similar to studies done in USA where many people have reported being involved in sexual act after consuming alcohol (10, 31).

High prevalence of alcohol and khat use among the cases in our study also supports the assumption that these substances could be risk factors in acquiring HIV infection. In this study, the use of substances such as khat, alcohol and other “hard” drugs were found to be significantly associated with serum HIV positivity in bivariate analysis. However, after controlling for confounding variables, the association of ever use of “hard” drugs with serum HIV positivity was found to be insignificant. This might be due to few numbers of respondents who acknowledged the use of “hard” drugs in our study populations. The possible explanation for this could be under-reporting of the use of these substances by the cases because of cultural and legal issues or could be due to recall bias.

Khat chewing in some areas occurs together with the use of other substances such as alcohol and indulging in alcohol is common among people with sleep disturbances following khat chewing (12, 28). A significant association of khat chewing with HIV seropositivity in the bivariate analysis, which disappears when controlled for other variables, in the present study

.

might be due to confounding by alcohol intake that usually occurs following khat chewing. On the other hand, the prevalence of male impotence among Somali and Djiboutian khat chewers was reported to be as high as 60% (28). Similarly, a study in Ethiopia has shown a significant association of sexual dysfunction with intensity of khat chewing with the risk being higher among daily users (28). Thus, the lack of significant association of khat chewing and serum HIV positivity, when controlled for alcohol intake, in the present study supports these earlier findings of less desire for sex among khat chewers. This implies that khat chewing alone may not predispose to risky sexual behaviors and hence to HIV infection unless alcohol is indulged in following khat chewing.

Our study revealed that khat chewing was positively associated with alcohol drinking in bivariate analysis. This is similar to an earlier finding where current khat chewing was positively associated with alcohol drinking (28). Concomitant use of khat and alcohol could probably be one of the risk factors for exposure to STDs including HIV infection. This study indicated that people who were both drinkers and chewers were 6 times more likely to be HIV seropositives compared to both non-drinkers and non-chewers.

Alcohol and drug use by young people may lead to earlier sexual initiation, unprotected sexual intercourse and multiple partners as well as putting young people at risk for sexually transmitted diseases (STDs) including HIV/AIDS, unintended pregnancy, and sexual violence (10, 22). The most frequent users of illicit drugs are jobless youths and street children (21). The higher rate of serum HIV positivity in young people aged 15 to 24 years in our study raises our suspicion of the use of such drugs by the cases and the involvement of these groups in some high-risk activity, which predisposed them to HIV infection.

.

The most unusual characteristic of AIDS among Africans are the equal distribution of cases between men and women and the high frequency of cases being among commercial sex workers and their clients. In contrast to the industrialized world where the epidemic is reported to be entrenched among homosexual men and injecting drug users, there was little or no evidence for this pattern in Africa (37). The present study is consistent with this fact in that there was no significant sex difference in serum HIV status and no injecting drug was associated with serum HIV positivity.

An earlier study in Ethiopia (1991) has indicated that HIV infection was associated with STDs in both men and women; seropositivity rates in those presenting with genital ulcer disease and urethral discharge were 16% and 7%, respectively (38). In addition to the effect of STDs on HIV-1 transmission dynamics, there is increasing evidence that HIV-1 has important repercussion on the transmission of other STDs (39).While 51 (22.5%) of the cases reported having had genital discharge in the past one year, only 57 (7.9%) of the controls reported having had genital discharge in the past one year. Similarly, 41 (18.1%) of the cases had genital ulcer in the past one year as compared to only 26 (3.6%) of the controls. Higher rate of STDs among cocaine users underscores high probability of involvement of the users in unprotected sexual behaviors and the potential threat these sex behaviors represent for the transmission of HIV infection (26). The present study revealed higher rate of STDs in HIV seropositive individuals. These high rates of sexually transmitted diseases among the cases could have resulted from unprotected sex and unselected sexual partners, under the influence of such substances like khat and alcohol, which might have been the risk factors for HIV infection among the cases.

.

One of the prime slogans of the anti HIV/AIDS activists to prevent HIV infection and spread in a population is being one-to-one primarily through marriage. Therefore, marriage is known to be protective factor against HIV infection. The present study also supported this reality.

Surprisingly, a statistically significant number of people with educational level of above grade 12 were found to be HIV seropositives. This is against the fact that people that are more knowledgeable could take care of HIV infection, as they easily understood both the transmission and prevention methods. However, knowledge alone, as seen in this study, may not be protective unless behavioral change is attained.

The present study showed that being male, having job, khat chewing, ever use of condom and having sex with commercial sex workers were related to ever intake of alcohol. After controlling for possible confounders, only male sex, having no private income and having sex with commercial sex workers were found to be significantly associated with ever intake of alcohol. Similarly, being male, single and having sex with commercial sex workers were factors significantly related to khat chewing after controlling for other confounding variables. Unlike earlier findings (7, 21) the present study could not identify being young and joblessness as a factor related to substance abuse. This might be due to underreporting by the users or because of recall bias.

.

8. STRENGTHS AND LIMITATIONS OF THE STUDY

Strengths

This study is the first of its type in Ethiopia, which tried to explore the association between substance abuse and HIV infection. The design of the study is one of its strengths in that it tried to minimize bias by being a sort of double blind control type, as both the interviewers and the respondents did not know the cases and the controls prior to the interview. use of structured questionnaire, which was pre tested for data collection, strict and daily supervision of data collectors by supervisors and unscheduled supervision by principal investigator with prompt correction of identified problems were some of the strength of this study. Logistic regression was used to control confounding variables.

Limitations

Because of low caseloads and because of refusal, few HIV testing and counseling centers in Addis Ababa were not included in the study. This might be a source of bias if this HIVCT centers are significantly different from other HIVCT centers. The findings of this study cannot represent the general population, as only self-selected people visited the HIVCT centers. Use of professional data collectors could also be one of the limitations of this study, as professionals tried to redirect respondents in their own way. Lack of a statistically significant association of illicit drug use could have resulted from either recall bias where respondents forget whether they have used other illicit drugs or not in the past one year or due to social desirability bias in which case respondents do not want to mention illicit drug use. Misclassification is another bias since only antibody detecting test was used instead of antigen detecting test for HIV infection. Lack of similar literature in the country to compare findings with is also another limitation of this study.

.

9. CONCLUSIONS

The present study revealed that younger and productive age groups are more affected by HIV infection, which implies a negative consequence on the socio economic status of the country and the future generation.

The prevalence of “hard” drugs use was found to be very low in the study population. This finding rather seems underreporting and may not represent the true prevalence.

Our study indicated that only alcohol abuse was associated with serum HIV positivity. The significant association of khat chewing with serum HIV positivity however, is due to the fact that alcohol intake by khat chewers has confounded the effect of khat.

Alcohol and khat were the most abused substances by both the HIV seropositive and HIV seronegative individuals However, HIV seropositives were more exposed to such substances more significantly.

From the present study, one can also conclude that the prevalence of substance abuse among HIV seropositive individuals to be higher than the prevalence among HIV seronegative individuals. Form the study it is possible to conclude that alcohol was responsible for exposure to HIV infection.

There was also no significant difference between the cases and controls regarding knowledge about HIV transmission and prevention methods.

Being male and having sex with commercial sex workers were related to abuse of substances such as alcohol and khat.

.

10. RECOMMENDATIONS

1. Government and other responsible bodies should design a strategy to control the use of substances like alcohol, which were found to be responsible for the spread of HIV infection.
2. Emphasis should be on behavioral change to prevent HIV infection, as knowledge alone does not help to combat the epidemic.
3. There should be strong commitment from government and other responsible bodies to discourage the flourishing advertisement of alcoholic drinks in the mass Medias.
4. Community based study needs to be carried out to identify true prevalence of substance abuse in Ethiopia.
5. Wide range prospective study needs to be conducted to explore into the association of substance abuse and HIV infection in the community in Ethiopia.

.

