

Assessment of effectiveness of the different IEC Interventions in improving awareness and reducing Stigma related to HIV/AIDS among High School adolescents in Awassa, Southern Ethiopia

BY

Alemayehu Bekele (BSc)

Advisor: Professor Ahmed Ali (BSc, MPH, PhD)

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Alemayehu Bekele

Department of community Health

Faculty of Medicine

Advisor: Prof. Ahmed Ali (BSc, MPH, PhD)

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Acronyms

- AIDS:** Acquired Immunodeficiency Syndrome
- API:** Asian and Pacific Islanders
- BCC:** Behavioural Change Communication
- BSS:** Behavioural Surveillance Survey
- CSW:** Commercial Sex Workers
- DHSE:** Demographic Health Survey of Ethiopia
- HAPCO:** HIV/AIDS Prevention and Control Office
- HIV:** Human Immunodeficiency Virus
- HIV+:** Human Immunodeficiency Virus Positive
- IEC:** Information, Education and Communication
- ISY:** In School Youth
- MTCT:** Mother to Child Transmission
- MOH:** Ministry of Health
- OSY:** Out of School Youth
- PLWHA:** People Living With HIV/AIDS
- S and D:** Stigma and Discrimination
- SNNPR:** Southern Nations, Nationalities and Peoples Region
- STD:** Sexually Transmitted Diseases
- TVET:** Technical, Vocational and Educational Training
- UNAIDS:** United Nations joint co-sponsored programme on
HIV/AIDS
- UNICEF:** United Nations International Children's Emergency Fund
- US:** United States
- VCT:** Voluntary Counseling and Testing

Abstract

Background: Stigma and discrimination are common human reactions to disease. HIV/AIDS related stigma and discrimination negatively affect preventive behaviors, HIV test-seeking behavior, and care-seeking behavior, quality of care and perception of PLWHA by communities, families, and partners.

Objective: The aim of this study was to assess the presence of HIV/AIDS related misconceptions and stigma in adolescents and determine the effectiveness of different IEC interventions in reducing the HIV/AIDS related stigma and to ascertain long-term effects of the IEC interventions.

Materials and Methods: Interventional study was employed from January to March 2007 on the adolescents of the four high school students using four different IEC Interventions, namely interpersonal communication, pamphlets, educational video and the combination of the three Interventions. Immediate post intervention and follow up assessments for misconceptions and stigmatizing attitudes were carried out.

Result: Misconceptions on HIV transmission/prevention were 0-52.3%. Stigmatizing attitudes ranged from 0-65.2%. Multivariate logistic regression analyses showed Grade, Religion, beliefs in HIV transmission by witchcraft and HIV transmission by feeding on uncooked egg/meat of chicken that swallowed used condom were significantly associated with avoidant behavioral intentions, AOR, 2.23(95% CI 1.2-4.1), AOR, 0.43 (95% CI, 0.22-0.82), AOR, 0.22(95%CI, 0.06-0.77), AOR, 3.5, (95%CI, 1.4-8.8) and AOR, 2.1(95% CI, 1.1-3.9) respectively. Regarding beliefs in HIV transmission/prevention, variables like coughing/sneezing, feeding on raw egg of a chicken that swallowed used condom and practicing sex with virgin girls were found to be statistically significantly associated with blaming attitude AOR, 4.8(95% CI, 1.5-15.4), AOR, 2.7(95% CI 1.5-4.9) and AOR, 3.8(95% CI, 1.1-13.4) respectively. Residence, fathers' education, Television ownership, transmission by witchcraft, healthy looking person can have HIV, HIV prevention by having sex with virgin girls and PLWHA had multiple sexual partners were found to be determinants of coercive attitude AOR, 0.2(95% CI 0.05-0.80) AOR, 6.4(95% CI, 1.02-40.42), AOR, 5.9(95% CI, 1.0-34.6), AOR, 12.9(95% CI 2.8-58.4), AOR, 6.1 (95% CI, 1.7-22.0), AOR, 22.3(95% CI, 5.1-97.1)and AOR, 2.9(95% CI, 1.02-8.45) respectively. Mothers' education and HIV transmission by eating with PLWHA were also found to be determinants of the negative sympathetic feelings to PLWHA AOR, 2.1 (95% CI, 1.10-4.14) and AOR, 2.75(95% CI, 1.04-7.30) respectively. IEC interventions were effective in reducing HIV stigma and discrimination. ANOVA (F statistics) revealed that the interventions were effective, ANOVA, 17.484 (p-value<0.0001).

Conclusion: Misconceptions on the transmission/prevention of HIV and associated stigmatizing and discriminatory attitudes were prevalent among the adolescents. Remarkable reduction in the HIV

related misconceptions, stigmatizing and discriminatory attitudes were observed using the combined interventions. Hence, campaigns using combined IEC interventions on HIV/AIDS need to be intensified to dispel some of the prevailing misconceptions and the associated stigma and discrimination among high school adolescents.

1. INTRODUCTION

1.1 BACKGROUND

HIV has been on the global scene for almost three decades now and has reached pandemic proportions. Globally 39.5 million people were estimated to be living with HIV and AIDS at the end of 2006(1). In 2006, about 24.7 million almost two thirds(63%) of all persons infected with HIV were living in Sub-Saharan Africa and in this Region AIDS death is estimated to be 2.4 million which accounts for about 72% of all global AIDS deaths in 2006(2). AIDS is now the leading cause of death in sub-Saharan Africa and the cause of 15 years drop in life expectancy in the Region, from 62 to 47 years. New HIV infections are highest among young people and young women. More than a third of all people living with HIV/AIDS are under the age of 25, and almost two-thirds of them are women. The devastation caused by HIV/AIDS to individuals, families, communities and entire nations are beyond words (3).

Ethiopia is among the countries in Africa and elsewhere in the world most seriously affected by the HIV/AIDS pandemic (4). A total of 1,320,000 (590,000 males and 730,000 females) persons were living with HIV/AIDS in the country in 2005 (5). The national HIV prevalence for adults age 15-49 is 1.4% of which 5.5% in urban and 0.7% in rural(6). South Nations, Nationalities and Peoples Region (SNNPR) is one of the regions in the country affected by the devastating effects of HIV/AIDS. The regional HIV prevalence rate is 0.2% (0.4% in women and 0.1% in men) (6).

From the start of the HIV/AIDS epidemic, three phases have been identified: the epidemic of HIV, the epidemic of AIDS, and the epidemic of stigma, discrimination, and denial (7). It was noted that the third phase is “as central to the global AIDS challenge as the disease itself”. HIV-related stigma and discrimination have fuelled the transmission of HIV and greatly increased the negative impact associated with the epidemic. These continue to be manifest globally, creating major barriers to preventing further infection, alleviating impact and providing adequate care, support and treatment. Stigma and discrimination have silenced open discussion, on both causes and appropriate responses.

Visibility and openness about HIV/AIDS are prerequisites for the successful mobilization of government, communities and individuals to respond to the epidemic. The concealment encouraged denial and delayed urgent action **(8)**. IEC interventions focusing on the root causes of HIV/AIDS related stigma and discrimination have to be provided to adolescents. These enable to overcome the obstacles due to stigma and discrimination. This group was selected because school is a hub where misconception, stigma and discrimination related to HIV/AIDS were prevailing. In addition, school adolescents may be involved in caring and support for PLWHA. They are also the future generation who should have positive feelings. This study tried to look at the effectiveness of the IEC interventions in reducing HIV related stigma and discrimination.

1.2 LITERATURE REVIEW

HIV and AIDS Stigma and Discrimination

Stigma can result from a physical characteristic, such as the visible symptoms of a disease, or from negative attitudes toward the behaviour of a group, such as homosexuals or prostitutes. Discrimination, is often described as a distinction that is made about a person that results in their being treated unfairly and unjustly on the basis of their belonging, or being perceived to belong, to a particular group(9). It is important to understand that stigma and discrimination exist in a vicious cycle. Stigma encourages the development of discriminatory attitudes or prejudice. These attitudes are then often expressed in discriminatory behaviour that draws attention to and reinforces the stigma. For example, stigma can lead to prejudice and active discrimination directed toward persons who are actually, or are simply perceived to be, infected with HIV, and the social groups and persons with whom they are associated. Often times PLWHA are believed to deserve the disease since they have done something that is considered ‘wrong’ by society, such as engaging in homosexual behavior or being ‘promiscuous’. Hence, they become the focus of gossip and rumors, segregated in schools, refused employment and housing, denied the right to marry, rejected by their communities and families, and even killed because of their HIV positive status (9).

Stigma is generally accepted to be an “attribute that is deeply discrediting” that reduces the bearer “from a whole and usual person to a tainted, discounted one” (10). Stigma is described as occurring when four interrelated components: distinguishing and labeling differences; associating human differences with negative attributes; separating ‘us’ from ‘them’; and status loss and discrimination converge in the context of social, economic, and political power(11). Stigmatization often leads to discrimination, which refers to any form of distinction, exclusion, or restriction affecting a person by virtue of a personal characteristic (12). Stigma is not unique to HIV/AIDS, but has been documented with other infectious diseases like tuberculosis, syphilis, and leprosy and non-infectious diseases like mental illnesses (13). Stigma is most frequently associated with diseases that have severe, disfiguring, incurable, and progressive outcomes, especially when modes of transmission are perceived to be under the control of individual behavior (14).

Stigma is common in diseases that are perceived to result from the transgression of social norms, such as socially unsanctioned sexual activity. These criteria fit HIV/ AIDS. Ignorance and fear underlie HIV-related stigma. An inadequate understanding of the modes of HIV transmission leads to fear of transmission from casual contact. This fear, combined with a better understanding of the deadliness of the disease, can lead to physical and social ostracization of people living with HIV/AIDS and other forms of discrimination. (15)

Knowledge and Misconceptions about HIV/AIDS Transmission

Young people remain alarmingly uninformed about the most basic facts about HIV/AIDS prevention. Sexual activity, the main route of transmission of HIV, begins in adolescence for the majority of people. In sub-Saharan Africa, where two girls are infected for every boy, half the teenage girls surveyed did not realize that a healthy looking person could be HIV-positive (3).

In HIV/AIDS Behavioral Surveillance Survey (BSS) conducted in Ethiopia in 2002, comprehensive knowledge of HIV/AIDS was measured (16). Knowledge of preventive methods was markedly greater than comprehensive knowledge about HIV/AIDS. With the exception of males, school youth (ISY) (15-19 years old), less than 40% of respondents in each target group were considered to have comprehensive knowledge about HIV/AIDS. The level of comprehensive knowledge was lower in females than in males. It was revealed that more than three quarters (76.5%) of all youth had at least one misconception about HIV/AIDS transmission and it was about 63.7% of ISY that were found to have one misconception. The misconceptions about HIV transmission and prevention mentioned by the ISY were eating of raw meat prepared by HIV infected person, consuming local hard liquor and hot pepper can protect from HIV infection, HIV can be contracted by eating uncooked egg laid by a chicken that has swallowed a used condom, mosquito bite can transmit HIV, sharing a meal with an HIV infected person, and a healthy looking person cannot have HIV in his/her blood. The qualitative study also revealed additional misconceptions like that ‘the lubricant in condoms carries the virus.’ Some misconceptions were found to be related to stigma.

Findings from BSS round two in Ethiopia revealed that more than 98 % of the study populations were aware of HIV/AIDS except in pastoralist areas where awareness was about 80%, a comparable finding to that in BSS round one (17). Almost all the study populations knew at least one prevention method; about 86% knew two of the three preventive methods, and nearly 55 % knew all three. Knowledge of prevention methods increased with increasing exposure to HIV/AIDS messages in various media sources (radio, TV, and printed media). The study also indicated increased knowledge with increasing education level, especially among In-School Youth, except TVET 10⁺¹ and 10⁺² category which showed no change with increasing educational level. Among the pastoralists, 29% knew all three prevention methods, more than in BSS round one (18%). Misconceptions about transmission of HIV from person to person, especially local misconceptions like “eating uncooked egg laid by a chicken that has swallowed condom could transmit HIV” and “eating raw meat prepared by an HIV-infected person could transmit the virus” still remain high in almost all groups. These misconceptions accounted for 40% in almost all study groups except in In-School Youth where it was 10%. The study also showed that misconception about HIV/AIDS is high irrespective of level of knowledge about HIV transmission.

In Ukraine, 39 per cent of teenagers had never heard of AIDS or still believe that HIV can be transferred through supernatural means. Establishing healthy behavioural patterns during adolescence is easier than changing risky behaviour later on. The evidence shows that wherever the spread of HIV is slowing or even declining, it is primarily because young men and women are given the tools and the means to adopt safe behaviours (18). When young people are provided with accurate information on sex and HIV/AIDS, they are more likely to delay sexual activity and use condoms when they finally do have sex. Schools are the hub for such prevention lessons(18). Education represents the best opportunity not only for delivering crucial information on HIV/AIDS, but also for chipping away at the ignorance and fear that perpetuate stigma and discrimination. An effective strategy for preventing HIV/AIDS among youths is ensuring that all children receive formal education in safe and gender-sensitive school environments (18). Ignorance or lack of knowledge of HIV is considered in the literature to be a contributing factor to stigma and is often attributed to mixed or simply inaccurate messages. Images of

HIV/AIDS in the media and television, which suggest that it is a 'woman's disease', a 'junkies' disease, a 'Black disease', an 'American disease' or a 'gay plague', create HIV/AIDS-related stigma and discrimination and reinforce stereotypes and beliefs (19).

Demographic Health survey of Ethiopia (DHSE) 2005 indicated that knowledge is wide spread but not universal in Ethiopia (6). It was revealed that 47.4% and 65% of the Female and 66.4% and 73.2% of the male respondents between the ages of 15-19 responded that HIV can be prevented by persistent condom use and having only one uninfected partner respectively. As far as misconception is concerned, 55.8%, 54.8%, 72.7% and 68.8% of the female respondents in the age group 15-19 reported that healthy looking person can have HIV in his blood, HIV can't be transmitted by mosquito bite, HIV can't be transmitted by supernatural means and HIV can't be transmitted by sharing food respectively. In males of the same age group, these values were 68%, 59%, 82.2% and 78% respectively. This survey also revealed that 70.2% of women and 71.8% of men responded that HIV can be transmitted from mother to child by breast feeding. Qualitative study conducted in Zambia also revealed that beliefs like HIV can be transmitted by witchcraft are existing problems among the community (20).

HIV and AIDS related Stigma and discriminatory Attitudes among adolescents

.The HIV/AIDS (Behavioral Surveillance Survey) BSS conducted in Ethiopia in 2002 revealed stigma and discrimination against PLWHA were wide spread amongst youth with 97.8% of all youth (98.7% of males and 96.9% of females) expressing at least one stigmatizing attitude (16). Amongst Out of School Youth (OSY), the large majority of males (98%) and females (95%) demonstrated at least one stigmatizing attitude, likewise, the proportion of In School Youth (ISY) who expressed at least one stigmatizing attitude was 95% for males and 99% for females. About 24.7% of OSY and 9.1% of ISY believed that a person who was infected with HIV should be quarantined in health care facilities. Furthermore, 79.6% of OSY and 90% of ISY believed that infected students should not continue at school. In fact, the very high level of stigmatizing attitudes amongst youth revealed by the over composite indicators were a direct result of the stigmatized responses regarding continuation of schooling. Analysis of results by region showed that

stigmatization was widespread in all regions; however, youth in the Benishangul-Gumuz had slightly lower levels of stigmatizing attitudes (88.5%).

DHSE 2005 demonstrated that willingness to care for PLWHA family member among adolescents aged 15-19 years was 64.7% among males and 70% among females(6). There was willingness for buying vegetables from PLWHA shop in 27.1% of female and 30.5% of male adolescents. Moreover, 51.4% of females and 53.4% of males of age 15-19 mentioned that female PLWHA should teach if not sick.

The Botswana AIDS Impact Survey conducted in the year 2001 among adolescents showed that many of the adolescents expressed negative attitudes towards people living with HIV/AIDS (21). It was also revealed that misconceptions about HIV transmission often encourage stigmatization and discrimination of people living with HIV/AIDS. Interestingly, although the majority of the adolescents stigmatize and discriminate against PLWHA, many of them are willing to care for a family member who has HIV/AIDS. But the study did not address the IEC material to be used to reduce the problem among the adolescents.

IEC Materials and HIV/AIDS stigma and discrimination in adolescents

The study conducted in India on effectiveness of IEC materials among school teenagers showed that reduction in coercive attitude was observed after the three months of follow up; 21%-26% with Interpersonal Communication, 4-14% in-group provided pamphlets 8-17% in-group who observed video and in the fourth group who were provided the combination of the three was 23-33% and the reduction was high in this group where all three methods of intervention were used (22). The reduction in avoidant behavioral intentions was 15-19% in interpersonal communication; it was 4-9% in those provided pamphlets; 8-12% in group observed video and 6-39% in group all three methods of intervention was used. In this study, respondents were asked whether they felt that seropositive people rightly had what they deserved as a result of their high risk behaviour; and whether they felt that seropositive people did not care if they infect others with HIV virus. At the time of 3 month follow-up the reduction of this element in interpersonal communication group was 9-18%, in group provided with pamphlets this

being 7-8%, 4-11% in group who observed video and 28-33% in group provided the combination of the three. For this, the respondents were asked whether they would have sympathetic feeling if one of their family members, friends or a beautician or barber whom they frequently visited, was found to be seropositive. At the time of 3-month follow-up, it was observed: The increase in respondents having sympathetic feelings was 13-21% in interpersonal communication group, 0-7% in-group provided with pamphlets, 9-11% in group who observed video and 21-32% in provided the combination of the three. The awareness level regarding HIV/AIDS ranged from 32-40% in interpersonal communication, 32-41% in-group provided with pamphlet, 34-43% in-group observed video and 30-46% in-group with the combination of the three before interventions. After interventions, awareness level rose up to 94-99% in interpersonal communication, 81-86% in-group with pamphlets, 97-99% in-group who observed video and 95-100% in-group with the combination of the three. The awareness level regarding HIV/AIDS ranged from 70-90% in interpersonal communication, 60-76% in-group with pamphlets, 62-96% in-group who observed video and 72-96% in-group with the combination of the three in the follow-up round after 3 months.

HIV/AIDS related Stigma and discriminatory attitude in the general community

Qualitative study conducted in Zambia in PLWHA showed that in school stigma manifested itself in the form of rejection, gossip and taunts (20). HIV positive teachers suffered from self stigma. Leave was sometimes imposed upon them, making their sickness invisible. Children whose parents died of AIDS were sometimes taunted by other children. Interviewees also reported feeling that it was unsafe to send children who are HIV positive to school for fear of stigma and discrimination and bullying.

