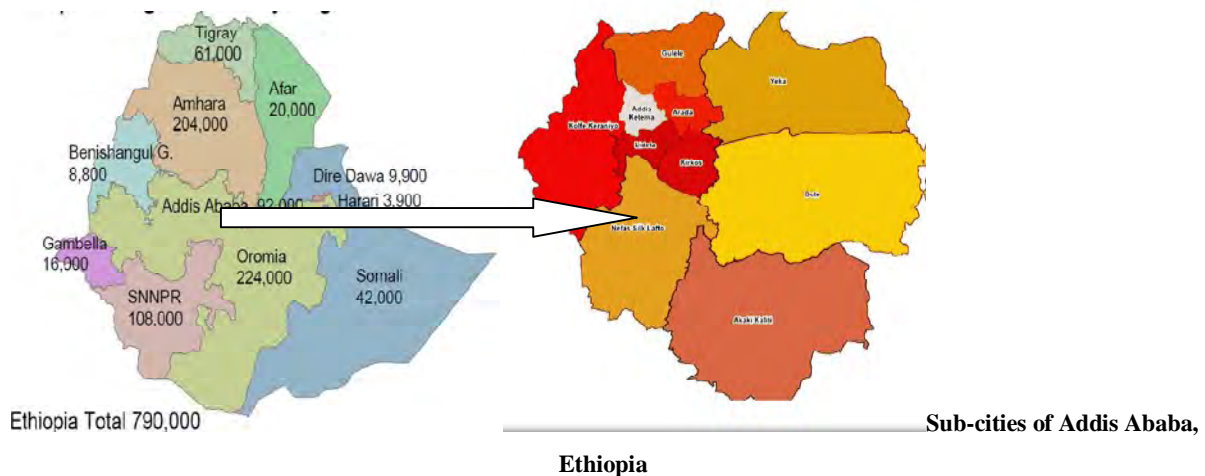




EFFECTS OF HIV/AIDS AND INTERVENTIONS TO MITIGATE THE EPIDEMIC AT PUBLIC PRIMARY AND SECONDARY SCHOOLS IN ADDIS ABABA, ETHIOPIA

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People Living With HIV By Region, 2011

**DISSERTATION FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
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**EFFECTS OF HIV/AIDS AND INTERVENTIONS TO MITIGATE
THE EPIDEMIC AT PUBLIC PRIMARY AND SECONDARY
SCHOOLS IN ADDIS ABABA, ETHIOPIA**

**A DISSERTATION SUBMITTED TO THE SCHOOL OF GRADUATE
STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT
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PHILOSOPHY IN PUBLIC HEALTH**

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SCHOOL OF PUBLIC HEALTH, ADDIS ABABA UNIVERSITY

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Original Papers:

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- I. Takele Menna, Ahmed Ali, Alemayehu Worku. The trend of HIV/AIDS related mortality among primary and secondary school teachers in Addis Ababa, Ethiopia: using a verbal autopsy approach. *Ethiop Med. J.* 2015; **53**:2
- II. Menna T, Ali A, Worku A. Prevalence of “HIV/AIDS related” parental death and its association with sexual behavior of secondary school youth in Addis Ababa, Ethiopia: a cross sectional study. *BMC Public Health* 2014; **14**:1120
- III. Menna T, Ali A, Worku A. Factors associated with HIV Counseling and Testing among Secondary School Students in Addis Ababa, Ethiopia: a cross sectional study. *J Infect Dis Ther* 2015; **3**:3
- IV. Menna T, Ali A, Worku A. Factors associated with HIV Counseling and Testing and the HCT correlations with sexual behaviors among Teachers in Primary and Secondary Schools in Addis Ababa, Ethiopia, a comparative cross sectional study. *Journal of HIV/AIDS- Research and Palliative Care* 2015; **7**: 197-208
- V. Menna T, Ali A, Worku A. Effects of Peer Education Intervention on Sexual Behaviors of Secondary School Students in Addis Ababa, Ethiopia: a Quasi-Experimental Study/ under review, *Journal of BMC Reproductive Health*/

Acronyms and Abbreviations:

AAU	Addis Ababa University
AACAFaEDB	Addis Ababa City Administration Finance and Economic Development Bureau
ABC	Abstain, Be faithful ,use condom
AIDS	Acquired Immunodeficiency Syndrome
AOR	Adjusted Odds Ratio
ART	Antiretroviral treatment
CGAAEB	City Government of Addis Ababa Education Bureau
CGAAHAPCO	City Government of Addis Ababa HIV/AIDS Prevention and Control Office
CSA	Central Statistics Authority
C.I	Confidence Interval
EDHS	Ethiopian Demographic and Health Survey
EFA	Education for All
EFMoE	Ethiopian Federal Ministry of Education
EFMoH	Ethiopian Federal Ministry of Health
EHNRI	Ethiopian Health and Nutrition Research Institute
EPHI	Ethiopian Public Health Institute
FDRE	Federal Republic of Ethiopia
FHAPCO	Federal HIV/AIDS Prevention and Control Office
FGD	Focus Group Discussion
FHI	Family Health International
FMoE	Federal Ministry of Education
FMoH	Federal Ministry of Health
HAPCO	HIV/AIDS Prevention and Control Office
HCT	HIV counseling and testing
HIV	Human immunodeficiency virus
IATT	Inter Agency Task Team
INDEPTH	International Network of field sites with continuous Demographic Evaluation of Population and Their Health in Developing Countries

ISY	In school Youth
MDG	Millennium Development Goal
NGO	Non-governmental organization
OR	Odds Ratio
OVC	Orphan and Vulnerable Children
PICT	Provider Initiated HIV Counseling and Testing
PLWHA	People living with HIV/AIDS
PMTCT	Prevention of Mother-to-child Transmission
SPSS	Statistical Package for Social Science
SRH	Sexual and Reproductive Health
SSA	Sub-Saharan Africa
SPHMMC	Saint Paul's Hospital Millennium Medical College
STI	Sexually Transmitted Infections
UNAIDS	Joint United Nations Program on HIV/AIDS
UNGASS	United Nations General Assembly for Special Sessions.
UNICEF	United Nations Children's Emergency Fund
VA	Verbal Autopsy
VCT	Voluntary Counseling and Testing
WHO	World Health Organization

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Abstract

Background

Globally, HIV/AIDS is one of the most profound developmental challenges faced in the human history. Despite the fact that the epidemic is affecting almost all development sectors, it is widely asserted that the education sector has been profoundly affected. The effects of the epidemic on the education sector are complex.