11. REFERENCES

1. UNAIDS/WHO, AIDS epidemic update, December 2001, UNAIDS/WHO 2001, Geneva, Switzerland.
2. Pathfinder International, Integrating STD/HIV/AIDS services with MCH/FP programs, a guide for policy makers and program managers, 2000
3. MOH, AIDS in Ethiopia, Disease Prevention and Control Department, Ministry of Health, third Edition, November 2000
4. UNAIDS, Drug abuse and HIV/AIDS: A devastating combination, UNAIDS
5. Drug use and HIV/AIDS, UNAIDS statement presented at the UN General Assembly Special Session on Drugs, UNAIDS, 1999, Geneva.
6. Seth F. Berkley, Public health measures to prevent HIV spread in Africa: In AIDS in Africa, New York, USA 1994: 473-495.
7. WHO, Women and Substance: In program on substance abuse, 1993 Country assessment report, WHO, 1993
8. WHO, Alcohol and Public Health in Eight Developing Countries, Substance Abuse department, WHO, Geneva, 1999
9. MOH, Health and Health Related Indicators, Planning and Programming Department, Health Information Processing and Documentation Team, MOH, 2001.
10. Kaiser Family Foundation, Substance Use and Risky Sexual Activity, Menlo Park, CA: The Henry J Kaiser Family Foundation, Feb. 2002.
11. John L. Martin, Drinking Pattern, and Drinking Problems in a community sample of Gay men, Division of Sociomedical Science, Colombia University School of Public Health, New York, 1990: 27-34.

.

12. Mesfin K., Hassen T. Sherief, Ghimja F. and Teshome T. Drug use among High School Students in Addis Ababa and Butajira, EJHD, 1999; Vol. 13 (2): 101- 106
13. Manuel Carballo and Patrick I. Kenya, Behavioral Issues and AIDS: In AIDS in Africa, New York, USA 1994: 497-512
14. Leggett T, Crack, sex work and HIV, AIDS Analysis Africa, Apr-May 1999; Vol. 9 (6)
15. Seyoum G, Ayalew G. A report on rapid assessment of the situation of drug and substance abuse in selected urban areas in Ethiopia. Prepared for MOH and UNDP, November 1995
16. John R. M. Caplehorn and John B. Saunders, Factors Associated with heroin users' AIDS risk taking Behaviors, Australian J Public Health, 1999;17:13-17.
17. Henry L. Francis and Thomas C. Quinn, Blood Born Transmission of HIV in Africa: In Aids in Africa, New York 1994: 237-249
18. Des Jarlais DC, Friedman SR, AIDS and Use of Injected Drugs, Scientific American, 1994 Feb;:82-8
19. Louis D. Saravolatz, Robert F. Cerra, Donald J. Pohlod and Susan Smereck, The effect of Alcohol on HIV infection in Vitro: Alcohol, Immunomodulation, and AIDS, Alan R. Liss, Inc, 1990: 267-271
20. M. Gossop, B. Powis, P. Griffiths, and J. Strang, Female Prostitutes in South London: Use of Heroin, Cocaine, Alcohol and their relationship to health risk behaviors, Drug Transition Project, National Addiction Center, Maudsley Hospital, London, UK, 1995; 7(3):253-260.

.

21. Mesfin K, Hassen T. S, Ghimjha F, Teshome T. Knowledge of “drug” use and associated factors as perceived by health professionals, farmers, the youth and law enforcement agencies in Ethiopia, EJHD; August 1999; 13 (2): 141-150.
22. Kaiser Family Foundation, Substance Use and Risky Sexual Behavior: Attitudes and Practices Among Adolescents and Young Adults, Menlo Park, CA: The Henry J Kaiser Family Foundation, Feb. 2002.
23. Ron Stall, The prevention of HIV infection Associated with Drug and Alcohol use during Sexual Activity: In AIDS and Substance Abuse, the center for AIDS prevention studies, University of California, San Francisco, 1988:73-88.
24. Barry Stimmel, AIDS, Alcohol and Heroin, A Particular deadly Combination: In Advances in Alcohol and Substance Abuse, Spring 1987;Vol. 63 (3)
25. Barbara VanOss Marin, Elena Flores, Acculturation, Sexual Behavior, and Alcohol Use among Latinas: In International Journal of the Addiction, 1994; 29 (9): 1101-1114.
26. Robert E. Booth, John K. Watters and Dale D. Chitwood, HIV risk related Sex Behaviors among Injection Drug Users, Crack Smokers, and Injection Drug Users who Smoke Crack, Am J Public Health, 1993; 83 (8): 1144-1148.
27. Arif, Health care for the prevention of drug and Alcohol Dependence: In Report of Six-World Congress for the Prevention of Alcoholism and Drug Dependency, International Commission for the Prevention of Alcoholism and Drug Dependency, Washington DC, USA, 1986: 28-32

.

28. Mesfin Belew, Dereje Kebede, Mesfin Kassaye, and Fikre Enqouselassie, The Magnitude of Khat Use and its Association with Health, Nutrition, and Socioeconomic Status, EMJ,2000; VOL 38(1):11-26.
29. Joseph Westermeyer, Marvin Seppala, Shelly Gasow, and Gregory Carlson, AIDS-Related Illness and AIDS Risk in Male Homo/Bisexual Substance Abusers: Case Report and Clinical Issue, Am J Drug Alcohol Abuse, 1989; 15 (4):443-461.
30. Barbara G. Faltz, Scott Madover, Treatment of Substance Abuse in Patients with HIV infection: In AIDS and Substance Abuse, San Francisco AIDS Professional Project, 1988: 143-157.
31. Kral AH; Molnar BE; Booth RE; Watters JK, Prevalence of sexual risk behavior and substance use among runaway and homeless adolescents in San Francisco, Denver, and New York City, International Journal of STD & AIDS 1997 Feb;8(2):109-17
32. I.W. Fong, S. Read, M.A. Wainberg, W.K. Chia, and C. Major, Alcoholism and Rapid Progression to AIDS after Seroconversion, Clinical infectious Diseases, 1994; 19:337-338.
33. CSA, Demographic and Health Survey Ethiopia 2000, Central Statistic Authority, 2001
34. Gerond Lake-Bakkar and Roger Grimson, Alcohol Abuse and Stage of HIV Disease in intravenous drug abusers, Journal of the Royal Society of Medicine, 1996; Vol 89:389-392.

.

35. Harvey A. Siegel, R. G. Carlson, R. Falck et al, HIV infection and Risk Behaviors among Intravenous Drug Users in Low Seroprevalence areas in the Midwest, AJPH,1991; 81(12):95-113.
36. UNAIDS, Knowledge is Power: Voluntary HIV counseling and testing in Uganda, Joint United Nations Program on HIV/AIDS, 1999: 36-37
37. Thomas C. Quinn AIDS in Africa: a retrospective, Bulletin of the World Health Organization, 2001; volume 79 (12): 1156-1158.
38. Kefenie H, Desta B, Mengesha S, Zewdie D, Kebede T. Prevalence of HIV-1 antibodies in patients with sexually transmitted diseases, Ethiop Med J 1991;29: 63-69
39. Francis A. Plummer, Mark W. Tyndall, Jackoniah O. Ndinya-Achola, and Stephen Moses. Sexual Transmission of HIVs and the Role of Sexually Transmitted Diseases: In AIDS in Africa, New York, 1994

.

12. ANNEXES

Annex I. **Map of Addis Ababa City Administration**

.

Annex II: English Questionnaire

Questionnaire for the survey of the association between substance abuse and HIV infection among people visiting HIV- counseling and testing centers in Addis Ababa, Ethiopia, 2002

001. Questionnaire identification number----------

002. Testing Center

01.	Tikur Anbesa Hospital	05.	Arsho AIDS Laboratory
02.	Yekatit 12 Hospital	06.	Kazanchis Health Center
03.	Beth Zatha Higher Clinic	07.	Marry Joy Clinic
04.	Tirat Higher Clinic	08.	St. Marry Laboratory

003. Testing center ownership

01. Government 02. Private 03. NGO

Introduction*:* We are interviewing people here in Addis Ababa in different health institutions for study. The purpose of this study is to identify the association between HIV infection and substance abuse and to help policy makers to plan and take measures regarding health and health related problems.

Confidentiality and consent: "I am going to ask you some very personal questions that some people find difficult to answer. Your answers are completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. You do not have to answer any question that you do not want to answer, and you may end this interview at any time you want to. However, your honest answers to these questions will help us better understand the association between HIV infection and substance abuse. We would greatly appreciate your help in responding to this survey. The survey will take about 20 minutes to ask the questions. Would you be willing to participate?"