The findings of research conducted in Uganda and Burundi bore many similarities (23). Stigmatizing attitudes and discriminatory behaviour were found to pervade all spheres of life from home, the family, the workplace, the school, health settings and in the community at large. Because HIV is associated with 'immoral behaviour' and sexual promiscuity, PLWHA are often blamed for their condition and denied the sympathy and support given to people with other life threatening diseases.

A population based cross sectional telephone survey was conducted in Hong Kong Chinese aged 18–50 randomly selected from the general population to examine the level of discriminatory attitudes towards PLWHA and factors in association with such attitudes(24). Around 42% of the respondents exhibited discriminatory attitudes towards PLWHA. For instance, about 42% would avoid making physical contact with PLWHA; 35% believed that all infected medical staff should be dismissed and about 47% would agree with enacting a law to prohibit PLWHA from visiting Hong Kong. Majority of the respondents also hold negative perceptions about PLWHA (for example, 43.7% agreed that the majority of PLWHA are promiscuous, 20.7% thought that PLWHA are merely receiving the punishment they deserve, etc). Multiple regression analysis found that age, HIV related knowledge, the above mentioned negative perceptions about PLWHA, fear related to AIDS, and exposure to HIV related information were independent predictors of discriminatory attitudes towards PLWHA. A similar study conducted in Nigeria on two different population showed attitudes ranging from empathy to stigmatizing ones (25).

The qualitative study conducted in three African countries, Ethiopia, Zambia and Tanzania on HIV/AIDS related stigma and discrimination clearly depicted the causes, manifestations and consequences of the health and social problem among the study participants in the general population in the three countries (26). In this study, PLWHA reported experience of rejection and isolation by the different groups of community. The study also suggested different tackling mechanisms of HIV Stigma.

In Botswana, the study on HIV and AIDS related Stigma and discrimination revealed that most respondents showed discriminatory attitudes towards a teacher or a shopkeeper with HIV/AIDS, only 11% of 4,147 respondents reported unwillingness to care for a family member with HIV/AIDS (27). In this study more tolerant attitudes towards a family member with HIV/AIDS appeared to be promoted by the fact that family members have been and continue to care for their sick members through a government project called Community Home-based Care aimed at relieving public hospitals of HIV/AIDS patients. Since the burden of caring for sick relatives rests on the shoulders of women, they portrayed more tolerant attitudes towards HIV/AIDS patients. Young people and those

who believed a person could get HIV infection by sharing a meal with an HIV/AIDS patient had discriminatory attitudes towards people with HIV/AIDS.

All forms of stigma may be illegal, particularly when they create discriminatory workplace environments or result in discriminatory actions, such as firing or rejection (28). Any form of stigma can be painful, regardless of how it is perceived. Stigma can take the form of blame, rejection, exclusion, repulsion, ostracism and degradation. Scribbling “AIDS Carrier” on an employee’s locker sends a clear stigmatizing message, as does physical violence against those suspected of being infected. Gossiping in the employee lunchroom about someone who has sought an HIV/AIDS test is stigmatizing.

A classic form of HIV related stigma is the link between fear of disease and the fear of the foreigner (29). There is a link between imagining disease and imagining foreigners. It lies perhaps in the very concept of wrong, which is archaically identical with the non-us, the alien. A polluting person is always wrong ... The inverse is also true: a person judged to be wrong is regarded as, at least potentially, a source of pollution.

Studies conducted in the US demonstrated that a variety of Social, psychological and demographic variables have been found to correlate with AIDS related attitudes (30). Among the most consistent correlates have been age, education, personal contact with PLWHAs, knowledge about HIV transmission and attitudes towards homosexuality. Younger and better educated respondents consistently manifest lower levels of AIDS stigma than, respectively, older respondents and those with lower levels of education. The other research undertaken in the US on HIV related stigma indicated that direct contact was negatively correlated with stigma (31). But the best predictors of Stigma were respondents’ attitudes toward gay men and their beliefs about causal contact.

Follow up telephone surveys conducted in the US from 1992 to 1997 documented increasing levels of stigma and a hierarchy of blame regarding HIV/AIDS (32). At the start 20.5% of respondents agreed that people with AIDS have got what they deserve. Approximately 6 years later, in the 1997 survey, 28.8% agreed with the statement an increase of roughly 40% and 50.1% agreed that most PLWHA are responsible for their own illness.

The qualitative study conducted in two cities of Vietnam demonstrated that people in the community generally understand the ways in which HIV is transmitted, but ambiguities persist, leading to fears of acquiring HIV casually through everyday contact with infected persons (33). This leads people to take unnecessary, often stigmatizing, actions which they perceive will prevent further transmission of the disease. A second important cause of HIV-related stigma relates to the fact that in the minds of community members, leaders and health care workers, HIV and AIDS are inextricably linked with injection drug use and sex work, which are both regarded as "social evils." Particular complications were observed for injection drug users, widely perceived as people who prefer "indulging in play" rather than contributing meaningfully to society. Thus, judgments are passed against people living with HIV who are thought to have acquired the infection through behaviors that are considered to be morally, socially and economically harmful to both family and society.

HIV and AIDS related Stigma and discriminatory Attitude in health care settings

A survey conducted in 2002, among some 1,000 physicians, nurses and midwives in four [Nigerian](#) states, revealed disturbing findings (9). One in 10 doctors and nurses admitted having refused to care for an HIV/AIDS patient or had denied HIV/AIDS patients admission to a hospital. Almost 40% thought a person's appearance betrayed his or her HIV-positive status, and 20% felt that people living with HIV/AIDS had behaved immorally and deserved their fate. One factor fuelling stigma among doctors and nurses is the fear of exposure to HIV as a result of lack of protective equipment.

Many reports reveal the extent to which people are stigmatized and discriminated against by health care systems (23). Studies show the reality of withheld treatment, non-attendance of hospital staff to patients, HIV testing without consent, lack of confidentiality and denial of hospital facilities and medicines. The study conducted in health professionals in India revealed that there were different discriminatory attitudes like delaying treatment (34). An expectation of stigma and discrimination will deter those living with HIV or those possibly at risk of infection, from accessing the health care they need and to which they have a right (35).

HIV and AIDS related Stigma and discrimination and Gender

In many developing countries, women are experiencing more of each form of stigma than men (9). They are often economically, culturally and socially disadvantaged and lack equal access to treatment, financial support and education. In a number of societies, women are mistakenly perceived as the main transmitters of sexually transmitted diseases (STDs). Together with traditional beliefs about sex, blood and the transmission of other diseases, these beliefs provide a basis for the further stigmatization of women within the context of HIV and AIDS (9). HIV-positive women are treated very differently from men in many developing countries. Men are likely to be 'excused' for their behaviour that resulted in their infection, whereas women are not. In India for example, the husbands who infected them may abandon women living with HIV or AIDS (9). Rejection by wider family members is also common. In some African countries, women, whose husbands have died from AIDS-related infections, have been blamed for their deaths. Women and girls are disproportionately affected by these forms of victimization that are compounded by gender-based discrimination (23).

HIV and AIDS related Stigma and discrimination versus prevention and treatment

Stigma also deters people from being tested or even using condoms for fear of being 'branded' as HIV positive (23). It is also expected that misconception of HIV transmission and prevention and stigmatizing as well as discriminatory attitudes hamper the uptake of VCT utilization. This affects the preventive measures of the epidemic. The study conducted in Nigeria on predictors of HIV Stigma in two populations indicated that those with misconception of routes of HIV transmission are less likely to use voluntary counseling and testing services (25). In terms of impact of stigma on the likelihood of accessing the use of voluntary counseling and testing services, the study shows that as the score for negative feelings increases, there is less likelihood that one will use VCT. The same response pattern is observed in the case of coercive policies. However, those respondents with higher scores of avoidant behaviors and attribution of blame are more likely to use VCT services than otherwise.

HIV/AIDS stigma adds to the stress experienced by HIV+ persons (36). In addition, it leads to challenges for HIV prevention efforts. Fear of negative social consequences of a positive HIV test result can deter some persons from getting tested. A study of men and

women in seven cities in the US found that stigma was associated with a decreased likelihood of being tested for HIV (36). People who are HIV+ but haven't been tested and don't know that they are HIV+ are less likely to try to prevent transmitting HIV to others. Some HIV+ persons may fear that disclosing their HIV status or using condoms may bring partner rejection, limit sexual opportunities or increase risk for physical and sexual violence(36). Stigma surrounding HIV, homosexuality, commercial sex work and drug use make it difficult for HIV prevention services to be offered in a variety of settings. While it is widely accepted that HIV prevention should be integrated into a broader health and community context, many community venues such as churches, businesses, jails, prisons and schools have resisted incorporating frank discussions of HIV. HIV/AIDS stigma can also negatively affect the health and well being of HIV+ persons. HIV+ persons may not seek treatment or delay going to doctors due to real or perceived discrimination against them. A national study of HIV+ adults found that 36% reported experiencing discrimination by a health care provider, including 8% who had been refused medical service(36). Some HIV+ persons don't have an adequate support network because they fear that friends or family will abandon them or suffer the same stigma they do.

Another study of Asian and Pacific Islanders (API) living with HIV found high levels of internalized stigma(36). APIs avoided seeking support because they were afraid of disclosure and saw themselves as unworthy of getting support. Experiences of social rejection, disapproval and discrimination related to HIV may decrease the motivation of HIV+ persons to stay healthy.

HIV and AIDS Stigma and Discrimination have proven to be perhaps the most difficult obstacles to effective HIV prevention (37). They simultaneously reduce the effectiveness of efforts to control the global epidemic and create an ideal climate for its further growth. In Uganda, more than half the women and just under half the men surveyed indicated that they would prefer not to disclose their HIV status to a family member.

Our study tried to evaluate HIV/AIDS related misconceptions, stigmatizing and discriminatory attitudes and the effectiveness of the different IEC interventions in improving awareness and reducing HIV related stigma and discrimination among the

high school adolescents. Further more, the study attempted to fill the gaps left untouched by other studies.

1.3 STATEMENT OF THE PROBLEM

Stigma is defined, as an undesirable or discrediting attribute that a person or group possesses that results in the reduction of that person's or group's status in the eyes of society(38). PLWHA have been seen as a 'problem', rather than as a solution to containing and managing the epidemic. This is underpinned by many factors, including lack of understanding of the illness, misconceptions about how HIV is transmitted, lack of access to treatment, irresponsible media reporting on the epidemic, the incurability of AIDS, and prejudice and fears related to a number of socially sensitive issues including sexuality, disease and death, and drug use. A wide range of actors have come together to take up the challenge of confronting the HIV/AIDS crisis head on. However, the biggest

challenge that remains to be overcome is that of HIV/AIDS-related stigma and discrimination. The critical importance of addressing HIV/AIDS-related stigma and discrimination is to curb the further spread and mitigate the devastating impact of the epidemic. Despite concerted efforts to demystify and enhance awareness and understanding, many people still associate HIV/AIDS with moral decadence and promiscuity, ultimately passing moral judgment on those infected. As a result, people living with the virus (PLWHAs) face resentment, isolation, ridicule and are often denied access to their rights and basic services (39). Such attitudes and behaviors do not only infringe on the rights of PLWHAs to respect and dignity, but also act as a strong disincentive for them to make use of any existing services for fear of being 'branded'. These situations prevent a great many of the PLWHA around the world from seeking treatment for, and information about, the disease. Many are even afraid to take an HIV test because of the shame associated with the epidemic. Stigma and discrimination are among the main causes for the limited success achieved during 20 years of prevention and struggle against HIV/AIDS (40). The epidemic continues to grow exponentially, especially in Africa, Asia and Eastern Europe, killing 3 million people around the world every year.

Information Education and Communication (IEC) and Behavioral Change Communication (BCC) are some of the several strategies deigned by the Federal MOH, Ethiopia to improve awareness and reduce HIV/AIDS and its consequences at national level in general and Regions in particular. Various IEC materials have been developed and implemented to improve awareness and reduce HIV/AIDS and related stigma and discrimination. However, there are research gaps regarding the effectiveness of IEC materials to achieve the desired changes (41). The study conducted in Addis Ababa, Ethiopia to assess the perceived sufficiency and usefulness of HIV/AIDS information, education and communication (IEC) messages and materials as well as to identify preferences for IEC sources and methods showed that over three quarters of the respondents believed in the usefulness of IEC (42). IEC materials were perceived to be useful in increasing knowledge about HIV/AIDS, to influence attitude by and to acquire safer sexual practices by the respondents. None of the information sources and messages available for high school students highly satisfied the sufficiency indicators. Even though

no single information source was highly preferred, radio and television ranked top. Life skills training was the most desired intervention by the students.

The findings in this study will complement findings of other studies and fill the gaps not addressed by others since similar studies in adolescent population are lacking especially in our setting. It is hoped that this study will contribute to wider understanding of the more appropriate IEC materials to improve awareness and reduce HIV/AIDS related Stigma and Discrimination and will provide some useful lessons for actors involved in developing strategies to tackle the epidemic. This study was undertaken by considering the following hypothesis: the first one was that misconceptions of HIV/AIDS transmission and prevention prevail among high school adolescents. Secondly, HIV/AIDS related stigma and discriminatory attitudes are rampant among adolescents since various studies show that the problem is manifesting in different forms in the adolescent population. Thirdly, IEC materials can improve awareness of HIV/AIDS transmission, risk reduction measures and reduce HIV/AIDS stigma and discrimination in adolescents.

2. OBJECTIVES OF THE STUDY

2.1 General Objective

To assess the effectiveness of various IEC materials in improving awareness and reducing stigma and discrimination among adolescents in high schools of Awassa Town

2.2 Specific Objectives

1. To examine the causes of HIV/AIDS related stigma and discrimination
2. To identify HIV/AIDS related stigmatizing and discriminatory attitudes in adolescents

3. To describe the outcome of various IEC interventions

3. MATERIALS and METHODS

3.1 Study area and population: The study was conducted in high schools in Awassa Town, South Ethiopia. Awassa is the Capital of the Southern Nations, Nationalities and Peoples Regional State. It is located on the shores of Lake Awassa in the Great Rift Valley. It lies on the Addis Ababa –Nairobi road, with a longitude and latitude of [7°3'N and 38°28'E](#). . The Town is about 275 km away from Addis Ababa. It has 14 administrative ‘Kebeles’ and the total population size based on figures from the [Central Statistical Agency](#) (CSA) of Ethiopia published in 2005, is estimated to be 119,623, comprising of 60,378 males and 59,245 females(43). The Town has three hospitals (one private, one Referral Teaching Hospital owned by Hawassa University and an Army Hospital), two health centers (one governmental and the other non-governmental), one Family Guidance Association clinic, one health post and several private clinics. The total number of high schools is six (three governmental and three non governmental) namely Addis Ketema, Awassa Tabor, Comboni Catholic Missionary,

Adventist, SOS and Alamura senior secondary schools. Out of those, three are preparatory schools namely Awassa Tabor, Comboni Catholic Missionary and SOS Hermann Gmiener Senior Secondary Schools. The total number of students in the six high schools is about 12,000.

3.2 Study period: The study was conducted from 15th of January to 25th of March 2007.

3.3 Study Design: Interventional study was employed on the adolescents of four high schools using four different IEC Interventions, namely interpersonal communication, pamphlets, educational video and a combination of the three interventions.

3.4 Study Population

3.4.1 Source Population: All adolescents in the high schools of Awassa Town and who were in grades 9 and 10 were included.

3.4.2 Study Population: Adolescents who were in grades 9 and 10 in SOS Hermann Gmeiner, Comboni, Awassa Tabor and Alamura high schools who participated in this study.

3.4.2 Sample size determination: The sample size for this study was determined after pre-test study was conducted in students of Yirgalem high school about 45KM South East of Awassa Town for one day. The mean scores and standard deviations of the stigmatizing and discriminatory attitudes of pre and post intervention in the interpersonal communication group of pre-test study were used to compute for the sample size. This group is selected because the reduction in stigmatizing attitude by using this intervention was less inconsistent compared to others from the study conducted in India(22).

$$N = \frac{(Z\beta + Z\alpha)^2 (\sigma_1^2 + \sigma_2^2)}{(\mu_1 - \mu_2)^2} + 10\%$$

Where

N= total sample size

Z β = one sided percentage point of the normal distribution corresponding to 100%-the power, if the power =90% and **Z β** =1.28

Z α = percentage point of the normal distribution corresponding to the (two-sided) Significance level=5% and **Z α** = 1.96

σ_1 and σ_2 =standard deviations of the pre and post intervention of the pre-test study for the group provided interpersonal communication respectively. $\sigma_1=0.49$ and $\sigma_2=0.56$

μ_1 and μ_2 = the mean scores of the stigmatizing attitudes pre and post intervention of the pre-test study for interpersonal communication respectively. $\mu_1=2.833$ and $\mu_2=3.085$

10% = the non-response rate

$$\text{Hence } N = \frac{(1.28+1.96)^2 (0.49^2+0.56^2)}{(2.833-3.085)^2} + 10\% \\ = 91.6+9.16=101$$

Therefore **101** study subjects were included in each intervention. The total number of study participants in the four groups was **404**.

3.4.3. Sampling Procedures: Probability and non-probability sampling methods were used as briefly presented below. The high schools were selected using stratified sampling with probability proportional to size i.e. two governmental and two non-governmental schools were included. Grades 9 and 10 were selected from the four high schools using purposive sampling. Grades 11 and 12 (preparatory class students) were excluded since they were available only in the three high schools of the Town. Sections from grades 9 and 10 were selected again using simple random sampling (50% of the sections for SOS, Alamura and Comboni Catholic Missionary High Schools and 25% for Awassa Senior Secondary School since it had 28 Sections for grade 9 and 24 sections for grade 10). Stratified sampling with probability proportional to size (PPS) was used to select adolescents from both sexes. Systematic sampling was employed to select the study subjects. Equal number of study subjects was allocated per group (per school). The

types of interventions undertaken in each school were also randomly allocated to each high school as follows: interpersonal communication for SOS Hermann Gmeiner, pamphlets for Comboni, Educational video movie for Awassa Tabor and combination of the three interventions for Alamura high schools.

3.4.4 Inclusion and Exclusion Criteria

3.4.4.1 Inclusion Criteria

- ✚ Students in grades 9 and 10 and who were adolescents

3.4.4.2 Exclusion Criteria

- ✚ Students whose ages were beyond 19
- ✚ Students with disability like blindness and hearing defects

3.5 Data Collection procedures

3.5.1 Data collectors- The data collection supervisors for this study were 4 high school teachers and 3 health officers. The health officers provided the interventions and supervised the overall activities of the data collection. The high school teachers organized the intervention sessions and also distributed the pre-intervention, post-intervention and follow-up round questionnaires and collect them after being filled by the students. Training was given for two days for the health officers on how to undertake the interventions and how to supervise the overall activities of the data collection. The high school teachers were also trained for one day on how to organize the intervention sessions and how to distribute and collect the filled questionnaires.