In its current disposition, education remains the most human intensive public sector in Ethiopia. Cumulatively, the sector has a total of 17,413,176 students, 314,524 teachers and more than 80,000 non-teaching staff (constituting a total of more than 24% of the country's population).

Mitigating the effects of HIV/AIDS on the education sector is especially important, since this sector trains all public servants. Moreover, it is crucial to provide all concerned at different levels with some research based and up-dated data on the effects of HIV/AIDS on the education sector and interventions to mitigate the epidemic for evidence based prevention, control, and care and support programs.

Objective of the study: To assess the effects of HIV/AIDS and interventions against the epidemic with particular emphasis on the public primary and secondary schools in Addis Ababa, Ethiopia

Methodology: This study consisted of community and school based longitudinal, cross-sectional and quasi experimental study designs which were conducted among teachers and students at public primary and secondary schools in Addis Ababa in the year 2012/13. The selection of schools was conducted in three phases: 103 primary and secondary schools in phase I, 30 secondary schools in phase II and 4 secondary schools in phase III. The selections were done randomly in Phase I and II and purposively in Phase III. Furthermore, triangulations of various methods of data collection were used to increase the validity of the study. For the specific objective I or assessing the trend of mortality among teachers in the era of HIV /AIDS a longitudinal study with a verbal autopsy approach was used. But for the specific objectives II, III and IV or examining the proportion of students who lost one or both parents due to HIV/AIDS related causes, investigating factors associated with HIV Counselling and Testing /HCT/ among

secondary school students, and assessing factors associated with HCT up-take and its correlations with risky sexual practices among primary and secondary school teachers in Addis Ababa a cross- sectional study design was used. In addition, for the specific objective V or examining the effects of school- based HIV prevention interventions on sexual behaviours of students at secondary schools a quasi-experimental study design was used.

Sampling techniques and sample sizes varied as per the five different, but practically inter-related specific objectives in order to address each of them effectively and adequately. Data collections were conducted by 12 diploma graduate nurses under the supervision of 2 senior health professionals and the principal investigator. Data were entered first into Epi-Info software, version 3.5.4 for cleaning and were transported to SPSS software version 20.0 for analysis. Various statistical methods, including descriptive statistics, Chi squared test and multiple logistic regressions were used to show the magnitudes of the problems and the relation-ships of different factors with the effects of HIV /AIDS and the interventions to mitigate the epidemic by controlling various confounders at the same time.

Results

As the verbal autopsy data of deceased teachers demonstrated the proportionate mortality ratio between the total and HIV/AIDS related mortality declined from 0.33 to 0.18 during the first two years (Nov.2005-Oct.2007) and the last two years (Nov.2012-Oct.2013) of the study period, respectively. The decline in the HIV/AIDS related mortality was statistically significant with Mantel Haenszel Chi-square=7.04($P<0.01$) (Paper I).

The overall prevalence of parental death among secondary school students was 347(17.8 %) 95% CI (16.2%, 19.6%) and the HIV/AIDS proportionate mortality ratio was 28% (97/347)

A multivariable binary logistic regression analysis demonstrated that high HIV/AIDS related knowledge (AOR= 0.39 ; 95% CI, 0.18-0.84), positive attitude towards HIV prevention methods (AOR=0.48 ; 95% CI, 0.23-0.97) , being tested for HIV (AOR= 0.52 ; 95% CI, 0.31-0.87) and chewing Khat (AOR= 2.59 ; 95% CI,1.28-5.26)] were significantly associated with having

multiple sexual partners among both orphaned and non-orphaned secondary school youths (Paper II) .

In addition, the proportion of secondary school students who were never tested for HIV was 761/1948 (39.1%), with 95% CI (36.3 -41.8 %). Of those who were never tested, 820 (69.4%) with 95%CI, (66.3%- 72.5%) reported their willingness to go for HCT within two months after the survey (Paper III).

A multivariable binary logistic regression analysis showed that age being >18 (AOR= 2.64 ; 95% CI, 1.46-4.77) and having multiple sexual partners in the previous year (AOR= 2.08 ; 95% CI, 1.21-3.57 were positively associated with being ever tested for HIV (paper III).

As the comparative cross sectional study /Paper IV/ indicated, the proportion of teachers who had ever been tested for HIV was 739/1034 (71.5%) with 95% CI (69.1% -74.2 %).

Multivariable binary logistic regression analyses showed that male teachers (AOR=0.63 ; 95% CI, 0.44-0.90) had lower chance of being ever tested for HIV compared with female teachers. Married teachers (AOR=0.30;95% CI,0.19-0.47) also had lower chance of being ever tested for HIV compared with unmarried teachers. Age being ≥ 45 (AOR= 4.05 ; 95% CI, 1.82-9.03) , high HCT related knowledge (AOR=3.56;95% CI,1.73-7.32) and perceived risk of HIV AOR=1.43; 95% CI,1.04-1.96) were positively associated with determinants of HCT.

Regarding factors associated with HIV Counseling and Testing, teachers who never had HCT were more likely to have multiple sexual partners than their counterparts (AOR=1.85; 95% CI, 1.08-3.15). In contrast, those teachers ever tested for HIV were less likely to use condoms consistently compared to those who were never tested (AOR=0.55; 95% CI, 0.32-0.96 (Paper IV).