01. Yes 02. No

004. Test result

01. Positive 02. Negative

If you are willing to participate, please continue to respond to the interview.

Thank you very much for your cooperation

.

Section 1-Background characteristics

No.	Questions and filters	Coding categories	Skip to	code
Q101	Record sex of the respondent	Male 1 Female 2		
Q102	How old were you at your last birthday?	Age in completed years [---/---]		
Q103	What is the highest level of school you completed: primary, secondary or higher?	No education 0 Read and write 1 Grade 1 to 6 2 Grade 7 to 8 2 Grade 9 to 12 4 Above grade 12 5		
Q104	Where is your place of residence?	Addis Ababa 1 Other 2		
Q105	What is your religion?	No religion 0 Orthodox 1 Protestant 2 Catholic 3 Moslem 4 Other----------		
Q106	To which ethnic group do you belong?	Amhara 1 Oromo 2 Gurage 3 Tigray 4 Other----------		
Q107	What is your current occupation?	Have no job 0 Civil servant 1 Merchant 2 Driver 3 Mechanic 4 Daily laborer 5 Other----------		
Q108	What is your monthly personal income in Birr?	No income 0 Less than 100 1 From 100 to 299 2 From 300 to 499 3 500 and above 4 Don't know 88		
Q109	What is your total monthly household income in Birr?	No income 0 Less than 100 1 From 100 to 299 2 From 300 to 499 3 500 and above 4 Don't know 88		

Section 1-Background characteristics

No.	Questions and filters	Coding categories	Skip to	code
Q101	Record sex of the respondent	Male 1 Female 2		

Q102	How old were you at your last birthday?	Age in completed years [---/---]		
Q103	What is the highest level of school you completed: primary, secondary or higher?	No education 0 Read and write 1 Grade 1 to 6 2 Grade 7 to 8 2 Grade 9 to 12 4 Above grade 12 5		
Q104	Where is your place of residence?	Addis Ababa 1 Other 2		
Q105	What is your religion?	No religion 0 Orthodox 1 Protestant 2 Catholic 3 Moslem 4 Other----------		
Q106	To which ethnic group do you belong?	Amhara 1 Oromo 2 Gurage 3 Tigray 4 Other----------		
Q107	What is your current occupation?	Have no job 0 Civil servant 1 Merchant 2 Driver 3 Mechanic 4 Daily laborer 5 Other----------		
Q108	What is your monthly personal income in Birr?	No income 0 Less than 100 1 From 100 to 299 2 From 300 to 499 3 500 and above 4 Don't know 88		
Q109	What is your total monthly household income in Birr?	No income 0 Less than 100 1 From 100 to 299 2 From 300 to 499 3 500 and above 4 Don't know 88		

Q110	What is your primary reason to seek HIV testing?		Yes	No		
		Know self status	1	2		
		Suspect self	1	2		
		Not trust partner	1	2		
		Ill/symptoms	1	2		
		Premarital	1	2		
		Visa applicant	1	2		
		Referred	1	2		
		Confirm positive result	1	2		
		Test before pregnant	1	2		
		Pregnant, must know	1	2		
		Death/illness of partners	1	2		
		Occupational exposure	1	2		
		Sexual assault	1	2		
		For job	1	2		
		Other ----------				

Section 2: Substance use

No.	Questions and filters	Coding categories		Skip to	code
Q201	During the last 12 months, how	Every day	1		

	often have you had drinks containing alcohol?	Twice a week 2 At least once a week 3 Less than once a week 4 Never 5	→ Q204	
Q202	What was the type of drink you usually had?	Whisky 1 Beer 2 Draft 3 Areke/Gin 4 "Tela" 5 "Tej" 6 Other----------		
Q203	What is the usual amount that you take (use local measurement unit)?	1-5 1 6-10 2 More than 10 3		
Q204	Some people have tried a range of illegal/non-medical/addictive drugs. Have you tried one?	Yes 1 No 2 Don't know 88 No response 99	→ Q207 → Q207 → Q207	
Q205	Which of the following, if any, have you tried? Circle all answers!	Yes / No / DK / NR Cocaine 1 2 88 99 Heroin 1 2 88 99 Cannabis 1 2 88 99 Marijuana 1 2 88 99		
Q206	How long have you been using these illegal/non-medical/addictive drugs?	Number of months [---/---]		
Q207	Some people have tried injecting drugs using syringe. Have you injected drugs in the last 12 months?	Yes 1 No 2 Don't know 88 No response 99	→ Q215 → Q215 → Q215	
Q208	How long have you been injecting drugs?	Number of months [---/---]		
Q209	How old were you when you first injected illegal/non-medical drugs?	Age in completed years [---/---]		
Q210	Do these drinks and drugs increase your sexual desire and risky behaviors?	Yes 1 No 2 Don't know 88 No response 99		
Q211	During the past 12 months how often would you say you injected drugs?	Only once 1 2-3 times 2 About once a week 3 2-3 times a week 4 4-6 times a week 5 About once a day 6 2-3 times a day 7 4 or more times a day 8 Don't know 88 No response 99		

Q212	Think about the last time you injected drugs. Did you use a needle or syringe that had previously been used by someone else?	Yes 1 No 2 Don't know 88 No response 99	 → Q215 → Q215 → Q215	
Q213	In the past 12 months, when you injected with needles or syringes that had previously been used, how often did you clean them first?	Every time 1 Almost every time 2 Sometimes 3 Never 4 Don't know 5 No response 6	 → Q215 → Q215 → Q215	
Q214	**If cleaned:** How did you usually clean them?	Cold water 1 Hot water 2 Boiling 3 Bleach 4 Alcohol 5 Other---------- No response 99		
Q215	Have you tried khat chewing in the last 12 months?	Yes 1 No 2 No response 99	 → Q301	
Q216	What are the types of khat you chew? Circle all answers!	Aweday 1 Mismar 2 Wondo/Belchu 3 Gurage 4 Other----------		
Q217	How often did you chew khat in the last 12 months?	Every day 1 Every two days 2 Twice a week 3 Once a week 4 Once a month 5 Occasionally 6		
Q218	Do you feel sleeplessness after you chewed khat?	Yes 1 No 2 Don't know 88 No response 99	 → Q301 → Q301 → Q301	
Q219	If so, what do you do to overcome this effect?	Drink alcohol 1 Take hypnotics orally 2 Inject hypnotics 3 Do nothing 4 Other---------- No Response 99		

Section 3: marriage and live-in partnerships

No.	Questions and filters	Coding categories	Skip to	code
Q301	Have you ever been married?	Yes 1 No 2	 → Q303	

		No response 99		
Q302	How old were you when you first married?	Age in years [---/---]		
Q303	What is your current marital status?	Married and living with spouse 1 Divorced and living with other sexual partner 2 Divorced and not living with spouse or any other sexual partner 3 Not married, living with sexual partner 4 Not married, not living with sexual partner 5 Spouse died and living alone 6 No Response 99	→ Q401 → Q401	
Q304	**If married**: Men: do you have more than one wife? Woman: does your husband have other wives?	Yes 1 No 2 Don't know 88 No response 99		
Q305	Woman: Do you have any extra marital sexual relationship?	Yes 1 No 2 No response 99		

Section 4: sexual history: numbers and types of partners

No.	Questions and filters	Coding categories	Skip to	code
Q401	For unmarried: Have you ever had sexual intercourse?	Yes 1 No 2 No response 99	→ Q803	
Q402	At what age did you first have sexual intercourse?	Age in years [---/---]		
Q403	Have you had sexual intercourse in the last 12 months?	Yes 1 No 2 No response 99		

Section 5: sexual history: regular partners

No.	Questions and filters	Coding categories	Skip to	code

Q501	Did you have sex with regular partner during past 12 months?	Yes 1 No 2 Don't remember 88	→ Q601	
Q502	The last time you had sex with this regular partner, did you and your partner use a condom?	Yes 1 No 2 Don't know 88 No response 99	→ Q504 → Q505	
Q503	Who suggested condom use that time?	Myself 1 My partner 2 Joint decision 3 Don't know 88 No response 99	→ Q505 → Q505 → Q505 → Q505 → Q505	
Q504	Why didn't you and your partner use a condom that time?	Yes / No Not available 1 2 Too expensive 1 2 Partner objected 1 2 Don't like them 1 2 Used other contraceptive 1 2 Didn't think it is necessary 1 2 Didn't think of it 1 2 Don't know 88 No response 99		
Q505	With what *frequency* did you and all of your regular partner(s) use a condom during the past 12 months?	Every time 1 Almost every time 2 Sometimes 3 Never 4 Don't know 88 No response 99		