3.5.2 Study Instruments: Self-administered questionnaires consisting of 15 socio-demographic variables, 23 items on misconceptions of HIV transmission and prevention and 23 items focusing on stigmatizing and discriminatory attitudes were distributed to the study subjects to assess HIV/AIDS related stigmatizing and discriminatory attitudes and misconceptions pertaining to the transmission and prevention of HIV/AIDS among the adolescents during the pre-intervention phase. To measure stigmatizing and discriminatory attitudes, Likert scale ranging from 1 to 5 was used. One and two were indicating negative attitudes, 3 indicated neutral response and 4 and 5 indicated positive attitudes. Then, in the intervention phase adolescents in the four different groups were

provided with different IEC materials like interpersonal communication, pamphlets, educational video movie and a combination of the three for the fourth group as interventions. The same self-administered questionnaire was used to assess the immediate effect of the interventions. Follow-up round was conducted after two months post-intervention using the same questionnaire.

3.5.3. Quality control measures: Data collection supervisors and intervention implementers were adequately trained. The provision of interventions and data collection processes was closely monitored by the supervisors and the Principal Investigator. The self-administered questionnaire was translated to Amharic by the Investigator and then back to English by another person and the consistency between the two translations was evaluated. A guideline was prepared to provide interpersonal communication. Pamphlets printed in Amharic and easily understandable by the adolescents were collected. Only Pamphlets focusing on HIV stigma and discrimination and related misconception were used. The video movie was also produced by MOH, Health Education Center for the same purpose and it was adolescent friendly.

3.5.4. Pre-test study: Pre-test study was conducted among the adolescents of Yirgalem high school in Yirgalem Town, about 45KM South East of Awassa Town to maximize the validity and reliability of the study instrument to be used in the study. Moreover, the friendliness of the interventions to the adolescents was evaluated. Forty students from grade 9 and 10 from both sexes were included in the pre-test. Ten students were assigned in each group after four groups were formed. A self administered questionnaire was distributed to the participants. Then, all the four interventions were implemented (one intervention per group). Immediately after intervention, a fresh questionnaire was redistributed to the study participants to evaluate the effectiveness of the interventions. The pre test study was held for one day. Follow up was not done due to time constraint.

3.5.5.Data Collection process: Adolescents in a high school were included in one group and only one IEC intervention was used on the adolescents of each school to

minimize contamination of information. Before introducing the IEC materials, the adolescents were provided with self-administered questionnaires to determine their perception on HIV transmission, prevention, stigmatizing and discriminatory attitudes towards PLWHA. Following this, the effectiveness of each IEC material to improve awareness and reduce HIV/AIDS related stigma and discrimination among the adolescents in the aforementioned high schools were assessed. The IEC materials included in the study were interpersonal communication for the first group (SOS Hermann Gmeiner), Pamphlets for the second group (Comboni), educational video movie for the third group (Awassa Tabor) and the combination of the three interventions for the fourth group (Alamura).

In group 1(Interpersonal Communication), the students were requested to fill the questionnaire after reading it carefully and they were also told to respond independently. Then, the filled questionnaire was collected. Based on a guideline prepared for interpersonal communication, lecture lasting about 15 minutes of informative speech focusing on misconceptions of HIV transmission and prevention with special emphasis on HIV related stigma and Discrimination including human right issues was given in Amharic. Following that, an interactive session in which all the students were encouraged to take part was held. Various questions were raised and responses were given accordingly. The whole session lasted about 1 hour. The session was completed by conducting post intervention evaluation by distributing fresh questionnaires.

In group 2(pamphlets), Pre-interventional evaluation was made. Pamphlets printed in Amharic by MOH, Health Education Center and National HAPCO, AIDS Resource Center were distributed to the students. The students were advised to read the pamphlets very carefully. Then fresh questionnaires were distributed and post intervention assessment was made.

In group 3 (Educational Video Movie), pre-interventional assessment was carried out. Following that, an educational video movie on HIV/AIDS prepared by MOH, Health Education Center in Amharic was watched by the students. The Video lasted 26 minutes. At the end, post intervention evaluation was made by distributing fresh questionnaires.

In group 4(combination of all the three interventions), pre-interventional evaluation was made. All the three interventions were implemented as follows; first a lecture was given, following that pamphlets were distributed. Then, HIV/AIDS educational video movie was watched by the students. An interactive session was held by the students and the intervention implementer. Then, post intervention evaluation was made by distributing fresh questionnaires.

Follow-up round was conducted after two months of post-intervention using the same questionnaire for all the four groups. The aim of the follow-up round was to ascertain how much of the improvements that were seen in the responses of the participants following various types of stigma reducing interventions could be sustained over the period of two months.

3.5.6. Variables: Several literatures on HIV related stigma and discrimination were reviewed for the misconceptions related to transmission and prevention of HIV infection and stigmatizing and discriminatory attitudes. PLWHA and experts on HIV/AIDS were also consulted if the aforementioned problems were prevailing in our settings or not. Then, variables considered important by PLWHA and HIV experts were structured and used as the study instruments.

3.5.6.1. Dependent Variables: The dependent variables indicating HIV/AIDS related stigma and discriminatory attitudes among adolescents in this study were used. Those were:

- Avoidant behavioural intentions towards PLWHA
- Blaming attitude towards PLWHA
- Coercive attitudes towards PLWHA and
- Sympathetic feelings towards PLWHA

3.5.6.2 Independent Variables: The independent variables addressed in this study were socio-demographic variables like age, sex, grade, religion, family income, membership of anti AIDS clubs in the school, marital status, information about HIV/AIDS in the

preceding two weeks, etc and misconceptions about HIV/AIDS transmission and prevention.

3.6 Data processing and Analysis: The data collected was cleaned for completeness and consistencies. Responses in each question were coded for simplicity of data entry. Then, 10% of the data was entered in EPI INFO 2002 version and checked for the appropriateness of data entry. Data entry was carried out using the EPI INFO 2002 version package and then exported to SPSS version 13 package for analysis. Descriptive statistics were used to determine the frequency of different variables. Analytical statistics like ANOVA (F-test) and multivariate analysis like multiple logistic regression model were applied. Results were displayed using tables and graphs. Results were interpreted as significant at a p-value of <0.05 and OR 95% CI.

3.7 OPERATIONAL DEFINITIONS

- **Avoidant behavioural intentions:** referred to avoiding of infected family members, colleagues/friends and other people.
- **Blaming attitude:** labeling infected people as “they got what they deserve.”
- **Coercive attitudes:** referred to legal separation of HIV infected people making names of affected people public and enforce high risk people to get tested.
- **Comprehensive Knowledge:** 1.knowing that both condom use and limiting sex partners to one uninfected partner are HIV preventive methods. 2. being aware that a healthy looking person can have HIV and 3. Rejecting the two most common misconceptions like HIV/AIDS can be transmitted through mosquito bites and sharing food
- **IEC interventions:** referred to interpersonal communication, pamphlets educational video used in this study for improving awareness and reducing HIV related stigma.
- **Misconception:** at least one wrong belief about the transmission and prevention of HIV/AIDS.
- **Negative Sympathetic feelings:** having negative feelings in caring for PLWHA and not showing compassion to PLWHA.

3.8 Ethical Consideration: Ethical clearance was obtained from AAU, Medical Faculty. Letters were written to the high schools and other concerned bodies to obtain permission and cooperation for data collection and IEC interventions. Students were briefed about the confidentiality of their responses and the importance of providing the right information to help increase the validity of the study. Informed verbal consent was taken from the study subjects to participate in the study. The IEC interventions provided were adolescent friendly and culturally acceptable.

3.9 Dissemination of Results The finding of this study will be disseminated to the High Schools of the study area, AAU Medical Faculty and to all concerned bodies who utilize the findings in one way or another as deemed necessary. It will also be published in Ethiopian Journal of Health development and other Journals accordingly after being reviewed.

4. Results

4.1 Sample characteristics

A total of 404 students (101 students in each School) were recruited for the study, but only 373 students from four high schools were enrolled in the study (Table 1). The response rate was 92.3%. The rate was different from intervention to intervention and from school to school as follows: Interpersonal communication 95(94.1%), Pamphlets 91(90.1%), Educational video movie 91 (90.1%) and the combination of the three interventions 96(95.1%) students from SOS, Comboni, AwassaTabor and Alamura high schools respectively.

4.2. Socio-demographic characteristics

The mean age of the study participants was 15.86 \pm 1.2 years. Most of the study participants 277(74.3%) were from urban areas (Table 1). Three hundred thirty (88.5%) were between the ages of 15 and 19. Majority, 221(59.2%) were male respondents. Two hundred one (53.9%) were grade 9 students. Regarding the marital status, 371(99.5%)

were single. In 183 (49.1%), the family monthly income was more than 1500 Birr (81.1% and 68.1% of these were from SOS and Comboni high schools respectively) followed by 500-1500 Birr in 131(35.1%) of the study participants (56% for Awassa Tabor and 46.9% for Alamura). The predominant religions of the study participants were Orthodox and Protestant Christianity 169(45.3%) 159(42.6%) respectively. Sidama was the predominant Ethnicity of the study participants in 140 (37.5%) followed by Amhara 88(26.3%). The fathers' educational status of the study participants was tertiary in 178(47.7%) (Majority of these are for SOS and Comboni) followed by secondary education in 70(18.8%) of the study participants. The educational status of the mothers of most of the study participants was secondary education in 105(28.2%) of cases followed by tertiary in 88(23.6%). There were anti AIDS clubs in all the four high schools and only 67(18%) of the study participants were members of the clubs. Radio and Television were owned by 342(91.7%) and 258(69.2%) of the parents of the study participants. Only 70(18.8%) of the study participants attended sessions on HIV/AIDS in the preceding two weeks of the study time.

Table 1 Socio-demographic Characteristics of the study participants in the high schools of Awassa Town, January to March 2007

Characteristics	Number	Percentage
Intervention type/School		
Interpersonal communication (SOS)	95	25.5
Pamphlets (Comboni)	91	24.4
Educational Video(Awassa Tabor)	91	24.4
Combined intervention (Alamura)	96	25.7
Residence		
Urban	277	74.3
Rural	96	25.7
Age		
<15	43	11.5
15-19	330	88.5
Sex		
Male	221	59.2
Female	152	40.8
Grade		
9	201	53.9
10	172	46.1
Marital status		
Single	371	99.5
Married	2	0.5

Family monthly income			
	<500	52	13.9
	500-1500	131	35.1
	>1500	183	49.1
Religion			
	Orthodox	169	45.3
	Protestant	159	42.6
	Muslim	15	4
	Catholic	22	5.9
	Others	8	2.1
Ethnicity			
	Sidama	140	37.5
	Wolaita	27	7.2
	Amhara	88	23.6
	Oromo	48	12.9
	Guraghe	29	7.8
	Others	41	10.9
Father's Educational status			
	Illiterate	35	9.4
	Read and write	49	13.1
	Elementary	41	11
	Secondary	70	18.8
	Tertiary	178	47.7
Mothers Educational status			
	Illiterate	68	18.2
	Read and write	58	15.5
	Elementary	54	14.5
	Secondary	105	28.2
	Tertiary	88	23.6
Presence of Anti AIDS club			
	Yes	4	100
	No	0	0
Membership of anti AIDS club			
	Yes	67	18
	No	306	82
Radio ownership by family			
	Yes	342	91.7
	No	31	8.3
Television ownership by family			
	Yes	258	69.2
	No	115	30.8
HIV information in the preceding two weeks			
	Yes	70	18.8
	No	303	81.2

4.3. Misconceptions on HIV Transmission and prevention versus the effectiveness of each intervention in improving awareness

Twenty one items were included in the questionnaire to assess issues regarding the level of awareness, transmission, prevention and misconceptions concerning HIV/AIDS (Table 2).

Among the study participants, 98.9% of the Interpersonal communication group, 97.8% of the pamphlets group, 80.2% of the educational video group and 85.4% of the combined intervention group reported that HIV cannot be transmitted by witchcraft during the pre intervention phase. These values rose to 100%, 98.9%, 100% and 96.9% respectively during the post intervention phase. Follow up assessment was conducted after two months and the values were found to be 98.9%, 100%, 97.8% and 95.9% respectively. The change in awareness level in interpersonal communication, pamphlets, Educational video and combined intervention was 0%, 2.2%, 17.6% and 10.5% respectively.

Of all the study participants 96.8% of Interpersonal communication, 98.9% of Pamphlets, 86.8% of educational video movie and 92.7% of the combined intervention stated that HIV cannot be transmitted by coughing or sneezing during the pre intervention phase. In the post intervention phase, these values rose to 100%, 100%, 95.6% and 97.9% respectively. The values for each intervention were found to be 98.9%, 100%, 98.9% and 97.9% after two months of follow up. The improvement in awareness was found to be 2.1% for Interpersonal communication 1.1% for Pamphlets, 12.1% for Educational Video movie and 5.2% in the combined intervention group.

As far as eating together with PLWHA and HIV transmission was concerned, 98.9% of Interpersonal communication group, 92.3% of Pamphlets group, 92.3% of Educational Video group and 93.8% in the combined intervention group of the study participants in the pre intervention phase mentioned that HIV can't be transmitted by eating together with PLWHA in the same plate. Those values rose to 98.9% in interpersonal communication, 98.9% in Pamphlets, 98.9% in Educational video movie and 99% in the combined group in the post intervention phase. In the follow up phase, the values for the

above groups were found to be 98.9 %, 98.9%, 98.9% and 100% respectively. The improvement in awareness was found to be 0% for Interpersonal communication 6.6% for Pamphlets, 6.6% for Educational Video movie and 6.2% in the combined intervention group.

Of all the study participants, 95.8% of Interpersonal communication, 90.1% of Pamphlets, 82.4% of educational movie and 81.3% of combined intervention of the study participants in the pre intervention phase reported that HIV can't be transmitted by insect bite. These values rose to 98.9% in Interpersonal communication, 96.7% in pamphlets, 100% in Educational video movie and 99% in combined intervention of the post intervention phase. The follow up findings in each intervention were 97.9%, 98.9%, 98.9% and 93.8% respectively. The improvement in awareness was found to be 2.1% for Interpersonal communication 8.8% for Pamphlets, 16.5% for Educational Video movie and 12.5% in the combined intervention group.

Regarding the modes of transmission like MTCT and blood transfusion, the awareness level was 98.9% in both cases in the interpersonal communication group, 97.8%-98.9% in Pamphlets, 91.2-96.7% in the Educational Video movie and 93.8-95.8% in combined intervention in the pre intervention phase. These values increased to 100%, 100%, 98.9 and 100% respectively in the post intervention phase. When those populations were assessed after 2 months of follow up period the values were found to be 100%, 100%, 98.9% and 99 and 100% respectively. Therefore, the improvement was 1.1% in Interpersonal communication group, 2.2% in Pamphlets group, 2.1-7.7% in Educational Video Movie and 3.2-6.2% in the combined intervention.

Of all the study participants 95.8% of Interpersonal communication group, 97.8% of pamphlets group, 81.3% of Educational video group and 92.7% of combined intervention group in the pre intervention phase reported that HIV cannot be transmitted by sharing toilet with PLWHA. In the post intervention phase, the values in each intervention group rose to 100%, 98.9%, 98.9% and 100% respectively. In the follow up phase, the values for each group were found to be 98.9%, 100%, 100% and 99% respectively. The change

in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 3.1%, 2.2 %, 18.7% and 6.3% respectively.

Out of all participants, 85.3% of Interpersonal communication group, 87.9% of pamphlets, 78% of educational video and 90.6% of the combined intervention during the pre intervention phase responded that HIV can't be transmitted by sharing swimming pool with PLWHA. In the post intervention phase, the values in each intervention group rose to 98.9%, 94.5%, 94.5% and 99% respectively. In the follow up phase, the values in each intervention group were found to be 98.9%, 93.4%, 95.6% and 99%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was found to be 13.6%, 6.5%, 17.6% and 8.4% respectively.

Among the study participants, 89.5% of interpersonal communication group, 91.2% of pamphlets, 87.9% of educational video movie and 83.3% of the combined intervention during the pre intervention phase stated that HIV can't be transmitted by sharing house hold utensils with PLWHA. In the post intervention phase, the values in each intervention group rose to 100%, 97.8%, 98.9% and 100% respectively. In the follow up phase, the values in each intervention group were found to be 96.8%, 96.7%, 97.8% and 99%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was found to be 7.3%, 5.5%, 9.9% and 15.7% respectively.

Among the participants, 94.7 % of interpersonal communication group, 87.9% of pamphlets group, 50.5% of the educational video movie and 47.7% of the combined intervention group in the pre intervention group mentioned that HIV cannot be transmitted by eating raw egg/meat of a chicken swallowed on used condom. In the post intervention phase, the values in each intervention group rose to 100%, 98.9%, 95.6% and 97.9% respectively. In the follow up phase, the values in each intervention group were found to be 100%, 92.3%, 81.3% and 97.9%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 5.3%, 4.4%, 30.8%, 50.2% respectively.

Of the study participants, 90.5% of interpersonal communication group, 89% of pamphlets group, 74.7% of educational video and 86.5% of the combined intervention in the pre intervention phase responded that HIV can't be transmitted by eating raw meat or food prepared by PLWHA. In the post intervention phase, the values in each intervention group rose to 97.9%, 95.6%, 92.3% and 97.9% respectively. In the follow up phase, the values in each intervention group was 95.9%, 94.5%, 90.1% and 94.8%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 5.4%, 5.5%, 15.4% and 8.3% respectively.

Regarding sharing beddings and clothes with PLWHA, 97.9% of interpersonal communication group, 92.3% of pamphlets, 85.7% of educational video movie and 95.8% of the combined intervention in the pre intervention phase said that HIV can't be transmitted by sharing beddings and other clothes with PLWHA. In the post intervention phase, the values in each intervention group rose to 100%, 98.9%, 98.9% and 100% respectively. In the follow up phase, the values in each intervention group were 100%, 96.7%, 97.8% and 100%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 2.1%, 4.4%, 12.1% and 4.2% respectively.

In 68.4% of interpersonal communication group, 79.1% of pamphlets group, 70.3% of educational video group and 71.9 % of the combined intervention group in the pre intervention phase reported that lubricant in Condom can't be the source of HIV infection. In the post intervention phase, the values in each intervention group rose to 96.8%, 95.6%, 100% and 100% respectively. In the follow up phase, the values in each intervention group was 95.8%, 92.3%, 98.9% and 97.9% respectively. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 28.4%, 13.2%, 28.6% and 26% respectively.