The quasi-experimental study (Paper V) showed that students in the peer education intervention group were more empowered compared to the control group. Comprehensive knowledge of HIV

(P-Values =0.004) and willingness to go for HIV counseling and testing (P-value= 0.01) demonstrated significant differences among intervention group during post intervention period. Students in the intervention group were more likely to use condoms during post intervention period compared to students in the control group [AOR=4.73 (95% CI (1.40-16.0)] (Paper V)

Conclusions

- The findings of this study have demonstrated a statistically significant decline in the total and HIV/AIDS related mortality between November 2005 and October 2013 among teachers at public primary and secondary schools in Addis Ababa.
- Significant proportion of secondary school youths lost at least one parent due to various causes including HIV/AIDS. High knowledge of HIV/AIDS, positive attitude towards ‘ABC’ rules for HIV prevention, being tested for HIV and chewing khat were more likely to be factors associated with multiple sexual partnership among secondary school students in Addis Ababa.
- The observed proportion of HCT among secondary school students was low. Of the selected predictors, age, grade level, having sexual intercourse and practicing sex with multiple sexual partners in previous year were associated with ever having HCT as well as showing willingness to go for it in the near future.
- Gender, age, marital status, knowledge of HCT, and perceived risk were found to be factors associated with HCT uptake among primary and secondary school teachers. Being faithful to a partner and inconsistent use of condom were observed correlates of HCT among teachers.
- Despite the short follow up period, students in the peer education intervention group demonstrated positive changes in HIV related comprehensive knowledge and showed

better interest to go for HIV testing in the near future. In addition, positive changes on risky sexual behaviors were reported from the intervention group.

Recommendations:

- The Ministry of Education and its collaborators should inject more resources to improve the quality of teaching and learning of HIV / AIDS Program for the School Community
- HIV/AIDS related interventions in the education sector should also be strengthened with practical strategies of controlling health risk habits such as chewing Khat and drinking alcohol, besides sexual risky behaviors.
- Since the present study has focused on schools in Addis Ababa only, there is a need for large scale or nationwide studies with more representative sample size to consolidate much needed empirical evidence on HIV/AIDS effects among the school community.

Keywords:

Education Sector, Primary and Secondary schools, Teachers, Students, HIV/AIDS , Risky Sexual Behavior, Orphans, Mortality, Peer Education, Factors associated, and HIV Counseling and Testing

1. Introduction

1.1. Back ground of the study

HIV/AIDS is one of the most destructive pandemics human kind has ever faced (1). The multifaceted tragedy arising from HIV/AIDS is one of the biggest health and development challenges the World has ever noticed in modern history (2). It is a critical development issue that affects the lives of millions of people and a global crisis with consequences that will be felt for decades to come (3, 4).

AIDS remains complex and incurable and devastates individuals, communities and nations. Despite millennia of epidemics, war and famine, never before in history have death rates of this magnitude been seen among young adults of both sexes and from all walks of life (5, 6).

Since the first case was identified in 1981, around 78 million (71 million-87 million) have been infected with HIV and 39 million (35 million-43 million) people have died of AIDS related illnesses (1).

While AIDS-related deaths are fortunately declining due to biomedical interventions supported through social protection mechanisms, according to the UNAIDS report on HIV/AIDS, globally there were about 35.3 million people living with HIV/AIDS at the end of 2012 (estimates range from 32.2 to 38.8 million), i.e. 0.5% of the world population. In addition, there were about 2.3 (1.9-2.7) and 1.6 (1.4-1.9) million new HIV infections and deaths, respectively across the Globe in 2012 (7).

Despite the Millennium Development Goal (MDG) number six, that stated the heads of governments should aim to combat, halt and reverse the HIV pandemic by 2015 and numerous

due efforts to control and prevent HIV/AIDS, its prevalence rate is increasing both globally and in sub Saharan African countries that share the highest burden of the pandemic (1, 7).

It is widely argued that school teachers in SSA are badly affected by the HIV/AIDS epidemic and heterosexual intercourse is considered as the major means of transmission of the epidemic in the Region (8, 9).

Ethiopia is among the countries most affected by the HIV epidemic. With an estimated adult prevalence of 1.5%, it has a large number of people living with HIV (approximately 800,000) and about 1 million AIDS orphans (2).

The negative effects of the AIDS epidemic are felt most severely in some of the world's poorest countries in sub-Saharan Africa. One of its effects has been an increase in the number of orphaned children (2, 10, 11).

It is estimated that for each woman who dies of AIDS in Africa, two children will be orphaned (12). The epidemic in Africa puts children at risk physically, emotionally and economically. These challenges may further predispose these children at heightened risk of prolonged mental and behavioral problems (13).

HIV / AIDS directly impacts on the lives of approximately 20 million children worldwide and an estimated 16.6 million children have lost one or both parents due to the disease (12, 14). In countries with high HIV prevalence and the resultant high adult mortality rate, there will be higher incidence and prevalence of orphans (15) .

HIV/AIDS is a major threat for development, economic growth and poverty alleviation in much of Africa (16, 17). And yet the full extent of the catastrophe facing the continent is only just being recognized, and still not by all. In particular, sub-Saharan Africa has about two-thirds of all people living with HIV/AIDS globally (17). In sub-Saharan Africa, including Ethiopia, young people are hardest hit by HIV pandemic. An estimated 11.8 million young adults are living with HIV in different parts of the world and half of all new adult infections that account to about 6000 daily is acquired at young age (16, 17).

An estimated 1700 children under the age of 15 years and 600 young people aged 15 to 24 years became infected every day (18). In developing countries like Ethiopia, unless drastic measures are taken to prevent and control the spread of HIV and AIDS among the most at risk young and adult groups like students and teachers, there will be a reversal of development gains and further development will be greatly in problem (15) .

Moreover, education for all goals as well as the Millennium Development Goals (MDGs) could be unattainable within the foreseeable future (19). Worldwide, some 50 percent of all new HIV cases occur in youth between the ages of 15 and 24 years. HIV/AIDS thus strikes people in their most productive years, severely disrupting the economic and social base of whole families and societies (13).