Section 6: Sexual history: commercial partners /only for males/

No.	Questions and filters	Coding categories	Skip to	code
Q601	Did you have sexual intercourse with a commercial partner in the last 12 months?	Yes 1 No 2 No response 99	→ Q701 → Q701	
Q602	The last time you had sex with this commercial partner, did you and your partner use a condom?	Yes 1 No 2 Don't know 88 No response 99	→ Q604 → Q605	
Q603	Who suggested condom use that time?	Myself 1 My partner 2 Joint decision 3 Don't know 88 No response 99	→ Q605 → Q605 → Q605 → Q605 → Q605	
Q604	Why didn't you and your partner use a condom that time?	Yes / No Not available 1 2 Too expensive 1 2 Partner objected 1 2 Don't like them 1 2 Used other contraceptive 1 2		

		Didn't think it is necessary 1 2 Didn't think of it 1 2 Other ---------- Don't know 88 No response 99		
Q605	With what *frequency* did you and all of your commercial partner(s) use a condom during the past 12 months?	Every time 1 Almost every time 2 Sometimes 3 Never 4 Don't know 88 No response 99		

Section 7: Sexual history: non-regular, non-commercial partners

No.	Questions and filters	Coding categories	Skip to	code
Q701	Did you have sex with non-regular, non-commercial sex partner during the last 12 months?	Yes 1 No 2 No response 99	 → Q801 → Q801	
Q702	The last time you had sex with non-regular, non-commercial partner; did you and your partner use a condom?	Yes 1 No 2 Don't know 88 No response 99	 → Q704 → Q705	
Q703	Who suggested condom use that time?	Myself 1 My partner 2 Joint decision 3 Don't know 88 No response 99	→ Q705 → Q705 → Q705 → Q705 → Q705	
Q704	Why did not you and your partner use a condom that time?	Yes No Not available 1 2 Too expensive 1 2 Partner objected 1 2 Don't like them 1 2 Used other contraceptive 1 2 Didn't think it is necessary 1 2 Didn't think of it 1 2 Other ---------- Don't know 88		

		No response	99		
Q705	With what *frequency* did you and all of your non-regular, non-commercial partner(s) use a condom during the past 12 months?	Every time Almost every time Sometimes Never Don't know No response	1 2 3 4 8 9		

Section 8: condom use

No.	Questions and filters	Coding categories			Skip to	code
Q801	What is the use of condom? Circle all answers!		Yes	No		
		To prevent pregnancy	1	2		
		To prevent STDs	1	2		
		To prevent HIV/AIDS	1	2		
		Don't know		88		
		No response		99		
Q802	Have you and a sexual partner *ever* used a condom?	Yes		1		
		No		2		
		Don't know		88		
		No response		99		
Q803	Do you know of any place or person from which you can obtain condoms?	Yes		1		
		No		2		
		No response		99		
Q804	Which place or persons do you know where you can obtain condoms?		Yes	No	DK	
		Shop	1	2	3	
		Pharmacy	1	2	3	
		Market	1	2	3	
		Clinic/Hospital	1	2	3	
		Family planning center	1	2	3	
		Bar/hotel	1	2	3	
		Other----------				
		No response		99		

Section 9: Sexually transmitted diseases

No.	Questions and filters	Coding categories		Skip to	code
Q901	Have you ever heard of diseases that can	Yes	1		

	be transmitted through sexual intercourse?			No	2	
				No response	99	
Q902	Can you tell me those diseases that can be transmitted through sexual intercourse? Circle all answers!		Yes	No	DK	
		Syphilis	1	2	3	
		Gonorrhea	1	2	3	
		Cancroids	1	2	3	
		HIV/AIDS	1	2	3	
Q903	Have you had a genital discharge during the past 12 months?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	
Q904	Have you had a genital ulcer /sore during the past 12 months?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	

Section 10: knowledge, options, and attitudes

No.	Questions and filters	Coding categories			Skip to	code
Q1001	Have you ever heard of the disease called AIDS?			Yes	1	
				No	2	
				No response	99	
Q1002	Do you know any one who is infected with HIV or who has died of AIDS?			Yes	1	
				No	2	
				No response	99	
Q1003	Do you have a close relative or close friend who is infected with HIV or has died of AIDS?			Yes, a close relative	1	
				Yes, a close friend	2	
				No	3	
				No response	99	
Q1004	Can a person get HIV by sharing a meal with someone who is infected?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	
Q1005	Can a person get HIV from mosquito bites?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	
Q1006	Can a person get HIV by getting injections with a needle that was already used by someone else?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	
Q1007	Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	
Q1008	Can a woman with HIV or AIDS transmit the virus to her newborn child through breastfeeding?			Yes	1	
				No	2	
				Don't know	88	
				No response	99	

Q1009	Do you think drinks with alcoholic content leads to promiscuity?	Yes 1 No 2 Don't know 88 No response 99		
Q1010	Do you think that a healthy-looking person can be infected with HIV, the virus that causes AIDS?	Yes 1 No 2 Don't know 88 No response 99		
Q1011	Can people protect themselves from HIV virus that causes AIDS by using a condom correctly every time they have sex?	Yes 1 No 2 Don't know 88 No response 99		
Q1012	Can people protect themselves from HIV by having one uninfected faithful sex partner?	Yes 1 No 2 Don't know 88 No response 99		
Q1013	Can people protect themselves from HIV by abstaining from sexual intercourse?	Yes 1 No 2 Don't know 88 No response 99		
Q1014	I do not want to know the result, but have you ever had an HIV test?	Yes 1 No 2 No response 99	→ 1018	
Q1015	Please do not tell me the result, but did you find out the result of your test?	Yes 1 No 2 No response 99		
Q1016	When did you have your most recent HIV test?	Within the past year 1 Between 1-2 years 2 Between 2-4 years 3 More than 4 years ago 4 Don't know 88 No response 99		
Q1017	Did you voluntarily undergo the HIV test, or were you required to have the test?	Voluntary 1 Required 2 Don't know 88 No response 99		
Q1018	Now did you come voluntarily to undergo the HIV test, or are you required to have the test?	Voluntary 1 Required 2 No response 99		
Q1019	**If required**: Who asked you to undergo HIV test?	Public health institution 1 Private health institution 2 Military institution 3 Government institution 4 Friend/relative 5 NGO 6 School 7 Religious institution 8 Embassy 9 Other----------		

The interview is completed. Thank you very much for your cooperation.

Annex III: Amharic Questionnaire

በኤች.አይ.ቪ እና በተለያዩ የሰዎች ባህሪያት መካከል ያለውን ግንኙነት ለማወቅ አዲስ አበባ በሚገኙ የኤች አይ ቪ ምክር መስጫና መመርመሪያ ማዕከላት በሚመጡ ሰዎች ላይ የሚደረግ ቃለ መጠይቅ

001. **የመጠይቁ መለያ ቁጥር**----------

002. **የምርመራ ማዕከል**

1. **ጥቁር አንበሳ ሆስፒታል**
2. **የካቲት 12 ሆስፒታል**
3. **ቤተዛታ ከፍተኛ ክሊኒክ**
4. **ጥራት ከፍተኛ ክሊኒክ**
5. **አርሾ ላቦራቶሪ**
6. **ካዛንቺስ ጤና ጣቢያ**
7. **ሜሪጆይ ክሊኒክ**
8. **ቅ/ማሪያም ላቦራቶሪ**

003. **የምርመራ ማዕከል ይዞታ**----------

1 **የመንግስት** ፤ 2 **የግል** ፤ 3 **መንግስታዊ ያልሆነ ድርጅት**

መግቢያ

'በተመሳሳይ ሁኔታ በሌሎች ክሊኒኮችና ሆስፒታሎች ለኤች አይ ቪ ምርመራ የሚመጡትን ሰዎች የዚህ የጥናቱ ቡድን ያነጋግራቸዋል:: የጥናቱ ዓላማ በኤች.አይ.ቪ እና በተለያዩ የሰዎች ባህሪያት መካከል ያለውን ግንኙነት ለማወቅና አስፈላጊው ጤና ነክ እቅድና እርምጃ በፖሊሲ አውጪዎች እንዲወሰድ ለማመቻቸት ነው :: በመሆኑም ለጥያቄው መልስ የእርስዎ ቅንና ታማኝ ተሳትፎ ከፍተኛ አስተዋፅኦ ይኖረዋል ::