In 70.5% of interpersonal communication group, 68.1% of pamphlets, 36.3% of educational video movie group and 39.6% of the combined intervention group in the pre

intervention phase mentioned that HIV infection is not due to Gods' punishment. In the post intervention phase, the values in each intervention group rose to 90.5, 78%, 56% and 95.9% respectively. In the follow up phase, the values in each intervention group were 84.2%, 83.5%, 51.6% and 84.4% respectively. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 13.7%, 15.4%, 15.3% and 44.8% respectively.

In 87.4% of interpersonal communication group, 80.2% of pamphlets, 83.5% of educational video movie group and 78.1% of the combined intervention group in the pre intervention phase mentioned that healthy looking person can have HIV infection in his/her blood. In the post intervention phase, the values in each intervention group rose to 92.6%, 92.3%, 98.9% and 100% respectively. In the follow up phase, the values in each intervention group was 93.7%, 95.6%, 98.9% and 90.6% respectively. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 6.3%, 15.4%, 15.4% and 12.5% respectively

Of the study participants, 92.6% of interpersonal communication group, 87.9% of pamphlets group, 64.8% of educational video and 80.2% of the combined intervention in the pre intervention phase responded that PLWHA are not necessarily people who had multiple sexual partners. In the post intervention phase, the values in each intervention group rose to 98.9%, 91.2%, 94.5% and 96.9% respectively. In the follow up phase, the values in each intervention group were 93.7%, 90.1%, 92.3% and 94.8%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 1.1%, 2.2%, 27.5% and 14.6% respectively.

As far as responsibility for HIV transmission was concerned, 64.2% of interpersonal communication group, 78% of pamphlets group, 85.7% of educational video and 83.3% of the combined intervention of the study participants in the pre intervention phase mentioned that there is no particular segment of the population responsible for HIV infection. In the post intervention phase, the values in each intervention group rose to

97.9%, 95.6%, 92.3% and 97.9% respectively. In the follow up phase, the values in each intervention group was 95.9%, 94.5%, 90.1% and 94.8%. The improvement in awareness after interpersonal communication, pamphlets, educational video movie and the combination of the three was 5.4%, 5.5%, 15.4% and 8.3% respectively. Among the participants 12.1-32.6% of those in the pre intervention phase, 5.2-25.3% of the post intervention phase and 4.1-25.3% in the follow up phase reported that there are particular segment of the population responsible for HIV infection. The responsible people for the transmission of HIV/AIDS as mentioned by the study participants were educated people, family, CSWs, Youth, the government, irresponsible people and PLWHA.(Figure 1). But the number of students who reported that there are responsible people for the transmission of HIV decreased in the post intervention and follow up phases.

Regarding the preventive measures like persistent condom use and having only one uninfected sexual partner, the awareness level was 78.9 - 82.1% in Interpersonal communication group, 79.1-89% in Pamphlets, 84.6-91.2% in the Educational Video movie and 85.4-92.7% in combined intervention in the pre intervention phase. These values increased to 95.8% and 89.5%, 97.6% and 95.6, 97.8-98.9% and 99% in both cases respectively in the post intervention phase. When those populations were assessed after 2 months of follow up period, the values were found to be 91.6% and 87.4%, 96.7% and 95.6%, 98.9% and 97.8% and 95.8-99% respectively. Therefore the improvement was 5.3-12.7% in Interpersonal communication group, 6.6-17.6% in Pamphlets group, 6.6-14.3% in Educational Video Movie and 6.3-10.4% in the combined intervention.

Regarding misconceptions on preventive measures like drinking hard liquor and practicing sex with virgins , the awareness level against the misconception was 98.9% for both items in Interpersonal communication group, 96.7-100% in Pamphlets, 87.9-91.2% in the Educational Video movie and 90.6% and 87.5% in combined intervention in the pre intervention phase. These values increased to 100% and 98.9%, 100% for the two items, 97.8-98.9% and 97.9% in both items respectively in the post intervention phase. When these populations were assessed after 2 months of follow up period the values were found to be 100% and 98.9%, 97.8-100%, 97.8-98.9%, 100 and 97.9%. Therefore the

improvement in awareness after 2 months ranged from 0-1.1% in Interpersonal communication group, 0-1.1% in Pamphlets group, 7.7-9.9% in Educational Video Movie and 7.1-10.4% in the combined intervention.

Table 2: Misconceptions on HIV/AIDS Transmission and prevention among the study participants of high schools of Awassa Town January to March 2007

HIV transmission/ Prevention by	SOS (Interpersonal Communication)			Comboni (Pamphlets)			Awassa Tabor (Video)			Alamura (Combined)		
	pretest	posttest	f/up	pretest	posttest	f/up	pretest	posttest	f/up	pretest	posttest	f/up
Witchcraft	98.9	100	98.9	97.8	98.9	100	80.2	100	97.8	85.4	96.9	95.9
Coughing/Sneezing	96.8	100	98.9	98.9	100	100	86.8	95.6	98.9	92.7	97.9	97.9
Eating meal with PLWHA	98.9	98.9	98.9	92.3	98.9	98.9	92.3	98.9	98.9	93.8	99	100
Insect bite	95.8	98.9	97.9	90.1	96.7	98.9	82.4	100	98.9	81.3	99	93.8
MTCT	98.9	100	100	97.8	100	100	91.2	100	98.9	93.8	100	100
Blood transfusion	98.9	100	100	98.9	100	100	96.7	98.9	98.9	95.8	100	99
sharing Public Toilets	95.8	100	98.9	97.8	98.9	100	81.3	98.9	100	92.7	100	99
Sharing Swimming pool	85.3	98.9	98.9	87.9	94.5	93.4	78	94.5	95.6	90.6	99	99
Sharing Utensils with PLWHA	89.5	100	96.8	91.2	97.8	96.7	87.9	98.9	97.8	83.3	100	99
Eating Raw Egg/meat of chicken	94.7	100	100	87.9	98.9	92.3	50.5	95.6	81.3	47.7	97.9	97.9
Raw meat prepared by PLWHA	90.5	97.9	95.9	89	95.6	94.5	74.7	92.3	90.1	86.5	97.9	94.8
Share clothes/beddings	97.9	100	100	92.3	98.9	96.7	85.7	98.9	97.8	95.8	100	100
Lubricants in Condom	68.4	96.8	95.8	79.1	95.6	92.3	70.3	100	98.9	71.9	100	97.9
Gods' punishment	70.5	90.5	84.2	68.1	78	83.5	36.3	56	51.6	39.6	95.8	84.4
Healthy looking person can have HIV	87.4	92.6	93.7	80.2	92.3	95.6	83.5	98.9	98.9	78.1	100	90.6
PLWHA had multiple partner	92.6	98.9	93.7	87.9	91.2	90.1	64.8	94.5	92.3	80.2	96.9	94.8
Presence of Responsible community for HIV	64.2	71.6	70.5	78	81.3	79	85.7	94.5	93.4	83.3	94.8	94.8
Persistent Condom use	78.9	95.8	91.6	79.1	97.6	96.7	84.6	97.8	98.9	85.4	99	95.8
Only one uninfected partner	82.1	89.5	87.4	89	95.6	95.6	91.2	98.9	97.8	92.7	99	99
Hard liquor prevents HIV	98.9	100	100	96.7	100	97.8	87.9	97.8	97.8	90.6	97.9	100
Sex with virgin girls prevents HIV	98.9	98.9	98.9	100	100	100	91.2	98.9	98.9	87.5	97.9	97.9

Values in the Table represent percentages

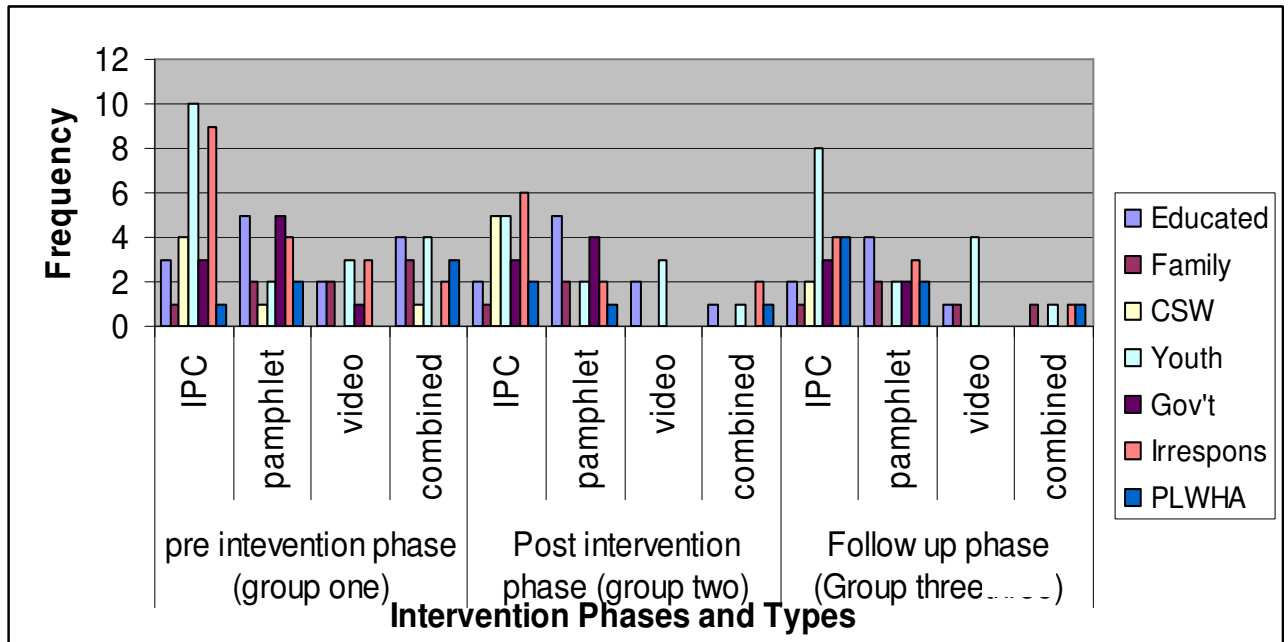


Fig.1 Community Group responsible for HIV transmission as mentioned by study participants in the high schools of Awassa Town, January to March 2007

4.4. Stigmatizing and Discriminatory attitudes of the study participants

versus the effect of each intervention

4.4.1 Avoidant Behavioral Intentions

The items employed in the study to describe this component were reaction of the participants like avoid/not willing to go PLWHA barbers/beautician, purchasing from PLWHA shop owner, eating food prepared by food handlers, eating meal with PLWHA, learning/working with PLWHA, physical contact with PLWHA and learning with student from PLWHA family.

With regard to avoidant behavioral intention, it was found that the stigmatizing attitudes ranged from 4.2-36.8% in Interpersonal communication group, 15.4-40.7% in Pamphlets, 25.3-39.6% in the Educational Video movie and 23-35.4% in combined intervention in the pre intervention phase (Table 3). Those values of stigmatizing/discriminatory attitudes reduced to 0-7.4%, 7.7-20.9%, 3.3-15.4% and 2.1-11.5% in each intervention group respectively in the post intervention phase. When the study subjects were evaluated

after 2 months of follow up period the values of the stigmatizing attitudes were found to be 3.2-20%, 5.5-23.1%, 5.5-14.3% and 1-12.5% respectively. The reduction in avoidant behavioral intention was 0-25.2% in interpersonal communication group, 9-17.6% in Pamphlets group, 14.3-29.7% in educational Video and 21.9-27.1% in the combined intervention.

4.4.2 Blaming Attitudes

In this section, the study participants were evaluated if they felt that sero positive individuals had rightly acquired what they deserved as a result of their high risk behavior; and whether they felt that the sero positive people didn't care if they infect others with HIV (Table 3). The blaming attitude ranged from 20-34.8% in interpersonal communication group, 22-40.7% in Pamphlets, 35.2-37.4% in the Educational Video movie and 33.3% and 32.3% in combined intervention in the pre intervention phase. These values of blaming attitudes reduced to 11.6-16.9%, 20.9-27.5%, 23.1-25.3% and 5.2-12.5% in each intervention respectively in the post intervention phase. When the study subjects were evaluated after 2 months of follow up period the values of those attitudes were found to be 12.6-16.9%, 22-33%, 37.4% and 34.1% and 19.8-26.7% respectively. The reduction in blaming attitudes was 7.4-17.9% in Interpersonal communication group, 0-7.7% in Pamphlets group, 0-1.1% in Educational Video Movie and 5.6-19.8% in the combined intervention.

4.4.3 Coercive attitudes

The study participants were asked for possible coercive attitudes using items like legal separation and restricting of sero positive individuals from teaching, employment, use of medical facilities, working as health professionals, participating in public occasion, getting social service, working in schools, access to insurance services, visiting/working in Ethiopia (especially for foreigners), enforcement to publicize one's sero status, enforcement to be tested especially high risk groups, and quarantine of sero positive individuals (Table3). Hence, it was learnt that the coercive attitudes ranged from 0-65.2% in interpersonal communication group, 3.3-57.2% in Pamphlets, 18.7-60.5% in the Educational Video movie and 13.6-46.9% in combined intervention in the pre intervention phase. The values of coercive attitudes reduced to 0-21.1%, 0-36.3%, 3.3-

47.3% and 1-29.2% in each intervention respectively in the post intervention phase. When the study subjects were evaluated after 2 months of follow up period the values of the this attitude were found to be 0-54.8%, 1.1-57.2%, 4.4-50.6% and 0-35.4% respectively. The reduction in coercive attitudes was 0-18.9% in Interpersonal communication group, 0-5.5% in Pamphlets group, 10-24.2% in Educational Video Movie and 7.3-37.6% in the combined intervention.

4.4.4. Sympathetic Feelings

In this part, study participants were assessed whether or not they had sympathetic feelings for any PLWHA in the community and for a sero positive family member (Table 3). It is shown that the negative sympathetic feelings ranged from 10.5-13.7% in interpersonal communication group, 22-27.5% in Pamphlets, 39.6-44% in the Educational Video movie and 33.4% and 26% in combined intervention in the pre intervention phase. The values of negative sympathetic feelings reduced to 6.4-7.4%, 9.9-13.2%, 3.3-5.5% and 1% for both items in each intervention respectively in the post intervention phase. When the study subjects were evaluated after 2 months of follow up period the values of the this attitude were found to be 7.4-9.5%, 15.4-20.9%, 9.9-12.1% and 2.1-4.4% respectively. The reduction in negative sympathetic feelings was 1-6.3% in Interpersonal communication group, 6.6% for both items in Pamphlets group, 27.5-34.1% in Educational Video Movie and 21.6-31.3% in the combined intervention.

Table 3: Stigmatizing and Discriminatory attitudes among the study participants in the high schools of Awassa Town, January to March 2007

Characteristics	Interpersonal communication(SOS)			Pamphlets (Comboni)			Video(Awassa Tabor)			Combined(Alamura)		
	pretest	posttest	f/up	pretest	posttest	f/up	pretest	posttest	f/up	pretest	posttest	f/up
Avoid going to Barber/Beautician	29.5	7.4	20	40.7	20.9	23.1	35.2	14.3	13.2	35.4	11.5	12.5
Avoid going to Shop owner	23.2	3.2	9.5	34.1	17.6	17.6	37.4	9.9	11	32.3	7.3	9.4
Avoid PLWHA Food handler	36.8	6.4	11.6	33	15.4	17.6	29.7	15.4	9.9	23	4.2	1
Avoid PLWHA Physical contact	14.8	0	4.3	28.6	11	11	25.3	3.3	5.5	31.3	2.1	4.2
Avoid Eating with PLWHA	7.4	1.1	7.4	24.4	13.2	15.4	28.6	8.8	14.3	31.3	2.1	4.2
Avoid Learn/work with PLWHA	5.3	0	3.2	17.7	9.9	6.6	39.6	7.7	14.3	29.2	6.2	6.2
Avoid Student from PLWHA family	4.2	0	3.2	15.4	7.7	5.5	37.4	12.1	7.7	25	5.2	3.1
PLWHA deserve HIV/AIDS	20	11.6	12.6	22	20.9	22	37.4	23.1	37.4	33.3	5.2	19.8
PLWHA don't care for others	34.8	16.9	16.9	40.7	27.5	33	35.2	25.3	34.1	32.3	12.5	26.7
PLWHA teacher shouldn't teach	0	0	0	3.3	0	3.3	25.3	3.3	4.4	17.7	2	5.2
Employers should not employ PLWHA	4.2	1.1	4.2	6.6	4.4	1.1	20.9	6.6	8.8	16.7	1.1	9.4
PLWHA use of medical facilities	1.1	1.1	1.1	3.3	2.2	2.2	23.2	2.2	4.4	15.6	5.2	5.2
PLWHA medical staffs prohibited	7.4	2.1	6.6	9.9	7.7	6.6	28.6	3.3	4.4	24	2.1	5.2
PLWHA should not participate in public occasion	3.2	3.2	1.1	4.4	1.1	3.3	18.7	7.7	4.4	19.8	6.3	5.2
Prohibit PLWHA social service	3.2	1.1	1.1	13.2	4.4	7.7	25.3	9.9	11	19.8	8.4	4.1
Prohibit PLWHA school staffs	1.1	0	1.1	3.3	2.2	3.3	19.8	3.3	4.4	13.6	2	3.1
Prohibit PLWHA foreigners	65.2	21.1	54.8	57.2	36.3	57.2	60.5	47.3	50.6	46.9	29.2	35.4
PLWHA should publicize their sero status	27.4	8.5	17.9	22	17.6	20.9	41.8	19.8	25.3	43.8	7.3	11.5
PLWHA should be denied insurance services	6.4	1.1	7.4	9.9	7.7	4.4	27.5	13.2	7.7	19.8	6.2	0
PLWHA should be quarantined	8.5	2.1	6.4	9.9	4.4	5.5	36.3	13.2	14.3	19.8	4.2	4.2
High risk groups must be tested	35.8	7.4	16.9	25.3	15.4	23.1	50.6	21.1	30.8	43.8	6.2	6.2
Deny PLWHA care	10.5	7.4	9.5	27.5	9.9	20.9	44	5.5	9.9	33.4	1	2.1
Deny PLWHA family member care	13.7	6.4	7.4	22	13.2	15.4	39.6	3.3	12.1	26	1	4.4

Values in the Table represent percentages.