To achieve widespread implementation of preventive interventions many things will need to be done in many sectors and by many actors. At the same time, it will be important to ensure that the interventions reach those people who are vulnerable and most at risk of becoming infected with HIV, as the pandemic develops and matures (19).

As in other Sub-Saharan countries, the education sector in Ethiopia is being severely compromised by the HIV pandemic. A 5% increase in death amongst teachers in Ethiopia has been noted between 1999 –2001 and some of which can be attributed to AIDS (20) .

Thus, this study, utilizing various research methods examined the effects of HIV/AIDS and interventions to mitigate the epidemic on the public primary and secondary schools in Addis

Ababa, Ethiopia. It was conducted in order to fill the current research gaps and provide with valid and up-dated information for possible actions to mitigate the effects of HIV/AIDS on the primary and secondary schools of the country.

1.2. Statement of the Problem

The HIV/AIDS epidemic remains to be one of the major challenges of development in both developed and developing countries of the world. It affects people's welfare, undermining social cohesion and security, incapacitating global workforces, and diminishing social and economic productivity (21).

HIV/AIDS strikes people at the prime of their lives (22). Young people in developing countries, including Ethiopia are particularly vulnerable to HIV infection, other sexually transmitted infections (STI) and unintended pregnancy. This is mainly because of a combination of experimental behavior in adolescence, limited knowledge, poverty, and socio-cultural factors, including sex inequality (23).

Ethiopia is among the most affected countries with HIV /AIDS in the world and the disease is one of the top ten causes of death in the Country. In Ethiopia, an estimated AIDS related death for the year 2013 was 45,200 and there were about 898,400 orphans in the same year (24, 25).

Despite the fact that the epidemic is affecting almost all development sectors, it is widely asserted that the basic education sector in sub-Saharan Africa has been profoundly affected (26). The fact that the sector deals with a large number of personnel (teachers, nonacademic staff and students that are mainly young) makes it one of the most affected by HIV/AIDS (27).

A study conducted in South Africa on the impact of HIV/AIDS on the teaching profession determined that 12.7% of educators were HIV positive and that the prevalence was highest in the age group 25–34 years (28).

A cross-sectional survey of schools in Namibia reported an increasing occurrence of illness and deaths among younger teaching staff with an average loss of 1.5% teachers in two years (29).

A 5% increase in death amongst teachers in Ethiopia has been noted between 1999 –2001 and some of which was attributed to AIDS (20). A cross sectional study that was conducted in Addis Ababa, Ethiopia, disclosed that HIV/AIDS related illnesses were the leading causes of death which accounted for 47.9 % of all deaths among teachers in Addis Ababa (30).

A survey that was undertaken in 2003 on primary and secondary school teachers in Malawi showed annual mortality rates of less than 1.0 percent though the trend was upward at the rural secondary schools. Among primary school teachers, mortality rates have been much higher, but appeared to have peaked in 1999 and 2000 (31).

Nevertheless, in sub-Saharan countries, hardest hit by HIV/AIDS, there is lack of hard evidence about what is actually happening in schools and no country specific sufficient numbers of studies were done on school based interventions whose results could be interpreted with confidence. Moreover, even at this relatively late stage of the epidemic, our understanding of how HIV/AIDS is affecting the primary and secondary schools in sub-Saharan Africa is generally poor. Consequently, there are ambiguities and broad generalizations about the effects of the epidemic on the primary and secondary schools.

Furthermore, there was a critical research gap in Ethiopia concerning the effects of HIV/AIDS on the education sector in general and on the public primary and secondary schools in particular. Even though there are very few researches, they are out-dated and may mislead the intervention strategies of the policy makers and donor agencies (26). Accordingly, the need for research to bridge the current gap in the effects of HIV/AIDS was highly emphasised on the education sector policy and strategy document of the country (26).

In general, the HIV/AIDS pandemic remains to be one of the most serious global, regional and national health and development challenges, and there is a need to target (a) sub-Saharan Africa where the greatest burden of the epidemic lies; (b) primary and secondary schools in which most

new infections can occur among children, adolescents, youth and adults, but lacks research based and recent evidence on its effects .

The objective of this research was to provide all the concerned organizations with adequate and recent research findings on the effects of HIV/AIDS and interventions to mitigate the epidemic at primary and secondary schools in Addis Ababa.

1.3 Rationale of the study

The devastating impacts of HIV/ AIDS on the quality of life of people still continue, with particular severity in the education sector. In highest prevalence countries of Africa including Ethiopia , HIV/AIDS is affecting the supply of education, the demand for education, the quality of education, the way education is managed, and its capacity to respond to new and complex demands (32).

As the Millennium Development Goals are intertwined, stopping HIV infections among the most productive and reproductive young and adult population as those in the primary and secondary schools have always been at the heart of both the global and national AIDS responses (33).

Some of the major challenges related to HIV/AIDS at the primary and secondary schools in Ethiopia are:

- i. A decline in the number of qualified teachers due to HIV/AIDS related mortality
- ii. An increase in the number of orphans and vulnerable children (OVC):
- iii. An increase in the number of children likely to drop out of school before completion: As many children become orphaned and more vulnerable, their likelihood of continuing with education diminishes.
- iv. . A decline in school efficiency and effectiveness (26).

Nevertheless, one of the most remarkable features of the AIDS epidemic in Ethiopia is that, like no other pandemic before it, there is very little accurate information about the causes and trends of mortalities across the main socio-economic groups in society. For instance, even for the key occupations like teaching, it is often very difficult to ascertain how many teachers have died during the last 5-10 years (for whatever reason) in the country.

In the absence of reliable mortality data, it is worthy to conduct the surveys on causes of orphanhood and mortality trends among primary and secondary schools students and teachers, respectively using various relevant techniques that could help to know both the numbers of people who have died as well as those who are likely to die in the future as a result of AIDS-related illnesses.