ምስጥራዊነት እና ስምምነት/ፈቃደኝነት

'ስለ ራስዎ አንዳንድ ጥያቄዎችን እጠይቅዎታለሁ :: መልስዎ ፍፁም ሚስጥራዊ ነው :: ስምዎ በዚህ ፎርም ላይ አይፃፍም ወይም አይሞላም :: ከሌላ ከሚነግሩኝ መረጃ ጋርም አይያያዝም :: መመለስ የማይፈልጉትን ጥያቄ የግድ መመለስ የለብዎትምና መተው ይችላሉ :: በመሆኑም ይህንን ቃለ መጠይቅ በፈለጉበት ጊዜ ሊያቆሙ ይችላሉ :: ነገር ግን ለጥያቄው እርስዎ የሚሰጡን ቅንና ትክክለኛ መልስ ሰዎች ስለ አንዳንድ የሰው ባህሪያት ያላቸውን ግንዛቤ እንድንረዳ በጣም ይጠቅመናል :: ለጥያቄው ለሚሰጡን መልስ አድናቆታችን በጣም ከፍ ያለ ነው :: ጥያቄው 20 ደቂቃ ያህል ይወስዳል :: ስለዚህ በጥያቄው ለመሳተፍ ፈቃደኛ ነዎት?

1. **አዎ** 2. **አይደለሁም**

004. **የውጤት ኮድ ፡**

1. *ፖሰቲቭ*
2. **ኔጋቲቭ**.

በጥያቄው ለመሳተፍ ፈቃደኛ ከሆኑ እባክዎትን ወደ ጥያቄዎቹና መልሶቻቸው እንግባ

ላደረጉልኝ ትብብር በጣም መሰግንዎታለሁኝ፤

ክፍል 1 ፡ መሰረታዊ መረጃዎች

ተ.ቁ	መጠይቅ	የመለያ ኮድ		ይለፍ	ኮድ
101	የመላሹ ፆታ	ወንድ	1		
		ሴት	2		
102	በቅርብ ልደትዎን ሲያከብሩ ዕድሜዎ ስንት ነበር?	ዕድሜ በዓመት---------			
103	የትምህርት ደረጃዎ እንዴት ነው?	አልተማርኩም	0		
		ማንበብና መፃፍ	1		
		ከ 1 እስከ 6 ክፍል	2		
		ከ 7 እስከ 8 ክፍል	3		
		ከ 9 እስከ 12 ክፍል	4		
		ከ 12ኛ ክፍል በላይ	5		
104	የመኖርያ አድራሻዎ የት ነው?	አዲስ አበባ	1		
		ሌላ ካለ ይገለፅ----------	2		
105	ሃይማኖትዎ ምንድነው?	የለኝም	0		
		ኦርቶዶክስ	1		
		ፕሮቴስታንት	2		
		ካቶሊክ	3		
		እስልምና	4		
		ሌላ ካለ ይገለፅ----------			
106	ከየትኛው ብሄረሰብ ነዎት?	አማራ	1		
		ኦሮሞ	2		
		ጉራጌ	3		
		ትግሬ	4		
		ሌላ ካለ ይገለፅ----------			
107	ስራዎ ምንድን ነው?	ስራ አጥ	0		
		የመንግስት ሰራተኛ	1		
		ነጋዴ	2		
		ሾፌር	3		
		መካኒክ	4		
		የቀን ሰራተኛ	5		
		ሌላ ካለ ይገለፅ----------			
108	የግል የወር ገቢዎ በብር ስንት ይሆናል?	ገቢ የለኝም	0		
		ከ 100 ያነሰ	1		
		ከ 100 እስከ 299	2		
		ከ 300 እስከ 499	3		
		500 እና ከዚያ በላይ	4		
		አላውቅም	88		

109	ጠቅላላ የቤተሰብዎ የወር ገቢ በብር ስንት ይሆናል?	ገቢ የለኝም 0 ከ 100 ያነሰ 1 ከ 100 እስከ 299 2 ከ 300 እስከ 499 3 500 እና ከዚያ በላይ 4 አላውቅም 88		
110	ይህን የ ኤች አይ ቪ ምርመራ የፈለጉበት አብይ ምክንያት ምንድነው?	<u>አዎ</u> <u>አይ</u> የእራሴን ሁኔታ ለማወቅ 1 2 እራሴን ስለተጠራጠርኩ 1 2 ጓደኛዬን ስለማላምን 1 2 ስለታመምኩኝ 1 2 ለቅድመ ጋብቻ ምርመራ 1 2 ለቪዛ ለማመልከት 1 2 ታዝዤ/በሪፈራል መልክ 1 2 የቀድሞ ውጤቴን ለማረጋገጥ 1 2 ለቅደመ እርግዝና ምርመራ 1 2 እርጉዝ ነኝና እራሴን ለማወቅ 1 2 የጓደኛ ሞት/ህመም 1 2 በስራ ምክንያት ለበሽታው በመጋለጤ 1 2 በመደፈሬ 1 2 ለስራ ቅጥር 1 2 ሌላ ካለ <u>ይግለፅ----------</u>		

ክፍል 2 ፡ ሱዝ አስያዥ ነገሮችን ስለመጠቀም

ተ.ቁ	መጠይቅ	የመለያ ኮድ		ይለፍ	ኮድ
201	ባለፉት 12 ወራት አልኮልነት ያላቸውን መጠጦችይጠጠ ነበር? ከጠጡ በየስንት ጊዜ ይጠጡ ነበር?	በየቀኑ	1		
		በሳምንት ሁለት ቀን	2		
		ቢያንስ በሳምንት አንዴ	3		
		በሳምንት ከአንዴ በታች	4		
		በጭራሽ አልጠጣሁም	5	→204	
202	ምን ዓይነት መጠጥ ነበር ሲጠጡ የነበረው?	ውስኪ	1		
		ቢራ	2		
		ድራፍት	3		
		አረቄ/ጂን	4		
		ጠላ	5		
		ጠጅ	6		
		ሌላ ካለ ይግለፁ----------			
203	ብዙውን ጊዜ ምን ያህል ይጠጣሉ? በመለኪያ/ በብርሌ/ በብርጭቆ ወይም በጠርሙስ	ከ 1 እስከ 5	1		
		ከ 6 እስከ 10	2		
		ከ 10 በላይ	3		
204	አንዳንድ ሰዎች በህክምና ያልታዘዙ/ ሱስ የሚያስዙ መድሃኒቶችን ይወስዳሉ ::እርስዎ እነኚህን ሞክረው ያውቃሉ?	አዎ	1		
		አልሞከርኩም	2	→207	
		አላስታውስም	88	→207	
		መልስ የለም	99	→207	
205	እንድያው ከሞከሩ ከሚከተሉት የትኛውን ሞክረዋል?		አዎ / የለም / አላቅም / መየለም		
		ኮኬይን	1 / 2 / 88 / 99		
		ሄሮይን	1 / 2 / 88 / 99		
		አፀፋሪስ	1 / 2 / 88 / 99		
	የተመለሱትን በሙሉ አክብብ	ማሪዋና	1 / 2 / 88 / 99		
206	እነኚህን በህክምና ያልታዘዙ/ሱስ የሚያስዙ መድሃኒቶችን ለምን ያህል ጊዜ ተጠቅመዋል?	የወራት ቁጥር ----------			
207	አንዳንድ ሰዎች በመርፌ የሚወጋ መድሃኒት ይጠቀማሉ:: እርስዎስ ላለፉት 12 ወራት እነኚህን መድሃኒቶች ተወግተው ያውቃሉ? **በህክምና የሚታዘዙት መድሃኒቶችን አይመለከትም**	አዎ	1		
		አልተወጋሁም	2	→215	
		አላስታውስም	88	→215	
		መልስ የለም	99	→215	
208	ለምን ያህል ጊዜ ተወግተዋል?	የወራት ቁጥር ----------			
209	እነኚህን መድሃኒቶች ለመጀመሪያ ጊዜ ሲወሰዱ ዕድሜዎ ስንት ነበር?	ዕድሜ በዓመት ----------			
210	እነኚህ መጠጦች እና መድሃኒቶች የወሲብ ፍላጎትዎን ይቀሰቅሳሉ ወይም ይጨምራሉ?	አዎ	1		
		አይቀሰቅሱም/አይጨምሩም	2		
		አላውቅም	88		
		መልስ የለም	99		