4.5 Determinants of Stigmatizing and Discriminatory Attitudes among the study participants

4.5.1 Stigmatizing and Discriminatory Attitudes and Socio demographic factors

The First stigmatizing and discriminatory attitude analyzed against socio demographic variables was avoidant behavioural intentions (Table 4). Study participants in the age group < 15 years were 2.22 times more likely to avoid learning/working with PLWHA than the age group 15-19 years (OR =2.22, 95%CI 1.01-4.91). Grade 9 study participants were 2.2 times more likely to avoid learning/working with PLWHA than their counterparts in grade 10(OR=2.2, 95%CI 1.2-3.9). Regarding religion, Orthodox and Catholic participants respectively were 64% and 71% less likely to avoid learning/working with PLWHA than their Protestant counter parts. Participants who were members of Anti HIV/AIDS clubs in their respective schools were 68% less likely to avoid learning/working with PLWHA than those who were not members of the clubs. Among students who had information on HIV/AIDS in the preceding two weeks of the study time there was 71% reduction in avoiding learning/working with PLWHA than those students who did not have information at the same time. The other socio demographic variables did not have statistically significant association with avoid learning/working with PLWHA (p-value >0.05).

Table 4: Avoidant Behavioral Intentions Versus socio demographic Characteristics among the Study participants in high schools of Awassa, Town January to March 2007.

Variables	Avoid Leaning/Working With PLWHA		OR(95% CI)	p-value	
	Yes	No			
Age	<15	19	24	2.22(1.01-4.91)	.048*
	15-19	77	253		
Sex	Male	61	160	1	.813
	Female	35	117	0.93(0.51-1.66)	
Grade	9	64	137	2.2(1.20-3.92)	.010**
	10	32	140	1	
Family income	<500	25	27	1.34(0.67-2.68)	.342
	500-1500	44	94	2.03(0.75-5.46)	
	>1500	27	156	1	
Religion	Protestant	62	97	1	.002**
	Orthodox	24	145	0.36(0.19-0.68)	
	Muslim	2	13	0.23(0.05-1.18)	
	Catholic	6	16	0.29(0.09-0.92)	
	Others	2	6	0.21(0.04-1.17)	
Residence	Urban	53	224	1	.996
	Rural	43	53	0.99(0.37-2.70)	
Fathers Educational status	Illiterate	16	19	1.13(0.48-2.67)	.788
	Read and write	18	31	0.61(0.20-1.87)	
	Elementary	12	29	1.06(0.37-3.10)	
	Secondary	18	52	1.31(0.34-4.96)	
	Tertiary	32	146	1	
Mothers Educational status	Illiterate	26	42	2.92(0.94-9.09)	.064
	Read and write	23	35	1.73(0.68-4.40)	
	Elementary	15	39	1.94(0.57-6.67)	
	Secondary	23	82	1.16(0.29-4.56)	
	Tertiary	9	79	1	
Membership of anti AIDS club	Yes	10	57	0.32(0.14-0.76)	.009**
	No	86	220	1	
Television ownership by family	Yes	44	214	1	.065
	No	52	63	2.43(0.95-6.25)	
HIV information in the preceding two weeks	Yes	7	63	0.39(0.16-0.97)	.042*
	No	89	214	1	

*= p-value<0.05 ** =p-value<0.01

The second stigmatizing and discriminatory attitude analyzed against socio demographic variables was blaming attitude i.e. PLWHA have got what they deserved (Table 5). It is presented in that the female study participants were 38% less likely to blame PLWHA than their male counter parts. There was 45% reduction in blaming attitude among the Orthodox study participants compared to Protestant followers. There was also 51% reduction in blaming attitude among the study participants who were members of anti AIDS clubs in their respective schools compared to those who were not members of those clubs. Family monthly income, residence, fathers' educational status and television ownership did not have statistically significant association with Blaming attitude (p-value>0.05).

Table 5: Blaming attitudes versus selected socio demographic variables among the study participants in high schools of Awassa Town, January to March 2007.

Variables	PLWHA have got what they deserved		OR(95% CI)	P-Value	
	Yes	No			
Sex	Male	101	120	1	.050*
	Female	45	107	0.62 (0.39-0.99)	
Family income	<500	28	24	1.02(0.59-1.77)	.947
	500-1500	57	81	0.95(0.40-2.27)	.907
	>1500	61	122	1	
Religion	Protestant	80	79	1	
	Orthodox	50	119	0.55(0.33-0.92)	.023*
	Muslim	3	12	0.24(0.06-1.01)	.051
	Catholic	10	12	0.66(0.24-1.77)	.406
Residence	Others	3	5	0.52(0.11-2.45)	.404
	Urban	90	187	1	
Fathers Educational status	Rural	56	40	1.94(0.77-4.89)	.163
	Illiterate	24	11	0.57(0.29-1.14)	.113
	Read and write	19	30	1.85(0.80-4.28)	.153
	Elementary	24	17	0.74(0.32-1.68)	.467
	Secondary	18	52	2.34(0.82-6.69)	.114
Membership of anti AIDS club	Tertiary	61	117	1	
	Yes	19	48	0.49(0.26-0.93)	.029*
Television ownership by family	No	127	179	1	
	Yes	84	174	1	
	No	62	53	1.04(0.43-2.55)	.924

*= p - value <0.05

The third stigmatizing and discriminatory attitude analyzed against socio demographic variables was coercive attitude i.e. HIV + teacher should be prohibited from teaching (Table 6). The only variable having statistically significant association with the coercive attitude was family monthly income of 500-1500 Ethiopian Birr. Study participants whose family income was in this category were found to have the coercive attitude 3.59 times more likely than those participants whose family monthly income was more than 1500 Ethiopian Birr (OR= 3.59, 95% CI 1.01-12.78). The other independent variables were not statistically significant with the coercive attitude (p-value>0.05).

Table 6: Coercive attitudes versus selected socio demographic variables among the Study participants in high schools of Awassa Town, January to March 2007.

Variables	HIV + Teacher should be prohibited	OR(95% CI)	P-Value
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		Yes	No		
Family income	<500	21	31	2.50(0.83-7.53)	0.103
	500-1500	25	113	3.59(1.01-12.78)	0.048*
	>1500	6	177	1	
Religion	Protestant	29	130	1	
	Orthodox	10	159	0.84(0.33-2.11)	.705
	Muslim	3	12	0.93(0.19-4.59)	.930
	Catholic	8	14	2.37(0.76-7.39)	.136
	Others	2	6	1.13(0.18-7.12)	.894
Residence	Urban	20	257	0.42(0.14-1.25)	.120
	Rural	32	64	1	
Fathers' Educational status	Illiterate	12	23	2.22(0.57-8.70)	.254
	Read and write	13	36	3.27(0.74-14.54)	.119
	Elementary	11	30	2.96(0.67-13.03)	.151
	Secondary	10	60	2.30(0.43-12.41)	.332
	Tertiary	6	172	1	
Mothers' Educational status	Illiterate	23	45	0.52(0.08-3.44)	.499
	Read and write	10	48	0.46(0.08-2.67)	.389
	Elementary	10	44	0.60(0.09-4.14)	.602
	Secondary	6	99	0.66(0.09-4.87)	.687
	Tertiary	3	85	1	
Radio ownership by family	Yes	41	301	1	
	No	11	20	1.43(0.53-3.92)	.482
Television ownership by family	Yes	11	247	1	
	No	41	74	7.12(2.22-22.81)	.001**
HIV information in the preceding two weeks	Yes	1	69	0.14(0.02-1.13)	.065
	No	51	252	1	

*= p-value<0.05

**= p-value<0.01

Lastly, determinants of not having sympathetic feelings towards PLWHA were evaluated (Table7). Study participants whose mothers' educational status is read and write were 2.05 times more likely not willing to care for PLWHA than participants whose mothers' educational status was tertiary level (OR=2.05, CI 1.04-4.05).

Table 7 Sympathetic feelings versus selected socio demographic variables among the study participants in high schools of Awassa Town, January to March 2007.

Variables		Not Willing to care for any PLWHA		OR(95% CI)	P-Value
		Yes	No		
Grade	9	78	123	1.53(0.97-2.42)	.066
	10	49	123	1	

Family income	<500	25	27	1.50(0.80-2.62)	.158
	500-1500	55	83	2.10(0.92-4.79)	.076
	>1500	47	136	1	
Residence	Urban	83	194	1	
	Rural	44	52	1.53(0.64-3.68)	.339
Mothers' Educational status	Illiterate	26	42	1.90(0.83-4.35)	.127
	Read and write	25	33	2.05(1.04-4.05)	.038*
	Elementary	17	37	1.02(0.42-2.47)	.970
	Secondary	41	64	.96(0.36-2.53)	.930
Television ownership by family	Tertiary	18	70	1	
	Yes	76	182	1	
	No	51	64	1.21(0.52-2.83)	.653

* =p-value<0.05

4.5.2 Stigmatizing and Discriminatory Attitudes versus Misconceptions on HIV transmission and prevention

Avoidant behavioral intentions were evaluated against variables of misconception (Table 8). As presented in the Table, study participants who responded that HIV is not transmitted by witchcraft were 72% less likely to avoid learning/working with PLWHA compared to those who reported that HIV can be transmitted by witchcraft OR=0.28(OR, 95%CI, 0.12-0.66) and (p value <0.003). Participants who reported that HIV cannot be transmitted by eating raw egg/meat of chicken swallowed used condom were 61% less likely to avoid learning/working with PLWHA compared to those who reported that HIV can be transmitted by eating raw egg/meat of chicken that swallowed used condom OR=0.39(95% CI 0.22-0.71) and (p value<0.002).

Table 8: Avoidant Behavioral Intentions versus misconceptions about HIV transmission and prevention among the study participants in high schools of Awassa Town, January to march 2007.

Variables	Avoid learning/	OR(95% CI)	P Value
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		Working with PLWHA		OR (95% CI)	P Value
		Yes	No		
Transmission by Witchcraft	Yes	23	12	1	.003**
	No	73	265	0.28(0.12-0.66)	
Coughing/Sneezing	Yes	12	11	1	.355
	No	84	266	0.62(0.22-1.72)	
HIV can be transmitted by Insect bite	Yes	21	26	1	.205
	No	75	251	0.61(0.28-1.32)	
Eating food with PLWHA can transmit HIV	Yes	11	10	1	.224
	No	85	267	0.52(0.18-1.50)	
MTCT	Yes	87	269	0.63(0.18-2.25)	.473
	No	9	8	1	
Transmitted by raw meat handled by PLWHA	Yes	24	31	0.71(0.35-1.46)	.354
	No	72	246	1	
Transmission by Public Toilets	Yes	15	15	1	.721
	No	81	262	0.84(0.32-2.24)	
Hard liquor can prevent AIDS	Yes	11	13	1	.367
	No	85	264	1.69(0.54-5.25)	
Sharing House hold Utensils	Yes	18	27	1	.385
	No	78	250	0.71(0.32-1.55)	
Raw Egg/meat of chicken swallowed condom	Yes	44	48	1	.002**
	No	52	229	0.39(0.22-0.71)	
Gods' punishment	Yes	62	111	1.53(0.88-2.65)	.129
	No	34	166	1	
Sex with virgin girls can prevent HIV	Yes	13	8	1	.075
	No	83	269	0.37(0.13-1.11)	
PLWHA had multiple partner	Yes	30	39	1	.179
	No	66	238	0.64(0.33-1.23)	

*= p-value<0.05

**= p-value<0.01

Blaming attitude was analyzed against misconception variables (Table 9). It was revealed that study participants who responded that HIV can't be transmitted by coughing or sneezing were 68% less likely to report that PLWHA have got what they deserve compared to those who reported HIV can be transmitted by coughing/sneezing OR=0.32(95% CI, 0.16-0.89) and (p value<0.029). Study participants who responded that HIV can't be transmitted by eating raw egg/meat of a chicken that swallowed used condom were 67% less likely to report that PLWHA have got what they deserve compared to those who reported HIV can be transmitted by eating raw egg/meat of a chicken that swallowed used condom OR=0.33(95% CI 0.19-0.59) and (p value<0.000). Study participants who responded that HIV can't be prevented by practicing sex with virgin girls were 66% less likely to report that PLWHA have got what they deserve compared to those who reported that HIV can be prevented by practicing sex with virgin girls OR=0.34(95% CI, 0.11-0.99) and (p value<0.048).

Table 9 Blaming attitudes versus selected misconceptions among the study participants in high schools of Awassa Town, January to March 2007.

Variables		PLWHA have got what they deserved		OR (CI 95%)	P Value
		Yes	No		
Transmission by Witchcraft	Yes	22	13	1	

Coughing/Sneezing	No	124	214	0.73(0.32-1.64)	0.442
	Yes	17	6	1	
HIV is God's punishment	No	129	221	0.32(0.16-0.89)	0.029*
	Yes	82	91	1.23(0.77-1.97)	0.384
Egg/meat of chicken swallowed condom	No	64	136	1	
	Yes	60	32	1	
HIV can be prevented by drinking hard Liquor	No	86	195	0.33(0.19-0.57)	0.000***
	Yes	15	9	1	
Sex with virgin girls	No	131	218	0.98(0.36-2.71)	0.974
	Yes	15	6	1	
PLWHA had multiple partner	No	131	221	0.34(0.11-0.99)	0.048*
	Yes	40	29	1	
	No	106	198	0.61(0.33-1.10)	0.101

* p-value<0.05

*** p-value<0.001

On the assessment of the association of the association of Coercive attitude with misconceptions was found that certain variables had statistically significant association with the attitude HIV/AIDS + teacher should be prohibited from teaching (Table 10). Study participants who reported that HIV can be transmitted by witchcraft were 3.4 times more likely to say that HIV/AIDS + teacher should be prohibited from teaching than those who reported HIV can't be transmitted by witchcraft (OR=3.4, 95% CI, 1.37-8.48). Participants who reported that HIV can be transmitted by coughing/sneezing were 3.5 times more likely to say that HIV/AIDS + teacher should be prohibited from teaching than those who reported HIV can't be transmitted by coughing/sneezing (OR=3.5 95% CI 1.2 – 10.5). Study participants who reported that HIV can be transmitted by eating raw egg/meat of a chicken swallowed used condom were 2.4 times more likely to have the attitude HIV/AIDS + teacher should be prohibited from teaching than those who reported HIV can't be transmitted by eating raw egg/meat of a chicken swallowed used condom(OR=2.42, 95% CI 1.1-5.2). participants who mentioned that HIV can be prevented by practicing sex with virgin girls were 16.1 times more likely to have the attitude HIV/AIDS + teacher should be prohibited from teaching than those who mentioned that HIV can't be prevented by practicing sex with virgin girls (OR= 16.1, 95% CI 4.98 – 51.87).

Table 10 Coercive attitudes versus selected Misconceptions variables among the study participants in high schools of Awassa Town, January to March 2007.

Variables	HIV + Teacher Should be prohibited		OR(95% CI)	P Value
	Yes	No		
Transmission by Witchcraft	Yes	18	3.4(1.37-8.48)	.009**
	No	303		

Coughing/Sneezing	Yes	10	13	3.50(1.20-10.5)	.026*
	No	42	308	1	
Insect bite	Yes	13	34	1.32(0.49-3.56)	.587
	No	39	287	1	
Raw meat prepared by PLWHA	Yes	15	40	1.27(0.50-3.20)	.618
	No	37	281	1	
Transmission Swimming pool	Yes	13	41	1.74(0.68-4.45)	.249
	No	39	280	1	
Transmission by Public Toilets	Yes	10	20	1.05(0.33-3.392)	.933
	No	42	301	1	
Hard liquor can prevent AIDS	Yes	11	13	1.47 (0.44-4.84)	.530
	No	41	308	1	
Raw Egg/meat of chicken swallowed condom	Yes	28	64	2.4(1.10-5.20)	.023*
	No	24	257	1	
Gods' punishment	Yes	35	138	1	
	No	17	183	0.89(0.41-1.92)	.760
HIV can be prevented by Sex with virgin girls	Yes	15	6	16.1(4.98-51.87)	.000***
	No	37	315	1	
PLWHA had multiple partner	Yes	20	49	2.13(0.94-4.83)	.070
	No	32	272	1	

*= p-value<0.05

**= p-value<0.01

***= p-value<0.001

Sympathetic feelings were evaluated with misconception variables and only one variable was found to have statistically significant association with unwillingness to care for PLWHA (Table 11). Study participants who reported that HIV can be transmitted by eating food with PLWHA were 3.02 times more likely not to care for PLWHA than those participants who reported that HIV can't be transmitted by eating food with PLWHA (OR=3.02, 95% CI 1.2-7.7).

Table 11: Sympathetic feelings versus selected misconception variables among the study participants in high schools of Awassa Town, January to March 2007.

Variables		Not Willing to care for any PLWHA		OR(95% CI)	P Value
		Yes	No		
Eating with PLWHA can transmit HIV	Yes	13	8	3.02(1.20 - 7.70)	.020*
	No	114	238	1	
Transmission by Public Toilets	Yes	16	14	1.82(0.83-4.00)	.138
	No	111	232	1	
Egg of chicken swallowed condom	Yes	40	52	1.61(0.98-2.64)	.062

No	87	194	1
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*= p-value<0.05

4.5.3 Multivariate Logistic Regression Analysis Results

Independent variables having statistically significant association with the outcome variables namely avoidant behavioral intentions, blaming attitude, coercive attitude and negative sympathetic feelings on univariate analyses were entered into the logistic regression model to find independent predictors of stigmatizing and discriminatory attitudes. In addition, odds ratios (OR) with their corresponding 95% confidence intervals (CI) were adjusted for the independent variables entered into the model.

Accordingly, only four of the variables (Grade, Religion, HIV transmission by witchcraft and HIV transmission by feeding on uncooked egg/meat of chicken swallowed used condom) remained to be significantly and independently associated with the avoidant behavioral intentions (Table 12). In this analysis, it was revealed that adolescents in grade 9 were 2.23 times more likely to avoid learning/working with PLWHA than those in grade 10 (OR=2.23, 95% CI 1.2-4.1). Orthodox and Catholic religions had negative impact on Avoiding learning/working with PLWHA compared to Protestant religion, (OR=0.43, 95% CI, 0.22-0.82) and (OR=0.22, 95%CI, 0.06-0.77) respectively. Adolescents who believed that HIV can be transmitted by witchcraft were 3.5 times more likely to avoid learning/working with PLWHA than those who did not (OR=3.5, CI=1.4-8.8). Moreover, adolescents who reported that HIV can be transmitted by feeding on raw egg/meat of a chicken were 2.1 times more likely to avoid learning/working with PLWHA than those who reported that HIV can't be transmitted by feeding on raw egg/meat of a chicken that swallowed used condom, (OR=2.1, 95% CI, 1.1-3.9).

Table12: Multiple Logistic Regression for factors contributing for Avoidant Behavioral Intentions among the study participants in high schools of Awassa Town, January to March 2007.