Moreover, given the high prevalence of HIV/AIDS among young people, exploring the factors associated with HCT among primary and secondary school students and teachers, most of them are in their sexually active age group, could also play key roles in the public health response to the epidemic as it is a vital point of entry to HIV/AIDS services including antiretroviral therapy (34).

Eventhough studies conducted in various countries reported that school-based HIV prevention programs are one of the most recommended HIV/AIDS prevention strategies to decrease the prevalence of sexual risk behavior among school youths, there was no evidence in Ethiopia, whether school based prevention interventions like peer education result in positive changes on sexual behavior of school youth and adults (35).

This study, therefore, has been conducted in recognition of the urgent need to bridge the current gap in clearly understanding the effects of HIV/AIDS and the interventions against the epidemic on the primary and secondary schools in Addis Ababa, Ethiopia.

1.4 Literature review

It is widely accepted that the HIV/AIDS epidemic seriously affects the education sector of a country, particularly in Sub-Saharan Africa. However, in relation to the problem very limited numbers of researches have been conducted, especially in high prevalence countries and that makes crucial the need for assessing the actual and likely future impacts on the supply, demand and quality of the education sector. Hence, this literature review is aimed at identifying the recent epidemiological picture of HIV/AIDS, what had been done and known so far and the research gap to be bridged regarding the effects of HIV/AIDS and interventions to mitigate the epidemic on the public primary and secondary schools.

1.4.1 The World wide picture of HIV/AIDS

The multifaceted tragedy arising from HIV and AIDS is a problem facing every country on the Earth. Acquired Immunodeficiency Syndrome (AIDS) has become one of the most important public health and development threat in the contemporary society (2).

AIDS remains complex and incurable and devastates individuals, communities and nations. Despite millennia of epidemics, war and famine, never before in history have death rates of this magnitude been seen among young adults of both sexes and from all walks of life (4, 6) .

The countries most badly affected by HIV/ AIDS are low-income countries, where there has often been little substantial progress so far in meeting the most basic health needs of the general population (21).

Every day, 4,900 people die from HIV/AIDS and another 7,100 people are infected with the AIDS virus (36). According to the UNAIDS report on HIV/AIDS, globally there were about 35.3 million people living with HIV/AIDS at the end of 2012 (estimates range from 32.2 to 38.8 million), i.e. 0.5% of the world population. In addition, there were about 2.3 (1.9-2.7) and 1.6 (1.4-1.9) million new HIV infections and deaths, respectively across the globe in 2012 (7).

HIV/AIDS affects people mostly in the economically productive age group, reducing the work force and, in doing so, constrains development. The most affected group among those living with HIV are people aged 25-49 years (37). Moreover, the young people aged 15-24 account for more than 50 percent of all HIV infections worldwide (excluding perinatal cases). In Africa alone, an estimated 1.7 million young people are infected annually (38,39).

1.4.2 HIV / AIDS in Africa

Africa accounts for only 10% of the world population. But it accounts for 70 % of the HIV positive case load and 90% of HIV infected babies (18). Trends in new adult infections differ among regions. The epidemic continues to disproportionately affect sub-Saharan Africa, home to 70% of all new HIV infections in 2012 (7).

The epidemic has become number one killer disease of adult men and women in their most productive age in many countries of Africa. It is estimated that for each woman who dies of AIDS in Africa, two children will be orphaned (15). Since the beginning of the epidemic, more than 15 million Africans have died from AIDS. Although access to antiretroviral treatment is starting to lessen the toll of AIDS fewer than half of Africans who need treatment are receiving it. The impact of AIDS will remain severe for many years to come (40, 41).

In 2011, an estimated 23.5 million (22.1–24.8 million) people living with HIV resided in sub-Saharan Africa, representing 69% of the global HIV burden. In addition, 92% of pregnant women living with HIV and more than 90% of children who acquired HIV in 2011 lived in sub-Saharan Africa (42). Women are disproportionately affected by the HIV epidemic, accounting for 58% of all people living with HIV in the Region in 2011 (42).

HIV/AIDS is the leading cause of death in sub-Saharan Africa and the fourth largest killer worldwide. Among those who die of the epidemic are teachers, health workers, and farmers forcing the closure of schools and clinics and threaten food security (43).

In sub-Saharan Africa, young people are severely affected by HIV pandemic. About 11.8 million young adults are living with HIV; and half of all new adult infections that account to about 6000 daily is acquired at young age (17).

Preventing HIV among young people is particularly urgent in sub-Saharan Africa, where in many countries young people comprise more than 30 percent of the population and general HIV prevalence rates often exceed 10 percent (38, 39). The disease affects people during their most productive years, making economic progress in many sub-Saharan African countries even more of a challenge. People with AIDS don't suffer alone. The disease also attacks their families and communities. For example, 14.8 million African children have already lost one or both parents to HIV/AIDS (36).

As a cause of orphanhood, HIV/AIDS is exceptional in that if one parent is infected with HIV, the probability that the spouse is also infected is quite high. This means that children face a large risk that both their parents could die within a relatively short period. Without HIV/AIDS, the total number of 'double' orphans would have declined from 1990 to 2010, in sub-Saharan Africa. HIV/AIDS, however, will nearly triple the number of orphans in the Region by 2010 (44).

Almost two-thirds of all young people (aged 15-24) with HIV live in sub-Saharan Africa. In this Region, approximately 75% of new infections among young people are among young women. In some populations in sub-Saharan Africa, one in five of girls less than 18 years of age are infected with HIV (45).

The vast majority of people newly infected with HIV in sub-Saharan Africa are infected during unprotected heterosexual intercourse, including paid sex and vertical transmission of HIV to newborns and breastfed babies. Having unprotected sex with multiple partners remains to be the greatest risk factor for HIV in this Region (46) .

Results from recent studies in sub-Saharan Africa indicate the existence of groups of men who have sex with men and high levels of HIV infection among them (47). Up to 20% of new HIV

infections in Senegal and 15% of those in Kenya and Rwanda could be linked to unprotected sex between men (48-50).