211	ባለፉት 12 ወራት ምን ያህል ጊዜ እነኚህን መድሃኒቶች ተወግቻለሁ ይላሉ?	አንዴ ብቻ 1 ከ 2 እስከ 3 ጊዜ 2 በሳምንት አንድ ያህል 3 በሳምንት ከ 2 እስከ 3 ጊዜ 4 በሳምንት ከ 4 እስከ 6 ጊዜ 5 በቀን አንዴ 6 በቀን ከ 2 እስከ 3 ጊዜ 7 በቀን 4ወይም ከዚያ በላይ 8 አላስታውስም 88 መልስ የለም 99		
212	እስቲ ባለፈው ጊዜ ስለተወጉት መድሃኒት ያስቡ:: ሌላ ሰው አስቀድሞ የተጠቀመበትን መርፌ ወይም ሲሪንጅ ተጠ ቅመው ነበር?	አዎ 1 አልተጠቀምኩም 2 አላስታውስም 88 መልስ የለም 99	 →215 →215 →215	
213	ባለፉት 12 ወራት ሰው በተጠ ቀመበት መርፌና ስሪንጅ ሲወጉ አስቀድመው ምን ያህል ጊዜ ያፀዱታል? አልፎ አልፎ ወይስ ሁሌ?	ሁል ጊዜ 1 ከሞላ ጎደል ሁል ጊዜ 2 አንዳንዴ 3 በጭራሽ 4 አላውቅም 88 መልስ የለም 99	 →215 →215 →215	
214	**<u>የሚፀዳ ከሆነ፡</u>** አብዛኛውን ጊዜ የሚ.ያፀዱት እንዴት ነበር?	በቀዝቃዛ ውሃ 1 በሙቅ ውሃ 2 በመቀቀል ወይም በማፍላት 3 በበረኪና 4 በአልኮል 5 ሌላ ካለ ይግለፅ---------- መልስ የለም 99		
215	ላለፉት 12 ወራት ጫት ቅመው ያውቃሉ?	አዎ 1 አልቃምኩም 2 መልስ የለም 99	 →301	
216	የሚቅሙትን ጫት ዓይነት ቢ.ነግሩኝ:: የተመለሰውን ሁሉ አክብብ::	አወዳይ ጫት 1 ሚስማር ጫት 2 ወንዶ/በለጩ ጫት 3 የጉራጌ ጫት 4 ሌላ ካለ ይገለፅ----------		
217	ላለፉት 12 ወራት በየስንት ጊዜዎ ነበር የሚቅሙት?	በየቀኑ 1 በየሁለት ቀን 2 በሳምንት ሁለቴ 3 በሳምንት አንዴ 4 በወር አንዴ 5 በአጋጣሚ 6		
218	ጫት ከቃሙ በኃላ የእንቅልፍ እጦት ችግር ያጋጥምዎታል?	አዎ 1 አያጋጥመኝም 2 አላስታውስም 88 መልስ የለም 99	 →301 →301 →301	

219	የእንቅልፍ እጦት ችግር ካጋጠ ምዎት ይህን ችግር ለመፍታት ምን ያደርጋሉ?	አልኮል እጠጣለሁ 1 የእንቅልፍ መድሃኒት እውጣለሁ 2 የእንቅልፍ መድሃኒት እወጋለሁ 3 ምንም አላደርግም 4 ሌላ ካለ ይገለፅ---------- መልስ የለም 99		

ክፍል 3 ፡ ጋብቻና አብሮ መኖርን በተመለከተ

ተ.ቁ	መጠይቅ	የመለያ ኮድ	ይለፍ	ኮድ
301	ትዳር ይዘው ያውቃሉ?	አዎ 1 አልያዝኩም 2 መልስ የለም 99	→303	
302	መጀመሪያ ሲያገቡ ዕድሜዎ ስንት ነበር?	ዕድሜ በዓመት ----------		
303	በአሁኑ ሰዓት የጋብቻዎ ሁኔታ እንዴት ነው?	አግብቼ ከባለቤቴ ጋር ነኝ 1 ፈትቼ ከሌላ ጓደኛዬ ጋር ነኝ 2 ፈትቼ ያለ ጓደኛ እኖራለሁ 3 አላገባሁም ግን ከጓደኛዬ ጋር ነኝ 4 →401 አላገባሁም ከጓደኛዬ ጋርም አልኖርም 5 →401 ባለቤቴ ሞቶ/ሞታ ብቻዬን እኖራለሁ 6 መልስ የለም 99		
304	**<u>ካገቡ</u>** **<u>ለወንድ ፡</u>** ከአንድ የበለጠ ሚስት አለዎት? **<u>ለሴት ፡</u>** ባለቤትዎ ሌላ ሚስት አላቸው?	አዎ 1 የለኝም/የላቸውም 2 አላውቅም 88 መልስ የለም 99		
305	**<u>ለወንድ እና ለሴት</u>** ከባለቤትዎ ሌላ የፍቅር ጓደኛ አለዎት?	አዎ 1 የለኝም 2 መልስ የለም 99		

ክፍል 4 ፡ የግብረ ስጋ ጓደኛ ዓይነትና ቁጥርን በተመለከተ

401	**<u>ላላገቡ ብቻ ፡</u>** የግብረ ስጋ ግንኙነት አድርገው ያውቃሉ?	አዎ 1 አላደረኩም 2 መልስ የለም 99	→803	
402	የመጀመሪያውን የግብረ ስጋ ግንኙነት ሲያደርጉ ዕድሜዎ ስንት ነበር?	ዕድሜ በዓመት ----------		
403	ላለፉት 12 ወራት የግብረ ስጋ ግንኙነት አድርገዋል?	አዎ 1 አላደረኩም 2 መልስ የለም 99		

ክፍል 5 ፡ መደበኛ የግብረ ስጋ ጓደኛን በተመለከተ

501	ላለፉት 12 ወራት ከመደበኛ ጓደኛዎ /ባል ወይም ሚስት/ ጋር የግብረ ስጋ ግንኙነት አድርገዋል?	አዎ አላደረኩም አላስታውስም	1 2 88	→601	
502	በመጨረሻው የግብረ ስጋ ግንኙነትዎ ጊዜ እርስዎና መደበኛ የግብረ ስጋ ጓደኛዎ ኮንደምን ተጠ ቅማችሁ ነበር?	አዎ አልተጠቀምንም አላስታውስም መልስ የለም	1 2 88 99	→504 →505	
503	በጊዜው ኮንዶምን የመጠቀም ሃሳብ ያመጣው ማን ነበር?	እኔ እራሴ ጓደኛዬ የጋራ ውሳኔ አላስታውስም መልስ የለም	1 2 3 88 99	→505 →505 →505 →505 →505	
504	እርስዎና ጓደኛዎ ኮንደምን ለምን አልተጠቀማችሁም?		<u>አዎ</u> <u>አይ</u>		
		አልተገኘም	1 2		
		በጣም ውድ ነው	1 2		
		ጓደኛዬ በመቃወሙ/ሟ	1 2		
		አልወድም	1 2		
		ሌላ መከላከያ ስለምጠቀም	1 2		
		አስፈላጊ ስላልመሰለኝ	1 2		
		አላሰብኩበትም	1 2		
		አላውቅም	88		
		መልስ የለም	99		
505	ላለፉት 12 ወራት እርስዎና መደበኛ የግብረ ስጋ ጓደኛዎ ምን ያህል ጊዜ ኮንዶምን ትጠቀሙ ነበር?	ሁል ጊዜ ከሞላ ጎደል ሁል ጊዜ አንዳንዴ በጭራሽ አላስታውስም መልስ የለም	1 2 3 4 88 99		