Variables		Avoid working/ Learning with PLWHA		Adjusted OR(95% CI)	P-Value
		Yes	No		
Age	<15	19	24	2.07 (0.90 - 4.75)	.085
	15-14 †	77	273	1	
Grade	9	64	137	2.23 (1.20 - 4.10)	0.011*
	10 †	32	140	1	
Family income	<500	25	27	1.42 (0.69 - 2.93)	0.337
	500-1500	44	94	2.07 (0.73 - 5.00)	

	>1500 †	27	156	1	
Religion	Protestant †	62	97	1	
	Orthodox	24	145	0.43 (0.22 - 0.82)	0.010 *
	Muslim	2	13	0.20 (0.03 - 1.16)	0.072
	Catholic	6	16	0.22 (0.06- 0.77)	0.018 *
	Others	2	6	0.18(0.03 - 1.14)	0.068
Residence	Urban †	53	224	1	
	Rural	43	53	0.97 (0.35 - 2.72)	0.952
Mothers Educational status	Illiterate	26	42	2.30 (0.75 - 7.10)	0.146
	Read and write	23	35	1.86 (0.73- 4.74)	0.196
	Elementary	15	39	1.618 (0.50 - 5.24)	0.423
	Secondary	23	82	1.10 (0.30 - 4.01)	0.888
	Tertiary †	9	79	1	
Membership of anti AIDS club	Yes	10	57	0.43 (0.18 - 1.01)	0.051
	No †	86	220	1	
Television ownership by family	Yes	44	214	1.54 (0.57 - 4.20)	0.396
	No †	52	63	1	
HIV information in the preceding two weeks	Yes	7	63	0.42 (0.17-1.05)	0.064
	No †	89	214	1	
Transmission by Witchcraft	Yes	23	12	3.5 (1.40 - 8.80)	0.008 **
	No †	73	265	1	
Coughing/Sneezing	Yes	12	11	1.80 (0.59-5.53)	0.304
	No †	84	266	1	
MTCT	Yes †	87	269	1	
	No	9	8	1.89 (0.44 - 8.15)	0.393
Insect bite	Yes	21	26	1.48 (0.64 - 3.45)	0.363
	No †	75	251	1	
Transmission by Eating with PLWHA	Yes	11	10	1.56 (0.51 - 4.82)	0.437
	No †	85	267	1	
Raw meat by prepared by PLWHA	Yes	24	31	1.84 (0.85-3.99)	0.120
	No †	72	246	1	
Transmission by Public Toilets	Yes	15	15	0.78 (0.26 - 2.37)	0.659
	No †	81	262	1	
Raw Egg/meat of chicken swallowed condom	Yes	81	225	2.1 (1.1 - 3.9)	0.027*
	No †	15	52	1	

*=p-value<0.05

Chi-square = 108.345

**=p-value<0.01

-2 Log likelihood = 317.092

† =Reference Category

The second outcome variable is the blaming attitude i.e. PLWHA have got what they deserved and only three independent variables (HIV can be transmitted by coughing/sneezing, HIV can be transmitted by feeding on raw egg/meat of a chicken that swallowed used condom and HIV can be prevented by practicing sex with virgin girls) were found to be statistically significant with the outcome variable (Table 13). Adolescents who reported that HIV can be transmitted by coughing/sneezing were 4.8 times more likely to blame PLWHA than those who reported that HIV can't be transmitted by coughing/sneezing(OR=4.8, 95% CI, 1.5-15.4). Adolescents who reported that HIV can be transmitted by feeding on raw egg/meat of a chicken swallowed used condom were 2.7 times more likely to blame PLWHA than who did

not (OR=2.7 ,95% CI 1.5-4.9). Adolescents who responded that HIV can be prevented by practicing sex with virgin girls were 3.8 times more likely to blame PLWHA than their counter parts (OR=3.8, 95% CI, 1.1-13.4).

Table13: Logistic Regression for factors contributing for blaming attitudes among the Study participants in High schools of Awassa Town, January to March 2007.

Variables	PLWHA have got what they deserved		Adjusted OR(95% CI)	P-Value	
	Yes	No			
Sex	Male †	101	120	1	
	Female	45	107	0.61(0.37-1.01)	0.051
Family income	<500	28	24	0.81(0.45-1.47)	0.448
	500-1500	57	81	0.68(0.25-1.80)	0.435
	>1500 †	61	122	1	
Religion	Protestant †	80	79	1	
	Orthodox	50	119	0.66 (0.38-1.13)	0.130
	Muslim	3	12	0.27(0.06-1.16)	.078
	Catholic	10	12	0.69(0.24-1.96)	.480
Residence	Others	3	5	0.36(0.050-2.64)	0.316
	Urban †	90	187	1	
Fathers Educational status	Rural	56	40	2.02(0.72-5.69)	0.182
	Illiterate	24	11	0.53 (0.25-1.11)	0.093
	Read and write	19	30	1.77 (0.71-4.42)	0.222
	Elementary	24	17	0.69 (0.28-1.70)	.421

	Secondary		18	52	2.53 (0.82-7.83)	0.107
	Tertiary	†	51	117	1	
Membership of anti AIDS club	Yes	†	19	48	1	
	No		127	179	1.91(0.97-3.77)	0.062
Television ownership by family	Yes	†	84	174	1	
	No		62	53	0.69(0.25-1.91)	0.476
Transmission by Witchcraft	Yes		22	13	1.025(0.41-2.60)	0.959
	No	†	124	214	1	
Transmission by Coughing/Sneezing	Yes		17	6	4.8 (1.50-15.40)	0.008 **
	No	†	129	221	1	
Hard liquor can prevent AIDS	Yes		15	9	1.11(0.36-3.41)	0.855
	No	†	131	218	1	
Raw Egg of chicken swallowed condom	Yes		60	32	2.70(1.50-4.90)	.001 **
	No	†	86	195	1	
Gods' punishment	Yes	†	82	91	1	
	No		64	136	0.97 (0.57 - 1.65)	0.914
Sex with virgin girls can prevent HIV	Yes		15	6	3.80 (1.10-13.40)	.039 *
	No	†	131	221	1	
PLWHA had multiple sex partners	Yes		40	29	1.44(0.74-2.77)	0.281
	No	†	106	198	1	

*= p-value<0.05

Chi-square = 85.212

**= p-value<0.01

-2 Log likelihood = 414.145

†=Reference Category

The third outcome variable was the coercive attitude i.e. HIV + teacher should be prohibited from teaching (Table 14). It was revealed that variables like residential areas, fathers' educational status, Television ownership, transmission by witchcraft, healthy looking person can have HIV in his/her blood, HIV can be prevented by having sex with virgin girls and PLWHA are those who had multiple sexual partners were found to have statistically significant association with the outcome variable. Adolescents from urban areas were 80% less likely to have coercive attitude as compared to their rural counterparts. Adolescents whose fathers' educational status were read and write and elementary were 6.4 and 5.9 times more likely to have coercive attitudes compared to those whose fathers' educational was tertiary level (OR=6.4, 95% CI, 1.02-40.42) and (OR=5.9, 95% CI, 1.0-34.6) respectively. There was an increased risk of coercive attitude among adolescents who had television in their residential houses compared to those who did not have television (OR=12.9, 95% CI 2.8-58.4). Adolescents who reported that HIV can be transmitted by witchcraft were 6.1 times more likely to have coercive attitude than those who said that HIV can't be transmitted by witchcraft (OR=6.1, 95% CI, 1.7-22.0). Adolescents who reported that HIV can be prevented by practicing sex with virgin girls were 22.3 times more likely to have coercive attitude than those who didn't report so (OR=22.3, 95% CI, 5.1-97.1). Participants who reported that

PLWHA are people who had multiple sex partners were 2.9 times more likely to have coercive attitude than those who reported the other way (OR=2.9, 95% CI, 1.02-8.45).

Table 14: Logistic Regression for factors contributing for Coercive attitudes among the study participants in the high schools of Awassa Town, January to March 2007

Variables	HIV + Teacher should be prohibited		Adjusted OR(95% CI)	P-Value	
	Yes	No			
Family income	<500	21	31	1.44(0.40-5.14)	0.574
	500-1500	25	113	1.65(0.39-6.99)	0.500
	>1500 †	6	177	1	
Religion	Protestant †	29	130	1	
	Orthodox	10	159	1.43(0.47-4.33)	0.524
	Muslim	3	12	0.93(0.09-9.60)	0.951
	Catholic	8	14	3.27(0.82-12.97)	.092
	Others	2	6	1.28(0.14-11.75)	0.830
Residence	Urban	20	257	0.2(0.05-0.80)	0.022*
	Rural †	32	64	1	
Fathers Educational status	Illiterate	12	23	1.69(0.36-7.91)	.504
	Read and write	13	36	6.43(1.02-40.42)	.047*
	Elementary	11	30	5.9(1.0-34.6)	.050*
	Secondary	10	60	1.50(0.2-11.28)	.693
	Tertiary †	6	172	1	
Mothers Educational status	Illiterate	23	45	0.50(0.06-3.94)	.509
	Read and write	10	48	0.70(0.10-4.89)	.722

	Elementary	10	44	0.97(0.12-7.69)	.974
	Secondary	6	99	0.85(0.09-7.94)	.885
	Tertiary †	3	85	1	
Radio ownership by family	Yes †	41	301	1	
	No	11	20	1.16(0.31-4.39)	.822
Television ownership by family	Yes †	11	247	1	
	No	41	74	12.9(2.8-58.4)	.001**
HIV information in the preceding two weeks	Yes	1	69	0.11 (0.01-1.16)	.066
	No †	51	252	1	
Transmission by Witchcraft	Yes	17	18	6.1(1.7-22.0)	.005**
	No †	35	303	1	
Coughing/Sneezing	Yes	10	13	2.17(0.52-9.13)	.290
	No †	42	308	1	
Insect bite	Yes	13	34	1.62(0.53-5.02)	.400
	No †	39	287	1	
Raw meat by prepared by PLWHA	Yes	15	40	1.02(0.33-3.17)	.968
	No †	37	281	1	
Transmission Swimming pool	Yes	13	41	1.25(0.41-3.81)	.692
	No †	39	280	1	
Transmission by Public Toilets	Yes	10	20	0.98(0.22-4.29)	.977
	No †	42	301	1	
Hard liquor can prevent AIDS	Yes	11	13	2.11 (0.45-9.79)	.341
	No †	41	308	1	
Sharing House hold Utensils	Yes	11	34	1.051(0.32-3.48)	.935
	No †	41	287	1	
Raw Egg/meat of chicken swallowed condom	Yes	28	64	2.06(0.81-5.24)	.129
	No †	24	257	1	
HIV is Gods' punishment	Yes	35	138	2.55(0.92-7.04)	.071
	No †	17	183	1	
Sex with virgin girls can prevent HIV	Yes	15	6	22.3(5.1-97.5)	.000***
	No †	37	315	1	
PLWHA had multiple partner	Yes	20	49	2.9(1.02-8.45)	.045*
	No †	32	272	1	
*=p-value<0.05		Chi-square = 126.795		-2 Log likelihood = 174.508	
= p-value<0.01		†= Reference Category		*=p-value<0.001	

The sole independent variables statistically significant with the negative sympathetic feelings were mothers' educational status and transmission of HIV by eating with PLWHA (Table 15). Adolescents whose mothers' educational status were read and write were 2.1 times more likely to have negative sympathetic feelings compared to those whose mothers' educational status was tertiary education(OR=2.1,95% CI, 1.10-4.14). Participants who responded that HIV can be transmitted by eating with PLWHA were 2.75 times more likely to have negative sympathetic feelings compared to those who responded that HIV can't be transmitted by eating food with PLWHA(OR=2.75, 95% CI, 1.04-7.30).

Table15: Logistic Regression for factors contributing for negative sympathetic feelings among the Study participants in high schools of Awassa Town, January to March 2007.

Variables		Not willing to care for Any PLWHA		Adjusted OR(95% CI)	P-Value
		Yes	No		
Grade	9	78	123	1.46(0.92-2.32)	.112

	10 †	49	123	1	
Family income	<500	25	27	1.49(0.84-2.62)	.170
	500-1500	55	83	2.03(0.88-4.68)	.097
	>1500 †	47	136	1	
Residence	Urban †	83	194	1	
	Rural	44	52	1.60(0.65-3.92)	.309
Mothers Educational status	Illiterate	26	42	1.58(0.67-3.71)	.289
	Read and write	25	33	2.1(1.10-4.14)	.034*
	Elementary	17	37	0.97(0.39-2.39)	.948
	Secondary	41	64	0.93(0.35-2.48)	.877
	Tertiary †	18	70	1	
Television ownership by family	Yes †	76	182	1	
	No	51	64	1.045(0.44-2.50)	.917
HIV can be transmitted by eating with PLWHA	Yes	13	8	2.75(1.04-7.30)	.042*
	No †	114	238	1	
Transmission by Public Toilets	Yes	16	14	1.62(0.71-3.68)	.253
	No †	111	232	1	
Egg/meat of chicken swallowed condom	Yes	40	52	1.22(0.71-2.09)	.484
	No †	87	194	1	

*= p-value<0.05

Chi-square= 32.932

†=Reference Category

-2 Log likelihood= 445.519

4.6 Effectiveness of the intervention materials in reducing HIV related Stigma and Discrimination

Four various IEC materials namely interpersonal communication, Pamphlets, Educational video movie and a combination of those three interventions used in this study were evaluated for their effectiveness in reducing HIV related stigma and discrimination (Fig.2 and 3). To evaluate this, Box-plot and Analysis of Variance (ANOVA) were used after identifying dependent variables from the scores of the Likert Scale in pre intervention, post intervention, and follow up period. The reduction in stigmatizing attitude between the follow up and pre intervention phase and post intervention and pre intervention were computed. All the interventions were effective in reducing HIV/AIDS related stigma and discrimination. But the level of reduction differed from one intervention to another. The reduction in stigmatizing and discriminatory attitude was higher in intervention 3(video group) and 4(combined group) than in interventions 1 and 2. It was relatively lower in intervention two i.e. the pamphlets group. The reduction in stigmatizing attitudes was higher in post intervention phase than follow up phase. F-statistics was computed for the difference between the follow up and pre intervention

phase scores (Table 16). F-statistics is 2.6 at p-value <0.05 from F distribution. It was indicated that (F statistics = 17.484 and p-value <0.0001) was found to be statistically significant that revealed the efficacy of the interventions in reducing HIV related stigma and discrimination.

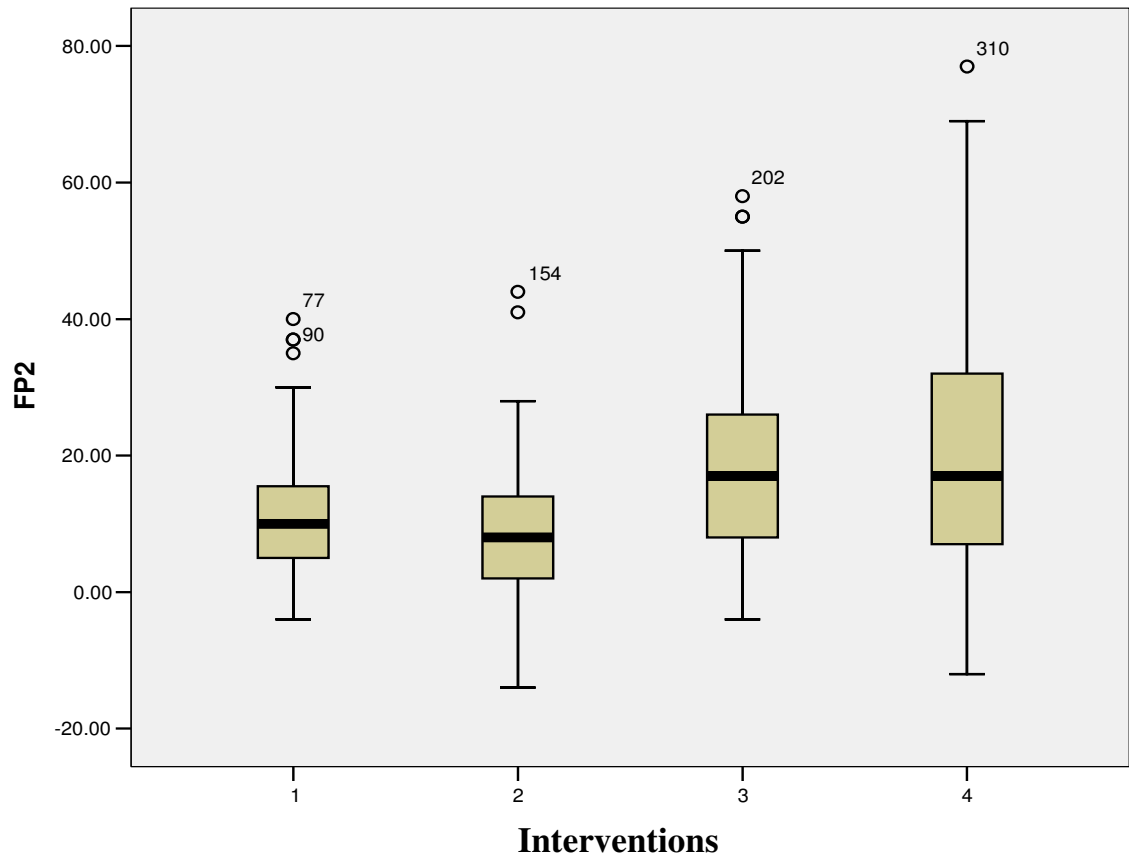


Fig. 2 Box-plot (post intervention phase) showing the effectiveness of intervention

materials in adolescents of high schools, Awassa Town, January to March 2007.