1.4.3 HIV /AIDS epidemic in Ethiopia

HIV infection probably began in Ethiopia in the late 1970s or early 1980s with the first AIDS cases reported in 1986 (51). Similar to other Sub-Saharan countries, the predominant strain is HIV-1 subtype C, predominantly spread through unprotected heterosexual intercourse (52).

With a total projected population of 90.9 million currently (50.8% female), Ethiopia is among the most affected countries with HIV /AIDS in the world (53-55). The spread of HIV started in the country in early 1980s. Globally, the country has the 16th highest number of people living with HIV/AIDS (54). As a whole, an estimated 5000 people, mainly in the age group of 20-49 years are newly infected each week in the country. This is the most important group from both economic and parenting stand point. However, AIDS is now the leading cause of death in this age group (54).

The EDHS 2011 data of Ethiopia showed that an overall prevalence of HIV among the general population is 1.5%. An EPP/Spectrum estimates also showed that there are 789,900 people currently living with HIV/AIDS (607,700 adults and 182,200 children aged 0-14 years); and 952,700 AIDS orphans in Ethiopia (2, 56).

Nevertheless, as shown in the table 1 below, the estimated number of people living with HIV/AIDS, new HIV infection, annual AIDS deaths, adult HIV prevalence and AIDS orphans in the country demonstrated decreasing trend from 2013 to 2018 (57). But as can be observed from the same table, there are clear indications for HIV/AIDS to continue as public health significance for many years to come in many countries, including Ethiopia (57).

Table 1: Projections /Estimates of major HIV Indicators of Ethiopia, 2013-2018

<i>All Ages</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
HIV Positive population						
Total	793,705	769,602	753,083	740,251	730,975	723,836
Males	322,004	311,555	303,597	297,356	292,631	288,697
Females	471,701	458,047	449,486	442,895	438,344	435,139
New HIV Infections						
Total	21,496	15,614	14,172	11,479	10,019	8,585
Males	9,137	6,403	5,660	4,556	3,996	3,439
Females	12,359	9,211	8,512	6,923	6,023	5,146
Annual AIDS Deaths						
Total	45,171	35,578	26,682	20,354	15,338	11,738
Males	17,340	14,929	11,763	8,975	6,907	5,552
Females	27,831	20,649	14,919	11,379	8,431	6,186
Adult (15-49 years old) prevalence (%)						
Total	1.2	1.1	1.1	1.0	1.0	1.0
Males	0.9	0.9	0.8	0.8	0.8	0.7
Females	1.5	1.4	1.3	1.3	1.2	1.2
Orphans(0-17 Years)						
Maternal Orphans						
AIDS	602,127	555,457	496,255	439,413	385,305	333,336
Non-AIDS	1,196,072	1,174,702	1,152,732	1,130,817	1,109,499	1,089,019
Total	1,798,199	1,730,159	1,648,987	1,570,230	1,494,804	1,422,355
Paternal Orphans						
AIDS	552,702	505,501	454,641	403,466	352,777	303,638
Non-AIDS	2,269,879	2,243,841	2,216,874	2,190,287	2,165,023	2,141,544
Total	2,822,581	2,749,342	2,671,515	2,593,753	2,517,800	2,445,182
Dual Orphans						
AIDS	304,072	275,353	242,328	210,209	180,148	152,410
Non-AIDS	340,970	331,611	322,173	312,456	303,294	295,057
Total	645,042	606,964	564,501	522,665	483,442	447,467
Total	3,975,738	3,872,537	3,756,001	3,641,318	3,529,162	3,420,070
Orphans						
Total AIDS	850,757	785,605	708,568	632,670	557,934	484,564
Orphans						

Source: Ethiopian Public Health Institute, 2014

In Ethiopia, when regional variation in number of people living with HIV /AIDS and the number of people with new infections were computed, Addis Ababa City Administration had the highest share in the country ,i.e., 210,306 people were living with HIV and the incidence rate was 9.2% in 2009/2010 (58, 59). In addition, as can be observed from Table 2 below, Addis Ababa City had the highest adult prevalence of HIV (5.2%) next to Gambella region (6.5%), nationally (56).

Table 2: Summary of the National HIV Indicators in Ethiopia, 2011

Summary

Year 2011

Indicators

	Adult Prevalence (%)	HIV-Pos Population (All ages)	New Infections (All ages)	HIV (All ages)	Annual Deaths	AIDS (All ages)
<hr/>						
Urban+Rural						
Total	1.5	789,960	24,236		53,831	
Tigray	1.8	61,104	1,912		4,583	
Afar	1.8	19,886	611		1,389	
Amhara	1.6	203,542	6,129		14,441	
Oromia	1.0	224,093	7,375		15,726	
Somali	1.1	42,458	1,460		2,636	
Benshangul G	1.3	8,800	282		704	
SNNPR	0.9	108,405	3,442		7,951	
Gambella	6.5	16,212	478		940	
Harari	2.8	3,856	113		262	
Addis Ababa	5.2	91,682	2,154		4,532	
Dire-Dawa	4.0	9,923	281		666	

Source: EHNRI/FMoH, 2012. HIV Related Estimates and Projections for Ethiopia-2012

A study conducted in Addis Ababa to look into male norms that lead to increased HIV risk among youth (mean age of 19 years) documented that 37% had first sex at an average age of 18

years (60). The proportion of multiple partners in the last six months was mentioned by 9.3% of the study participants; and 5.4% reported to have had sex with casual partners and with commercial sex workers, respectively (60). The magnitude of alcohol use was high among youth, where about 10.9% of in-school-youth (ISY) had consumed alcohol drinks the month preceding the interview, and of all ISY, 3.3% were regular alcohol consumers (60). Males were 1.4 times more likely to have reported condom use during their first sex than females.

One-fifth of high school adolescents in one Ethiopian town reported that they had premarital sexual intercourse at the time of survey and from those about three-fourth were male (60).