ክፍል 6 ፡ ሴተኛ አዳሪ የግብረ ስጋ ጓደኛን በተመለከተ /ለወንድ ብቻ/

601	ላለፉት12 ወራት ከሴተኛ አዳሪ ጓደኛዎ ጋር የግብረ ስጋ ግንኙነት አድርገዋል?	አዎ አላደረኩም አላስታውስም	1 2 88	→701 →701	
602	በመጨረሻው የግብረ ስጋ ግንኙነትዎ ጊዜ እርስዎና የሴተኛ አዳሪ ጓደኛዎ ኮንደምን ተጠ ቅማችሁ ነበር?	አዎ አልተጠቀምንም አላውቅም መልስ የለም	1 2 88 99	→604 →605	
603	በጊዜው ኮንዶምን የመጠቀም ሃሳብ ያመጣው ማን ነበር?	እኔ እራሴ ጓደኛዬ የጋራ ውሳኔ አላውቅም መልስ የለም	1 2 3 88 99	→605 →605 →605 →605 →605	

604	እርስዎና ጓደኛዎ ኮንደምን ለምን አልተጠቀማችሁም?		አዎ	አይ		
		አልተገኘም	1	2		
		በጣም ውድ ነው	1	2		
		ጓደኛዬ በመቃወሙ/ሚ	1	2		
		አልወድም	1	2		
		ሌላ መከላከያ ስለምጠቀም	1	2		
		አስፈላጊ ስላልመሰለኝ	1	2		
		አላሰብኩበትም	1	2		
		አላውቅም		88		
		መልስ የለም		99		
605	ላለፉት 12 ወራት እርስዎና ሴተኛ አዳሪ የግብረ ስጋ ጓደኛዎ ምን ያህል ጊዜ ኮንዶምን ትጠቀሙ ነበር?	ሁል ጊዜ		1		
		ከሞላ ጎደል ሁል ጊዜ		2		
		አንዳንዴ		3		
		በጭራሽ		4		
		አላውቅም		88		
		መልስ የለም		99		

ክፍል 7 ፡ መደበኛ ያልሆነች እና ሴተኛ አዳሪ ያልሆነች የግብረ ስጋ ጓደኛን በተመለከተ /ለወንድ ብቻ/

701	ላለፉት 12 ወራት መደበኛና ሴተኛ አዳሪ ካልሆነች ጓደኛዎ ጋር የግብረ ስጋ ግንኙነት አድርገዋል?	አዎ	1	
		አላደረኩም	2	→801
		አላስታውስም	8	→801
702	በመጨረሻው የግብረ ስጋ ግንኙነትዎ ጊዜ እርስዎና መደበኛም ሴተኛ አዳሪም ያልሆነች ጓደኛዎ ኮንደምን ተጠቅማችሁ ነበር?	አዎ	1	
		አልተጠቀምንም	2	→704
		አላስታውስም	88	→705
		መልስ የለም	99	
703	በጊዜው ኮንዶምን የመጠቀም ሃሳብ ያመጣው ማን ነበር?	እኔ እራሴ	1	→705
		ጓደኛዬ	2	→705
		የጋራ ውሳኔ	3	→705
		አላውቅም	88	→705
		መልስ የለም	99	→705
704	እርስዎና ጓደኛዎ ኮንደምን ለምን አልተጠቀማችሁም?		አዎ	አይ		
		አልተገኘም	1	2		
		በጣም ውድ ነው	1	2		
		ጓደኛዬ በመቃወሙ/ሚ	1	2		
		አልወድም	1	2		
		ሌላ መከላከያ ስለምጠቀም	1	2		
		አስፈላጊ ስላልመሰለኝ	1	2		
		አላሰብኩበትም	1	2		
		አላውቅም		88		
		መልስ የለም		99		
705	ላለፉት 12 ወራት እርስዎና መደበኛ ያልሆኑ እንዲሁም ሴተኛ አዳሪያልሆኑ የግብረ ስጋ ጓደኛዎ በሙሉ ምን ያህል ጊዜ ኮንዶምን ትጠቀሙ ነበር?	ሁል ጊዜ		1		
		ከሞላ ጎደል ሁል ጊዜ		2		
		አንዳንዴ		3		
		በጭራሽ		4		
		አላውቅም		88		
		መልስ የለም		99		

ክፍል 8 ፡ ኮንዶም ስለመጠቀም

801	ኮንዶም ለምን ይጠቅማል?		አዎ	አይ
		እርግዝናን ለመከላከል	1	2
		የአበለዘር በሽታን ለመከላከል	1	2
		ኤች አይ ቪ ኤድስን ለመከላከል	1	2
		አላውቅም		88
		መልስ የለም		99
802	እርስዎና የግብረ ስጋ ጓደኛዎ ኮንደምን ተጠቅማችሁ ታውቃላችሁ?	አዎ		1
		አልተጠቀምንም		2
		አላውቅም		88
		መልስ የለም		99
803	ኮንዶምን ከየት ወይም ከማን እንደሚያገኙ ያውቃሉ?	አዎ		1
		አላውቅም		2
		መልስ የለም		99
804	ከሚከተሉት ከየትኛው ቦታ ወይም ከየትኛው ሰው ነው ኮንዶምን ሊያገኙ የሚችሉት?		አዎ	አይ	አላቅም
		ከሱቅ	1	2	3
		ከፋርማሲ	1	2	3
		ከገበያ	1	2	3
		ከክሊኒክ/ ከሆስፒታል	1	2	3
	ምርጫዎቹን አንብብላቸው የተመለሰውን ሁሉ በመክብብ አመልክት	ከቤተሰብ ምጣኔ ማዕከል	1	2	3
		ከቡና ቤት/ሆቴል	1	2	3
		ሌላ ካለይግለፅ----------			
		መልስ የለም			99

ክፍል 9 ፡ ስለ አባለዘር በሽታ

901	በግብረ ስጋ ግንኙነት ሊተላለፉ ስለሚችሉ በሽታዎች ሰምተው ያውቃሉ?	አዎ			1
		አልሰማሁም			2
		መልስ የለም			99
902	በግብረ ስጋ ግንኙነት ሊተላለፉ የሚችሉትን በሽታዎች ሊነግሩኝ ይችላሉ?		አዎ	አይ	አላቅም
		ቂጥኝ	1	2	3
		ጨብጥ	1	2	3
		ከርክር	1	2	3
	ምርጫዎቹን አንብብላቸው የተመለሰውን ሁሉ በመክብብ አመልክት	ኤች አይ ቪ/ኤድስ	1	2	3
		ሌላ ካለ ይገለፅ----------			
903	ባለፉት 12 ወራት ጊዜ ውስጥ ከብልትዎ ፈሳሽ ፈሶ ነበር?	አዎ			1
		የለም			2
		አላስታውስም			88
		መልስ የለም			99
904	ባለፉት 12 ወራት ጊዜ ውስጥ በብልትዎ ላይ የታየ ቁስል ነበር?	አዎ			1
		የለም			2
		አላስታውስም			88
		መልስ የለም			99