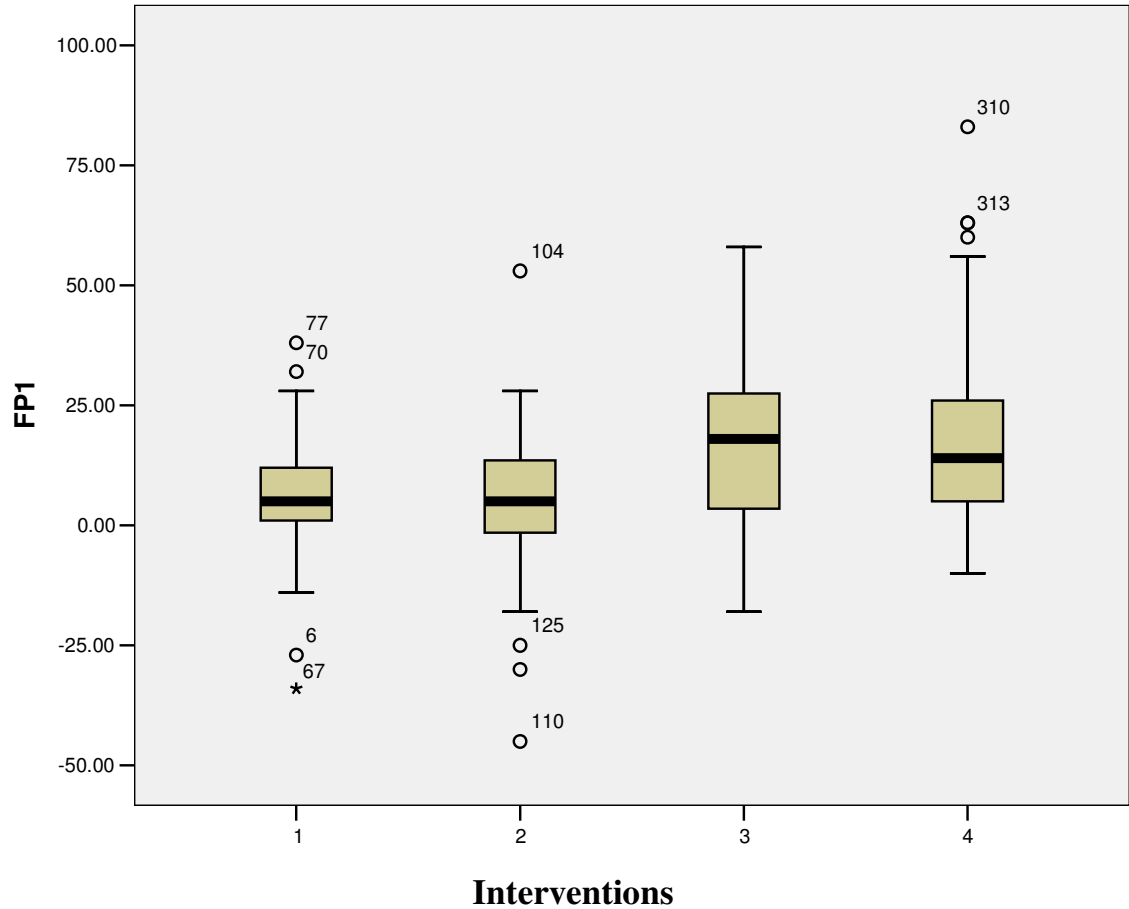


Fig. 3 Box-plot (follow up phase) showing the effectiveness of intervention materials in adolescents in high schools Awassa Town, January to March 2007

Table 16: Analysis of Variance (ANOVA) Table comparing the effectiveness of the different IEC interventions in reducing HIV related stigmatizing and discriminatory attitudes among adolescents in the High Schools of Awassa Town January to March 2007

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12087.901	3	4029.300	17.484	.000
Within Groups	85038.222	369	230.456		
Total	97126.123	372			

In this study, multiple comparisons, post hoc test (Bonferroni procedure) showed the effectiveness of each intervention in reducing HIV related stigma and discrimination (Table 17). It was shown that intervention 1 was different from interventions 3 and 4 (p-value<0.0001), but not different from intervention 2 (p-value>0.05). In addition, interventions 3 and 4 were not different from each other (p-value>0.05), but differed from interventions 1 and 2 (p-value<0.0001).

Table 17. Multiple comparisons to assess the efficacy of interventions implemented in high

school adolescents of Awassa Town, January to March 2007

(I) Interventi	(J) Interventi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	.82175	2.22673	1.000	-5.0848	6.7283
	3	-9.79364*	2.22673	.000	-15.7002	-3.8871
	4	-11.89265*	2.19691	.000	-17.7201	-6.0652
2	1	-.82175	2.22673	1.000	-6.7283	5.0848
	3	-10.61538*	2.25055	.000	-16.5851	-4.6457
	4	-12.71440*	2.22105	.000	-18.6059	-6.8229
3	1	9.79364*	2.22673	.000	3.8871	15.7002
	2	10.61538*	2.25055	.000	4.6457	16.5851
	4	-2.09902	2.22105	1.000	-7.9905	3.7924
4	1	11.89265*	2.19691	.000	6.0652	17.7201
	2	12.71440*	2.22105	.000	6.8229	18.6059
	3	2.09902	2.22105	1.000	-3.7924	7.9905

*. The mean difference is significant at the .05 level.

5. Discussion

This study attempted to examine the misconceptions with regard to HIV transmission and prevention and the stigmatizing and discriminatory attitudes prevailing among school adolescents in Awassa.

It was revealed that awareness on the major modes of transmission of HIV/AIDS like MTCT and blood transfusion was higher than 91% in all the four intervention groups. This result is inconsistent with or higher than the findings of other studies conducted in Sub Saharan Africa (3, 18) and the, DHSE, 2005 and BSS round conducted in Ethiopia (6, 16). This could be due to the Urban nature of the study area that increased accessibility to information. Improvement was also observed with different levels based on the type of intervention. Findings of the post intervention phase were better than that of follow up phase. This could be explained by reduced memory after two months of follow up period which is in line with the findings of the study conducted in India in adolescents (22).

Misconceptions like HIV/AIDS can be transmitted by Witchcraft, insect bite, eating meal with PLWHA, eating raw meat/food prepared by PLWHA, sharing public toilet, swimming pool, clothes and beddings, eating raw egg/meat of a chicken that swallowed condom, lubricants in condom were assessed. In addition, other variables like there is a segment of the population responsible for HIV transmission, PLWHA are People who had multiple sexual partners, healthy looking person can have HIV in his/her blood and HIV is God's punishment were the variables used. Misconceptions assessed on preventive aspects were HIV/AIDS can be prevented by drinking hard liquor and practicing sex with virgin girls. There were misconceptions among the study participants, but the level of misconception differed from one intervention group to another. Studies undertaken in Ethiopia and elsewhere showed similar findings on misconceptions (3, 6, 11 – 16, 18, 20). The misconceptions were higher among the study participants in Awassa Tabor and Alamura than in SOS and Comboni high schools. This could be due to the difference in social status of the adolescents in between the schools. The misconceptions were reduced remarkably in the post intervention and follow up phases among the study participants. The reduction in misconception was higher in the immediate post intervention than follow up phase which could be explained by reduced

memory during the two months period. But in some cases, the reduction in follow up phase was found to be higher than that of post intervention which could be explained by exposure of the study participants to some other updating sessions on HIV/AIDS during the two months time. With regard to effectiveness of the interventions in reducing the misconceptions, combined intervention was found to be more effective followed by interpersonal communication and educational video movie. Pamphlets were found to be relatively less effective in improving awareness and reducing misconceptions compared to the other three interventions. This was in line with the findings conducted in India(25). This could be due to the fact that printed materials are less powerful compared to audiovisual and interpersonal communication in passing messages since people do not take time to read pamphlets and moreover; it is a one way communication method in which there is no interaction of ideas.

In this study, preventive measures of HIV/AIDS transmission like persistent condom use and having only one uninfected sexual partner were evaluated. It was revealed that the awareness level for both was 78.9 - 82.1% in Interpersonal communication group, 79.1-89% in Pamphlets, 84.6-91.2% in the Educational Video movie and 85.4-92.7% in combined intervention in the pre intervention phase. The awareness level among the study participants in this regard was better than the results of DHSE 2005(6). The improvement after each intervention was also promising both in post intervention and follow up phases. The awareness level was better among the study participants of Awassa Tabor and Alamura high schools than that of SOS and Comboni. This could be explained by the difference in social status between the adolescents in these high schools.

Regarding stigmatizing and discriminatory attitudes, this study indicated various levels of stigmatizing attitude among the study participants in the different intervention groups with variation from one item to another. The least stigmatizing and discriminatory attitude observed was on 'HIV+ teacher should be prohibited from teaching' except in adolescents of Awassa Tabor High School. The commonly observed stigmatizing/discriminatory attitude in all groups was 'PLWHA foreigners should be prohibited from visiting Ethiopia'. Studies in Ethiopia and elsewhere on HIV and AIDS stigma and discrimination among adolescents showed almost consistent results with this study (6, 16, 19, 21, 22, 23, 41).

Remarkable improvement was obtained following the intervention in reducing stigmatizing and discriminatory attitudes among adolescents with varying degrees in all groups. The reduction was promising in post intervention phase and relatively smaller in follow up phase which could be explained by failure to recall what was just learnt two months back. In very few cases, the reduction in stigmatizing and discriminatory attitudes in follow up phase was higher than that of the post intervention phase which is inconsistent with the study findings in India (22). This could be explained by exposure of the study participants to further information on HIV/AIDS from various sources during the 2 months period.

In this study, determinants of HIV/AIDS related stigma and discrimination were as well examined. There was more than two folds increase in avoiding learning/working with PLWHA in grade 9 students than in grade 10 (OR=2.23, 95%CI 1.2 - 4.1). The possible explanation for this could be that grade 9 students may have less exposure to information sources on HIV compared to those in grade 10. Religion-wise, Orthodox and Catholic religions had negative impact on avoiding learning/working with PLWHA compared to adolescents whose religion was Protestant (OR=0.43, 95% CI, 0.22-0.82) and (OR=0.22, 95%CI, 0.06-0.77) respectively. The difference could be explained by the differences in some socio demographic factors like residence and social status between the two groups and exposure to HIV related stigma reducing information could be more in Orthodox and Catholic followers. The presence of misconception like HIV can be transmitted by witchcraft among the study participants had 3.5 folds of increase in avoiding learning/working with PLWHA as compared to those who reported HIV can't be acquired by witchcraft (OR=3.5, 95% CI 1.4-8.8). This could be explained by HIV related stigma and discrimination could emanate from misconceptions on HIV transmission. The other item was eating raw egg/meat of chicken that swallowed used condom can transmit HIV was also found to have statistically significant association with avoiding learning/working with PLWHA (OR=2.1, 95% CI 1.1-3.9). This could also be explained by HIV related stigma and discrimination and could be preceded by misconceptions and on HIV transmission. This was so because HIV related stigma and discrimination could emanate from misconceptions on HIV transmission and prevention. Studies conducted in Ethiopia and elsewhere in the world in adolescents and other population groups revealed that socio demographic factors and misconceptions on the modes of

transmission of HIV/AIDS were found to be predictors of HIV/AIDS related stigma and discrimination (18, 21, 24, 26, 27, 30, 31).

In this study, determinants of blaming attitude were evaluated. Variables like, HIV can be transmitted by coughing/sneezing, eating raw egg/meat of chicken that swallowed used condom, HIV can be prevented by practicing sex with virgin girls were the items statistically significant with PLWHA have got what they deserved (blaming attitude). (OR=4.8, 95% CI, 1.5-15.4),(OR=2.7, 95% CI, 1.5-4.9) and (OR=3.8, 95% CI, 1.1-13.4). This could be for the same explanation given for the coercive attitude as above. Similar result was observed in a study conducted in the US (32).

In this study, it was found that coercive attitude like HIV positive teacher should be prohibited from teaching was 80% less in adolescents from urban than in rural areas (OR=0.2, 95% CI, 0.05-0.80). This could be explained by urban adolescents having a better access to information related to HIV/AIDS compared to their rural counterparts. There were also about six folds in coercive attitude among adolescents whose fathers' educational statuses were read and write and elementary compared to adolescents whose fathers' educational status was tertiary. The possible explanation is there could be better discussion of highly educated fathers with their family members on HIV/AIDS issues compared to those fathers who were less educated. Adolescents who didn't have television in their houses had increased risk of coercive attitude compared to those who had, (OR=12.95, 95%CI, 2.8-58.4). In the presence of television, exposure to information related to HIV was better. Acquisition of HIV/AIDS by Witchcraft had also statistically significant association with coercive attitude (OR=6.1, 95%CI, 1.7-22.0). There was also an increased risk of coercive act among adolescents who reported that sex with virgin girls can prevent HIV and in those who reported that PLWHA are people who had multiple sexual partners (OR=22.3,95%CI, 5.1-97.5) and (OR=2.9, 95%CI 1.02-8.45). This was also consistent with the findings of a pilot study conducted in Zambia (20).

This study also revealed that negative sympathetic feelings were more among adolescents whose mothers' educational status was read and write compared to those whose mothers' educational status was tertiary(OR=2.1, 95%CI, 1.1-4.14). The possible explanation is that

there could be better discussion of highly educated mothers with their family members on HIV/AIDS issues compared to those mothers who were less educated. There were also negative sympathetic feelings among adolescents with misconception like HIV can be transmitted by eating with PLWHA (OR=2.75, 95% CI, 1.04-7.30). This is inline with the study findings conducted in Botswana (27).

In this study, Box-plot indicated that there was reduction in stigmatizing and discriminatory attitude, but it was lower in pamphlets compared to other interventions. The Box-plot depicted that reduction in stigmatizing and discriminatory attitude was higher in intervention 3 (video group) and 4 (combined group) than in interventions 1 and 2. This could be explained by relatively low stigmatizing and discriminatory attitudes in adolescents of groups 1 and 2 in the pre intervention phase. Probably adolescents in groups 1 and 2 may have had better information on HIV/AIDS compared to those in groups 3 and 4. ANOVA (F-statistics), also indicated that the four interventions implemented were effective in reducing HIV related stigma and discrimination (p-value<0.0001). ANOVA was computed for the difference between follow up and pre intervention phase scores. This was to identify the effectiveness of the interventions in maintaining sustainable behaviours in adolescents. Multiple comparisons, post hoc test (Bonferroni procedure) showed the effectiveness of each intervention in reducing HIV related stigma and discrimination and it was shown that intervention 1(interpersonal communication) was different from interventions 3(video) and 4(the combined one), but not different from intervention 2(pamphlets). In addition, interventions 3 and 4 were not different from each other, but differed from interventions 1 and 2. The possible explanation for that was again the relatively low stigmatizing and discriminatory attitudes in adolescents of group 1 and 2 in the pre intervention phase compared to adolescents in groups 3 and 4. Moreover, adolescents in interventions 1 and 2 seemed to share similar socio demographic backgrounds like social status and these schools are Non-governmental and the same thing is true for adolescents in interventions 3 and 4(Governmental schools).

5.1 Strengths of the study

1. Randomization was applied to select the schools and the study subjects

2. Quality control measures were undertaken to maximize the validity of the study.

3. The power used to compute the sample size in this study was 90%.

5.2 Limitations of the study

The following points may affect or challenge the credibility of this study.

1. Some study participants (<10% of the total sample) did not respond to the post intervention phase and follow up questionnaire. This may affect the

representativeness of the sample if this population was different from those who have actually participated in all the phases of the study that needs further investigation of these group.

2. Social (Perceived) desirability of responses rather than the actual knowledge or attitude could as well introduce response biases.
3. The error inherent in the method of data collection (self-administered questionnaire) may have introduced some response biases.
4. Non-response rate was high in pamphlets and educational video movie groups.

6. Conclusion and Recommendation

6.1 Conclusion

- ✚ The awareness level on the major modes of transmission and prevention was relatively high among the high school adolescents compared to the findings of other studies in Ethiopia.

- ✚ Misconceptions on the transmission and prevention of HIV were prevailing in adolescents even though they differed from one group to another.
- ✚ Stigmatizing and discriminatory attitudes also existed with varying degrees among the study participants.
- ✚ Some socio demographic factors like income and parents' educational status and misconceptions on HIV transmission and prevention were found to be strong predictors of the various forms of HIV/AIDS related stigmatizing and discriminatory attitudes.
- ✚ Being a member of anti AIDS club in schools and television ownership by the family had negative impact on misconceptions and stigmatizing attitude.
- ✚ The intervention materials were found to be effective in minimizing the HIV related misconceptions and the associated stigmatizing and discriminatory attitudes among the adolescents as shown by F-statistics.
- ✚ Combined intervention (interpersonal communication, pamphlets and educational video movie) was found to be more effective followed by interpersonal communication and educational video movie.
- ✚ Pamphlets were found to be less effective in reducing HIV related stigma and discrimination compared to other interventions.
- ✚ The effectiveness of intervention was reduced during the follow up phase due to memory lapse.
- ✚ Adolescents who were members of school anti AIDS clubs had less stigmatizing and discriminatory attitudes.
- ✚ Interpersonal communication is the single most important intervention in settings where resource is meager.

6.2 Recommendations

Based on the problems identified by the study, the following recommendations are made.

- Intensified IEC campaigns focusing on misconceptions of HIV transmission and prevention and the associated stigma and discrimination should be undertaken particularly among adolescents by all stakeholders.

- Mass Media should focus on misconceptions of HIV transmission and prevention and the associated stigma and discrimination to reduce its current status so that mitigative measures of HIV/AIDS could be successful.
- If possible, combined interventions should be implemented to achieve a remarkable reduction in stigmatizing attitude by all stakeholders otherwise; interpersonal communication or educational video is preferable.
- Pamphlets should be distributed together with the provision of other IEC materials to achieve maximum reduction in stigmatizing and discriminatory attitudes and to maximize awareness as well. Otherwise, the mere distribution of pamphlets may not be helpful to curb the epidemic.
- School Anti AIDS clubs should involve more members and be strengthened and so that information dissemination regarding HIV/AIDS can be successful.

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7. ANNEXES

Annex I-*QUESTIONNAIRE*

Addis Ababa University Department of Community Health

Questionnaire on HIV/AIDS knowledge, stigma and discrimination among high school adolescents

Introduction: This questionnaire is prepared for a thesis research project undertaken in collaboration with Addis Ababa University Medical Faculty.

The questionnaire asks responses of high school adolescents in Awassa town in order to find out HIV/AIDS related stigma and discrimination. The main aim of this study is to understand well the prevailing misconceptions of HIV/AIDS transmission and prevention, HIV/AIDS stigma and discrimination and the effectiveness of various IEC materials in improving

awareness and reducing stigma in adolescents and help the prevention activities undertaken at all levels.

In this questionnaire, you will be asked some very personal questions that some people find difficult to respond. The anonymity of your response will be kept. Your name will not be written on this questionnaire and will never be used in relation with any of the information you provide me. You are selected for this study merely by chance, not done intentionally.

You don't have to respond to any questions that you don't want to answer and you may end to participate in the study at any time you want to. However, your honest responses to these questions will enable us better to understand what misconceptions, stigmatizing and discriminatory attitudes are going on among the adolescents.

I would greatly appreciate your cooperation in responding to this survey in advance. The questionnaire will take 20 minutes to answer.

Would you be willing to participate?

Indicate your appropriate response by circling either of the choices.

1. Yes, → continue to the next pages and respond to the given questionnaire.
2. No, → please return the questionnaire to the one who has provided you as you are told.

Name of the School _____

Questionnaire No _____

N.B please write your answers on the 'answer' column. Don't write anything on the 'CODE' column.