Higher-risk sexual activity was observed among young women with secondary and above education (21% among those with education to 1.8% with no education), among those in the highest wealth quintile than those in lowest (24% with the highest to 2% with the lowest) (54). Among never-married young women who had sex in the past 12 months, less than half or 45.3% reported using condoms during the last sexual intercourse (54).

Life skills-based HIV/AIDS education is one of the key strategies to increase HIV/AIDS-related knowledge, reduce stigma and discrimination and reduce risky behavior among students and teachers. As the report from the Ministry of Education of Ethiopia indicates, all training institutions, colleges and universities have incorporated life-skills based HIV/AIDS education into their curricula (26).

1.4.4 Effects of HIV/AIDS on the Public Primary and Secondary Schools

Despite the fact that the epidemic is increasingly affecting almost all development sectors, it is widely asserted that the primary and secondary schools in sub-Saharan Africa have been profoundly affected (21). The effects of the epidemic on social institutions, such as schools, are initially sporadic or hard to detect. However, as the epidemic progresses, the effect becomes more pronounced (61).

The school system is a unique tool for spreading information and increasing HIV/AIDS awareness. The primary and secondary schools are existing structures with the potential to reach not only staff and pupils, but also their families and communities (62).

In countries with generalized epidemics, AIDS kills teachers, increases rates of teacher absenteeism, and increases the number of orphans and vulnerable children who are less likely to attend school and more likely to drop out. Girls are especially at risk from becoming infected and affected by HIV because of their socio-economic and physiological situation. Thus, a paradox is apparent: education can prevent HIV infection, but HIV and AIDS damages, and has the potential to destroy the system delivering this prevention. Understanding the likely consequences of HIV/ AIDS on the primary and secondary schools is a critical first step towards planning for and thereby mitigating its effects (16).

HIV/AIDS affects the supply of education services through an increased mortality of educators. For example, according to the World Bank estimates, Zimbabwe would lose about 2.1%, Zambia 1.7 %, Kenya 1.4 % and Uganda 0.5% of their respective educators due to AIDS between 2000 and 2010 (63). Moreover, Kelly and others suggested that the educator cohort is at high risk of infection because of relative affluence, mobility and status in the community, their expectations of sexual ‘bonuses’ in lieu of better conditions of service, and circumstances that separate them from their families (30, 63).

In a study done in Cot D’Ivoire, 8 teachers die of AIDS every week (64). In Uganda about 2,200 teachers suffered or died of AIDS between 1993 and 1996 (65). Similar studies from Zambia exhibited that the teachers’ death rate has risen from less than 2 deaths per day in 1996 to more than 4 deaths per day in 1998 (63, 66). Furthermore, a study done in Ethiopia at the Capital City, Addis Ababa showed that HIV and AIDS related illnesses were the leading causes of death which accounted for 47.9% of all deaths (30).

The result of a cross-sectional survey on the impact of HIV/AIDS on primary and secondary education in Botswana showed that over 50% of deaths of teachers in 1999 were due to both

short and long duration illnesses. Mortality rates were the highest among married and those in the age group 26-40 (67).

Different studies done in some African countries also showed that teachers are dying at an alarming rate than ever before. Filling in the gap is indeed a very difficult task. On the other hand, the quality of instruction diminishes as more and more teachers fall sick. And the end result is poor quality of people evolving from the education system in relation to the demands of the workplace and society (65).

The most crucial effect on the supply of education is the decreased availability of experienced teachers. The impact on teacher productivity may manifest itself as a decreased and erratic school attendance and the loss of energy and motivation as AIDS progresses in severity (65).

A study done in Tanzania regarding the impact of HIV/AIDS indicated that the quality of education is measured by experienced teachers in the country who can deliver and interact with children in order to impart relevant knowledge and skills required in order to develop their capacity and empower them to make decisions on issues affecting their lives (45).

The quality of education delivery tends to be undermined by a combination of factors including, loss of trained and experienced teachers, and reduction in teacher productivity through illness and psychological stress and loss of management capacity in the sector. On the demand side, the psychosocial condition of children affected by HIV and AIDS in their households may reduce their ability to participate and to focus on class and learn, especially if they are grieving or being bullied because of HIV-related stigmatization (65).

Furthermore, the death rates of teachers, pupils and parents are important indicators of the impact of the pandemic (27). The most dramatic effects of HIV/AIDS among children is death of parents, and children who have lost parents left emotionally and physically vulnerable by the illness or death. Many orphans drop out of school for economic reasons or fear of stigma and discrimination (68). A significant effect is evidenced in the increase of child vulnerability in terms of those orphaned and affected by HIV and AIDS (65).

In Senegal, children from affected families reported frequently missed classes due to involvement in domestic duties, obtained poor results, and faced difficulties in buying school stationery and other materials (68). The challenges faced by affected children can contribute to a school environment characterized by distress, anxiety, confusion and lower teaching efficiency (38).

Although there is conflicting evidence on the impact of HIV-related orphan-hood on school attendance rates, in 56 countries where recent household survey data are available, orphans who had lost both parents were, on average, 12% less likely to attend schools than non-orphans (42). On the contrary, in countries with HIV prevalence greater than 5%, orphans were only 4% less likely to be in school than non-orphans, suggesting that heavily affected countries are bridging some of the educational disparities seen earlier in the epidemic (69).

Ethiopia is one of the countries with high prevalence of HIV/AIDS. In its current disposition, education remains the most human intensive public sector. Cumulatively, the sector has a total of 17,413,176 students, 314,524 teachers and more than 80,000 non-teaching staff, (constituting a total of more than 24% of the country's population (26, 70).

This shows that the education sector represents a significant proportion of people in the country that can be reached out in the HIV/AIDS prevention and care strategies. Only by managing the effects of AIDS on young people, children, and the education system itself can realize its potential to decrease vulnerability to HIV/AIDS and reduce the risk of further infections (41). "Without education, AIDS will continue its rampant spread and with AIDS out of control, education will be out of reach," Peter Piot, Director of UNAIDS (71).