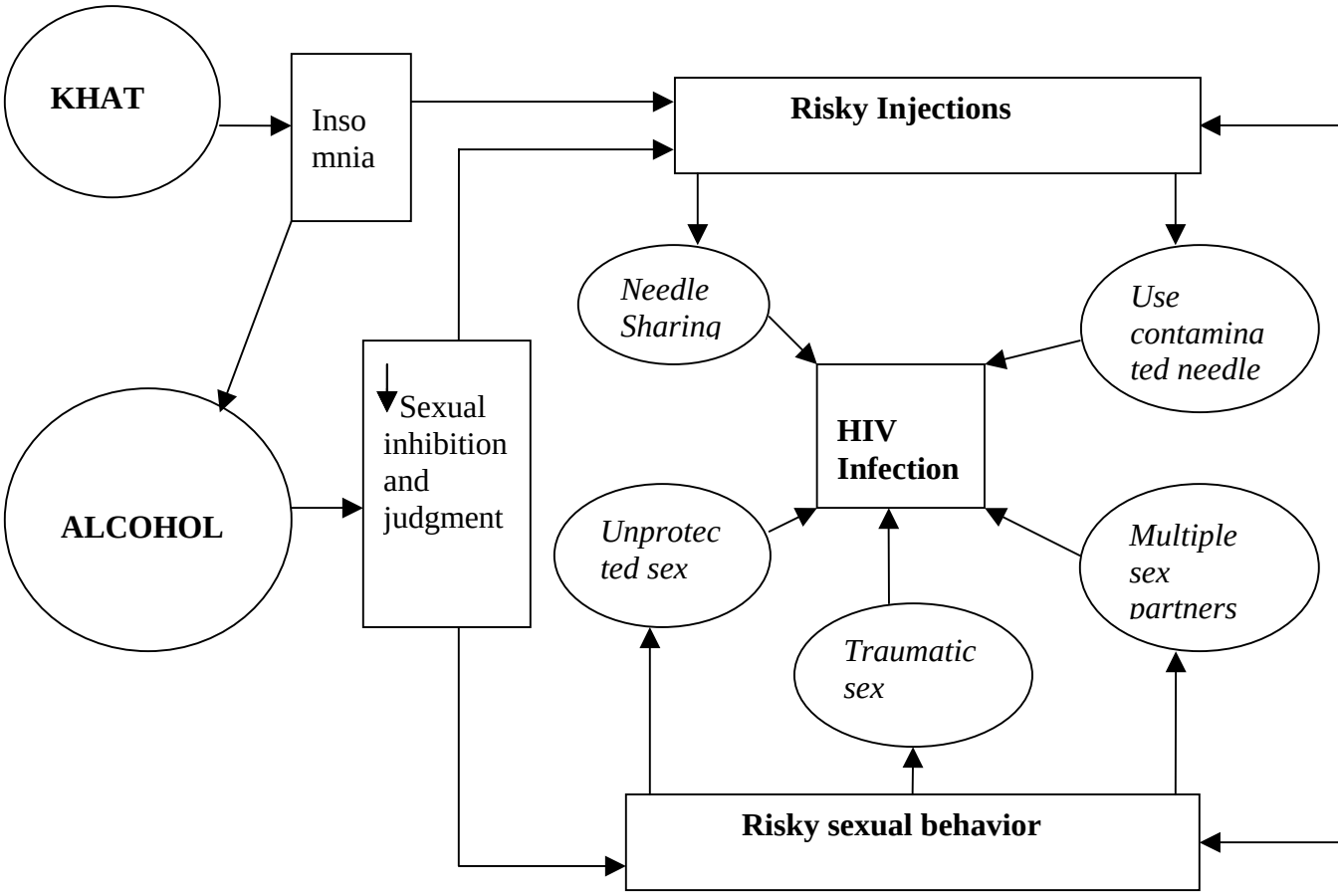
ክፍል 10 ፡ **እውቀት አማራጭ እና አመለካከትን በተመለከተ**

1001	**ኤድስ ስለሚባል በሽታ ሰምተው ያውቃሉ?**	**አዎ** **አልሰማሁም** **መልስ የለም**	1 2 99		
1002	**በኤድስ በሽታ የተያዘ ወይም የሞተ ሰው ያውቃሉ?**	**አዎ** **አላውቅም** **መልስ የለም**	1 2 99		
1003	**በኤች አይ ቪ የተያዘ ወይም በኤድስ የሞተ የቅርብ ዘመድ ወይም ጓደኛ አለዎት?**	**አዎ የቅርብ ዘመድ** **አዎ የቅርብ ጓደኛ** **የለኝም** **መልስ የለም**	1 2 3 99		
1004	**አንድ ሰው ኤች አይ ቪ ከያዘው ሰው ጋር ምግብ በመብላት ኤች አይ ቪ ሊይዘው ይችላል?**	**አዎ** **አይችልም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1005	**አንድን ሰው በወባ ትንኝ አማካይነት ኤች አይ ቪ ሊይዘው ይችላል?**	**አዎ** **አይችልም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1006	**አንድ ሰው ሌላው ሰው ቀድሞ በተወጋበት መርፌ ቢወጋ ኤች አይ ቪ ሊይዘው ይችላል?**	**አዎ** **አይችልም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1007	**በኤች አይ ቪ ወይም በኤድስ የተያዘች ነፍሰጡር ሴት ቫይረሱን ወደ ፅንሱ ማሰተላለፍ ትችላለች?**	**አዎ** **አትችልም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1008	**በኤች አይ ቪ ወይም በኤድስ የተያዘች ሴት አዲስ ወደ ተወለደው ልጇ ቫይረሱን በጡት አማካይነት ልታስተላልፍ ትችላለች?**	**አዎ** **አትችልም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1009	**አልኮልነት ያላቸው መጠጦችን መጠጣት ልቅ ወደ ሆነ የግብረ ስጋ ግንኙነት ሊገፋፉ ይችላሉ?**	**አዎ** **አይችልም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1010	**ጤናማ መሰል ሰዎች ኤድስን በሚያመጣው ቫይረስ የተጠቁ ሊሆኑ ይችላሉ ብለው ያስባሉ?**	**አዎ** **አላስብም** **አላውቅም** **መልስ የለም**	1 2 88 99		
1011	**ሰዎች በግብረ ስጋ ግንኙነት ወቅት ኮንዶምን በትክክል በመጠቀም እራሳቸውን ኤድስ ከሚያመጣው ኤች አይ ቪ ቫይረስ መከላከል ይችላሉ?**	**አዎ** **አይችሉም** **አላውቅም** **መልስ የለም**	1 2 88 99		

1012	ሰዎች በኤች አይ ቪ ካልተያዘ አንድ ታማኝ ጓደኛ ጋር በመሆን እራሳቸውን መከላከል ይችላሉ?	አዎ 1 አይችሉም 2 አላውቅም 88 መልስ የለም 99		
1013	ሰዎች ከግብረ ስጋ ግንኙነት በመታቀብ እራሳቸውን ከኤች አይ ቪ መከላከል ይችላሉ?	አዎ 1 አይችሉም 2 አላውቅም 88 መልስ የለም 99		
1014	ውጤቱን ማወቅ አልፈልግም ግን ከዚህ በፊት የ ኤች አይ ቪ ምርመራ አድርገዋል?	አዎ 1 አላደረኩም 2 → 1018 መልስ የለም 99		
1015	እባክዎን ውጤቱን አይንገሩኝ ግን የምርመራውን ውጤት አግኝተዋል?	አዎ 1 አላገኘሁም 2 መልስ የለም 99		
1016	በቅርብ ያደረጉት የ ኤች አይ ቪ ምርመራ መቼ ነበር?	ባለፈው ዓመት 1 ባለፈው 1 እስከ 2 ዓመት ውስጥ 2 ባለፈው 2 እስከ 4 ዓመት ውስጥ 3 ከ አራት ዓመት በፊት 4 አላስታውስም 88 መልስ የለም 99		
1017	የኤች አይ ቪ ምርመራውን ያደረጉት በራስዎ ፈቃድ ነበር ወይስ እንዲያደርጉ ተጠይቀው ነው?	በእራሴ ፈቃድ ነበር 1 ተጠይቄ ነው 2 አላስታውስም 88 መልስ የለም 99		
1018	አሁንስ ምርመራውን ሊያደርጉ የመጡት በራስዎ ፈቃድ ነው ወይስ እንዲያደርጉ ተጠይቀው ነው?	በእራሴ ፈቃድነው 1 ተጠይቄ ነው 2 መልስ የለም 99		
1019	**ከተጠየቁ** ማነው ምርመራውን እንዲያደርጉ የጠየቀዎት?	የህብረተሰብ ጤና ተቋም 1 የግል ጤና ተቋም 2 ወታደራዊ ተቋም 3 የመንግስት ተቋም 4 ጓደኛ/ዘመድ 5 መንግስታዊ ያልሆነ ድርጅት 6 ትምህርት ቤት 7 የሃይማኖት ተቋም 8 ኤምባሲ 9 ሌላ ካለይግለፁ----------		
		መልስ የለም 99		

ቃለ መጠይቁን ጨርሻለሁኝ ። ላደረጉልን ትብብር በጣም አመሰግናለሁ ።

Conceptual framework



DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or another university and that all sources of materials used for this thesis have been fully acknowledged.

Name: Assefa Seme, MD .

Signature: _____.

Place: Addis Ababa .

Date of Submission: _____.

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

Dr. Damen Hailemariam (MD, MPH, PhD) _____
Advisor's name Signature