Part I. Socio demographic characteristics of the respondents

S.No	Questions	Answer	Code
101	Age in years		
102	Sex Male=1 Female=2		
103	Grade		
104	Marital status Married=1 Single=2		
105	Family monthly Income in Ethiopian Birr_____.		
106	Ethnicity Sidama=1 Wolaita=2 Amhara=3 Guragie=4 Oromo=5 others(specify)_____.		
107	Educational status of the father 1. Illiterate 2. Read and write 3. Elementary 4. Secondary 5. Tertiary level		
108	Educational status of the Mother 1. Illiterate 2. Read and write 3. Elementary 4. Secondary 5. Tertiary level		
109	Religion Orthodox=1 Muslim=2 protestant=3		

	Catholic =4 others (specify)___		
110	Residence of parents' urban=1 Rural =2		
111	IS there Anti HIV/AIDS Club in your school? Yes=1, No=2 (If your answer is no, skip to Question number 113).		
112	If your answer to question number 111 is yes, are you a member of the club? Yes=1, No=2		
113	Do you have radio at home? Yes=1, No=2		
114	Do you have TV at home? Yes=1, No=2		
115	Have you attended any session on HIV/AIDS in the last two weeks? Yes =1, No=2		

Part II Misconceptions about HIV transmission and prevention

S.No	Questions	Answer	Code
201	Can a person get HIV/AIDS through witchcraft? Yes=1 No =2		
202	Can HIV/AIDS infection be due to God's punishment? Yes=1 No=2		
203	Can one get HIV infection by insect Bite? Yes=1 No =2		
204	Can HIV/AIDS be transmitted from mother to child? Yes=1 No =2		
205	Can a person get HIV infection by sharing a meal with a person with HIV/AIDS? Yes=1 No =2		
206	. Can one get HIV/AIDS through coughing/sneezing? Yes=1 No =2		
207	Can one get HIV infection by eating in the same plate with PLWHA? Yes=1 No =2		
208	Can one get HIV infection by eating raw meat/food substances prepared by PLWHA? Yes=1 No =2		

209	Can one get HIV infection by Blood transfusion? Yes=1 No =2		
210	Can one get HIV infection by sharing toilet? Yes=1 No =2		
211	Can one get HIV infection by sharing the same swimming pool? Yes=1 No =2		
212	Can one get HIV infection by sharing beddings? Yes=1 No =2		
213	Can one get HIV infection by sharing utensils? Yes=1 No =2		
214	Can one get HIV infection by feeding on uncooked egg/meat from the chicken that fed on used condom? Yes=1 No =2		
215	Is there any group in the community responsible for the transmission of HIV infection? Yes=1 No =2 (Skip to question number 217 if your response is No)		
216	If your answer to question no_215 is yes, whom do you think are responsible?		
217	Lubricants in condom can be the source of HIV infection. Yes=1 No =2		
218	Can persistent condom use reduce contracting HIV/AIDS? Yes=1 No =2		
219	Can a person reduce HIV/AIDS by having one uninfected partner? Yes=1 No =2		
220	HIV infection can be prevented by drinking liquor. Yes =1, No=2		
221	HIV infection can be prevented by having sexual contact with virgin girls. Yes=1 No=2		
223	Can a healthy-looking person be infected with HIV/AIDS? Yes=1 No =2		

III. Stigma and Discrimination

1. Strongly agree=1 3.Somewhat disagree=4
2. Somewhat Agree =2 4. Strongly disagree=5
3. I don't know =3

3.1 Avoidant behavioral intentions towards PLWHA

S.No	Questions	Answer	Code
301	You would not visit a Barber/a Beautician who is PLWHA for beauty purpose		
302	You would not buy vegetables from a shopkeeper who has HIV/AIDS.		
303	You would not eat food from a restaurant whose food handler is HIV infected.		
304	You would not be willing to have meal together with PLWHA.		
305	You would avoid having physical contact with PLWHA		

	(e.g., not swimming/playing basketball with them)		
306	You would refuse to learn/work with a PLWHA		
307	You would avoid learning with a student whose parents are PLWHA.		

3.2 Blaming attitudes towards PLWHA

S.No	Questions	Answer	Code
401	PLWHA have got what they deserved.		
402	PLWHA don't care if they infect others.		

3.3 Coercive attitudes towards PLWHA

S.No	Questions	Answer	Code
501	A teacher who has HIV/AIDS should be prohibited from teaching.		
502	Employers should refuse to employ PLWHA staff.		
503	PLWHA should be prohibited from using public medical facilities		
504	All PLWHA medical staff should be dismissed from their jobs.		
505	PLWHA should try to minimize their attendance of public activities (e.g., funfair, concert)		
506	You would object to PLWHA service facilities in your neighbourhood		
507	All PLWHA school staff should be dismissed from their jobs in order to protect the school community.		
508	It is necessary to enact a law prohibiting PLWHA foreign visitors from visiting Ethiopia.		
509	It is necessary to enact a law making PLWHA publicly disclose their HIV status		
510	Insurance companies should refuse PLWHAs' insurance		
511	High risk groups like Commercial Sex Workers should be forced to get tested for HIV		
512	PLWHA should be quarantined in certain institutions.		

3.4 Sympathetic Feelings towards PLWHA

S.No	Questions	Answer	Code
601	You would not be willing to care for any person in the community sick with HIV/AIDS.		
602	If your family members unfortunately contract HIV, you would not be willing to take care of their daily living		

አባረ 1 መጠይቅ

በአዲስ አበባ ዩኒቨርሲቲ የህክምና ፋኩልቲ የህብረተሰብ ጤና አጠባበቅ ትምህርት ክፍል፣

በአዋሃ ከተማ የሚገኙ የሁለተኛ ደረጃ ት/ቤቶች ውስጥ በሚገኙ እድሜያቸው ከ10-19 የሆናቸው ተማሪዎች የተሳሳቱ ግንዛቤዎችንና እንዲሁም ከቫይረሱ ጋር በሚኖሩ ሰዎች ዙሪያ ያለውን የማግለልና መድልዎን በተመለከተ ለማጥናት የተዘጋጀ መጠይቅ፣

መግቢያ :- ይህ ከአዲስ አበባ ዩኒቨርሲቲ /አአዩ/ ሜዲካል ፋኩልቲ ጋር በመተባበር ለሚሠራ የመመረቂያ ወረቀት /ፕሮጀክት/ የተዘጋጀ መጠይቅ ነው። በመጠይቁ በአዋሃ ከተማ በሚገኙ ከፍተኛ ሁለተኛ ደረጃ ት/ቤቶች በሚገኙ እድሜያቸው ከ10-19 ዓመት የሆናቸው ተማሪዎች በኤች አይ ቪ. ኤድስ መተላለፊያና መከላከያ መንገዶች ዙሪያ ያላቸውና የተሳሳቱ ግንዛቤዎች እንዲሁም ከኤች አይ ቪ. ጋር ለሚኖሩ ሰዎች ያላቸውን የማግለልና መድልዎ ሁኔታ ምን እንደሚመስል ለማወቅ የተዘጋጀ ነው።

የጥናቱ ዋና አላማ ከቫይረሱ ጋር ተያያዥነት ያላቸውን የተሳሳቱ ግንዛቤዎች ለመቀነስና ከቫይረሱ ጋር የሚኖሩ ወገኖችን የማግለልና መድልዎ በመቀነስ በሽታውን ለመከላከል የሚደረገውን ጥረት ማገዝ ነው።

በመጠይቁ ላይ የግል ግንዛቤዎችና አመለካከትዎን የሚዳስሱ ጥያቄዎች ይቀርብልዎታል። በመጠይቁ ላይ ስምዎን ወይም የእርስዎን ማንነት የሚገልጽ ማንኛውንም አይነት ነገር አይጠቀስም ወይም አይያያዝም። የሚሠጡትም መረጃ ከዚህ ጥናት ውጭ ለሆነ ከእርስዎ ጋር ለተገናኘና ለሌላ ጥቅም በፍጹም አይውልም። እርስዎ ለዚህ መጠይቅ መላሽነት የተመረጡት በእግርና በአጋጣሚ እንጂ ሆን ተብሎ ታስቦበት አይደለም። በመጠይቁ ውስጥ መመለስ የማይፈልጉትን ማንኛውንም አይነት ጥያቄ መተው ወይም መጠይቁን በመመለስ ማቋረጥ ይችላሉ። ሆኖም ግን የሚሠጡት እውነተኛ መረጃ በተማሪዎች አካባቢ ያለውን የተሳሳቱ ግንዛቤዎችና እንዲሁም ከቫይረሱ ጋር ለሚኖሩ ወገኖች የሚንፀባረቀውን የማግለልና አድልዎ ሁኔታ የበለጠ ለመረዳት እንዲቻል ትልቅ አስተዋጽኦ ይኖረዋል።

በቅንነት ይህን መጠይቅ በመመለስ ለሚሰጡት ትልቅ ትብብር በቅድሚያ ላመሰግንዎት እፈልጋለሁ። ይህን ቃለ መጠይቅ ለመሙላት 20 ደቂቃዎች ያህል ይፈጅብዎታል። በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት?/ ሃሳብዎን ከምርጫዎቹ አንዱን በመክበብ ይግለጹ።

1. አዎን → ከሆነ መልስዎን ወደሚቀጥለው ገጽ በመሄድ መጠይቁን ይሙሉ፤
2. አይደለሁም ከሆነ → እባክዎትን የመጠይቁን ወረቀት ለሰጥዎት ሰው ይመልሱ፤

የት/ቤትዎ ስም _____
 የመጠይቁ ተ.ቁ _____

ማሳሰቢያ፡- እባክዎን መልስዎችዎን መልስ በሚለው የሠንጠረዥ ክፍል ውስጥ ይሙሉ። ኮድ የሚለውን ለመልስ መስጫነት መጠቀም የለብዎትም

ክፍል አንድ የመላሹ ማህበራዊና ስነ ህዝብ ነክ መረጃዎች

ተ.ቁ	ጥያቄዎች	መልስ	ኮድ
101	እድሜ በአመት		
102	ጾታ 1. ወንድ 2. ሴት		
103	የክፍል ደረጃ 1. 9ኛ 2. 10ኛ		
104	የጋብቻ ሁኔታ 1. ያገባ/ች 2. ያላገባ/ች		
105	የቤተሰብ ወርሃዊ ገቢ በብር ሲተመን		
106	ብሔር/ ብሔረሰብ 1. ሲዳማ 2. ወላይታ 3. አማራ 4. ጉራጌ 5. ኦሮሞ 6. ሌሎች /ይጠቀሱ/		
107	የአባት የትምህርት ደረጃ 1. ያልተማሩ 2. መጻፍና ማንበብ የሚችሉ 3. አንደኛ ደረጃ 4. ሁለተኛ ደረጃ 5. ከሁለተኛ ደረጃ በላይ		
108	የእናት የትምህርት ደረጃ		

	1. ያልተማሩ 2. መጻፍና ማንበብ የሚችሉ 3. አንደኛ ደረጃ 4. ሁለተኛ ደረጃ 5. ከሁለተኛ ደረጃ በላይ		
108	ሃይማኖት 1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌሎች /ይጠቀሱ/		
109	የወላጆች የመኖሪያ አካባቢ 1. ከተማ 2. ገጠር		
110	የፀረ ኤድስ ክብብ በትምህርት ቤቶቻችሁ አለ? 1. አዎ 2. የለም መልሱህ /ሽ የለም ከሆነ ወደ ጥያቄ 112 ሂድ/ጂ		
111	ለተራ ቁጥር 110 የመለስከው/ሽው መልስ አዎ ከሆነ የክበቡ አባል ነህ/ሽ ? 1. አዎ 2. አይደለም		
112	በመኖሪያ ቤትህ/ሽ ሬድዮ አለ? 1. አለ 2. የለም		
113	በመኖሪያ ቤትህ /ሽ ቴሌቪዥን አለ? 1. አለ 2. የለም		
114	ባለፉት ሁለት ሳምንታት ውስጥ ኤች አይ ቪ/ ኤድስን በተመለከተ የወሰድከው /የወሰድሽው ትምህርት አለ? 1. አዎን አለ 2. የለም		

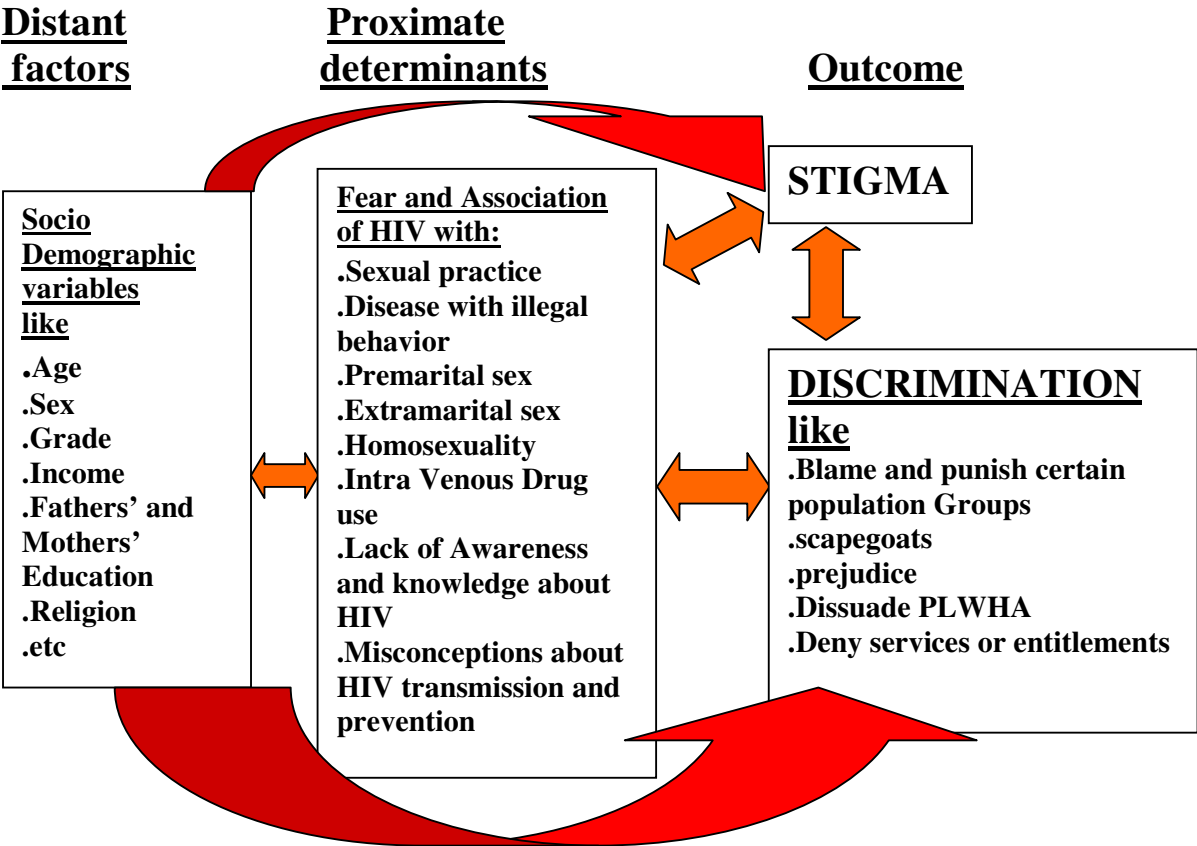
ክፍል ሁለት በኤች አይ ቪ. መተላለፊያና መከላከያ መንገዶች ዙሪያ ያሉ የተሳሳቱ ግንዛቤዎችን በተመለከተ

ተ.ቁ	ጥያቄዎች	መልስ	ኮድ
201	አንድን ሰው የኤች አይ ቪ/ኤድስ በሽታ በጥንቁላ ወይም ምትግት ሊይዘው ይችላል? 1. አዎ 2. አይደለም		
202	ኤች አይ ቪ/ኤድስ በእግዚአብሔር ቁጣ ምክንያት የሚመጣ በሽታ ነው? 1. አዎ 2. አይደለም		
203	አንድን ሰው የኤች አይ ቪ. ቫይረስ በትንኝ ንክሻ ሊይዘው ይችላል? 1. አዎ 2. አይደለም		
204	ኤች አይ ቪ ከእናት ወደ ልጅ ሊተላለፍ ይችላል? 1. አዎ 2. አይደለም		
205	ኤች አይ ቪ ቫይረስ ካለበት ሰው ጋር አብሮ በአንድ እቃ በመብላት በሽታው ሊተላለፍ ይችላል? 1. አዎ 2. አይደለም		
206	ኤች አይ ቪ በማሳል ወይም በማስነጠስ ሊተላለፍ ይችላል? 1. አዎ 2. አይደለም		
207	ከኤች አይ ቪ ጋር የሚኖር ሰው ያዘጋጀውን ጥሬ ስጋ/ ምግብ በመመገብ ኤች አይ ቪ ሊተላለፍ ይችላል? 1. አዎ 2. አይደለም		
208	የኤች አይ ቪ. ቫይረስ ያለበት ደም ለተጎዳ ሰው በሚሰጥበት ጊዜ ቫይረሱ ሊተላለፍ ይችላል? 1. አዎ 2. አይደለም		

601	በህ/ሰብ ውስጥ ያለ ማንም ከቫይረሱ ጋር የሚኖር ሰው ቢኖር ለመንከባከብ ፍላጎት የለህም/ሽም		
602	እንደ አለመታደል ሆኖ ከቤተሰብ አባል አንዱ በቫይረሱ ቢያዝ አስፈላጊውን እንክብካቤ ለማድረግ ፍላጎት የለህም/ሽም::		

Annex II. A CONCEPTUAL FRAME WORK OF HIV AND AIDS RELATED

STIGMA AND DISCRIMINATION



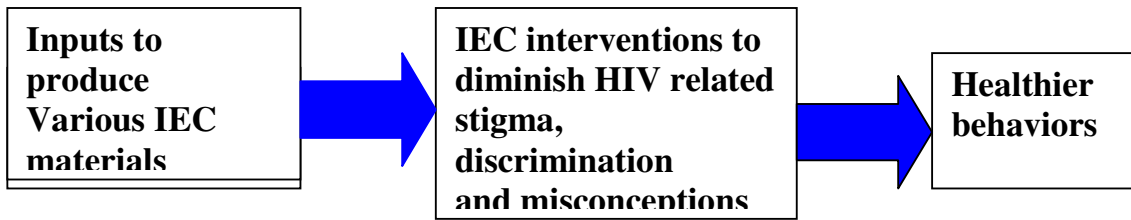


Fig.4. the process and outcome of IEC interventions

Annex III. Map of Ethiopia, SNNPR and Location of Awassa Town