The study that was conducted in Ethiopia before ten years, indicated that a quarter of the students have reportedly lost one or both parents (20).

Poverty, underdevelopment, lack of choices and the inability to determine one's own destiny fuel the epidemic (72). Vulnerability to HIV is a measure of an individual's or community's inability to control their perception of risk (72).

Furthermore, according to the study done in Ethiopia, between the years 1998– 2002, the general picture of the prevalence of death among school teachers increased by more than 5% (20). However, evidence suggests that the impact of HIV/AIDS on teachers varies significantly by gender and by school level they teach. Hence, it is dangerous to make generalizations about the teaching profession unless teachers' vulnerability to HIV infection is well-researched and evidenced across country contexts (73).

Nevertheless, higher mortality rate was observed among married male teachers compared to single male teachers, and the opposite was true among female teachers. In addition, large differences were observed between primary and secondary school teachers' mortality rates (30).

Furthermore, as the education and health specialists declare, school-based HIV/AIDS prevention programs are the most efficient and effective ways to fight the epidemic (74). In both low and high endemic settings, reducing the vulnerability of school youths to HIV infection is the principal defense against the epidemic of the future (72).

1.4.5 HIV Counseling and testing/HCT/ in the primary and secondary schools of developing countries

HIV Counseling and Testing (HCT) is defined as the process by which an individual undergoes counseling enabling him or her to make an informed choice about being tested for HIV. It includes mainly two complementary components: client-initiated testing and provider initiated testing. The former component refers to the well-known voluntary counseling and testing (VCT), while the latter, provider initiated counseling and testing (PICT), further includes testing in prevention of mother-to-child transmission and testing in other health care settings (33, 75-77).

Testing for HIV is the gateway to treatment, care and prevention. In order to scale up treatment and prevention, rapid increases in both the volume of testing and the ability to counsel those who are tested are needed. The use of testing particularly in developing countries, however, is very low.

The primary aim of HCT is preventive, to help people change their sexual behavior so as to avoid transmitting HIV to sexual partners of sero negatives, or to remain sero negative if negative. Many studies showed change in reported sexual behavior following HIV testing (78).

HCT remains a low priority in many places despite its known benefits (79). But evidence suggests that people cope better if they share their HIV status with someone. Thus, understanding the level of HCT up-take of an individual or a group can help to facilitate effective intervention strategies (80).

As a prevention strategy, it is believed that HCT can influence behavior change through a process involving individualized counseling, acquisition of HIV/AIDS knowledge and awareness, and learning one's HIV status. Still, approximately 30 years after the first HIV antibody tests became available, progress toward universal knowledge of HIV status remains inadequate (81-84).

For instance, in a study on the perception of high school students towards Voluntary HIV Counseling and Testing, using Health Belief Model in Butajira, SNNPR, about 19% of the students (10.8% of males and 7.7% of females) had undergone VCT (85).

A study conducted among teachers in Tanzania on VCT utilization showed that among 918 primary school teachers who participated in the survey, 80% had never tested their HIV status. Furthermore, they believed that HIV infected people were likely to die faster if they were tested for HIV and informed of their positive results (66).

A study conducted at Harari Region in Ethiopia on HCT utilization among teachers has shown that 46.3% of the study participants were tested for HIV (86). The odds of having tested for HIV increased with being female and age below 35 years (86).

A study conducted in Kenya among secondary school teachers indicated HCT utilization rate of 30.5% (87). The younger and less experienced teachers were more likely to utilize HCT services than older and more experienced ones (87).

A number of studies examined factors associated with desire for HCT and behavior of seeking HCT in various settings. In Uganda, knowledge of HIV, spousal communication on HIV, and younger age were associated with increased likelihood of willingness to be tested among men (88-90).

A study conducted in Nigeria showed that gender has been found to be a significant predictor in the uptake of voluntary counseling and testing (VCT). Adult men are more likely than their female counterparts to report psychological deterrents to utilization of VCT (91).

A study that was conducted in Ghana reported that the effects of socio-demographic characteristics on acceptance of HIV were not statistically significant (76). As the study conducted in Ethiopia among health professionals, the strongest predictors of intention to VCT were subjective norm and attitude (75). However, none of the socio-demographic factors showed statistically significant associations with the intention to use VCT (75).

A study reported also that VCT acceptance was higher among currently married, but it was not significantly associated with age, gender, and self-perception of HIV risk (92). Many studies showed change in reported sexual behavior following HIV testing. Some of the studies also witnessed that client initiated Voluntary HIV counseling and testing (VCT) can reduce risky sexual behaviors, thus reducing the likelihood of virus transmission, especially among sero discordant couples (93, 94-96).

In Uganda, Utilization of HCT was highly responsible for behavior changes in condom use with casual partners (90). Studies among sero-discordant couples in several high prevalence Africa countries (Kenya, Rwanda, DRC and Zambia) showed that attending HCT together with partners leads to consistent and significant reduction in risky sexual behavior and prevents transmission to negative partners following HCT (90, 97).

Another study done in rural Uganda reported that there were no significant differences in sexual risk behaviors or in HIV incidence between acceptors and non-acceptors of VCT (98). However, a meta-analysis from seven studies provided evidence in support of VCT as a moderately effective strategy for reducing sexual risk behavior in developing countries (97).

Further a meta-analysis of 11 different studies that examined the impact of bundling counseling and testing services for persons living with HIV infection depicted an overall reduction of 68% in the frequency of high-risk sexual behavior between HIV-infected persons and their HIV sero-negative partners (99). The available evidences also suggest that HCT can have an effect on reducing unprotected sex and the number of sex partners (83, 93, 91, 94, 95, 99-103).

Other studies revealed, although HCT did not have overall effect on condom use, in most cases people who received HCT reported an increase in condom use compared to people who did not receive HCT (91, 102, 104). On the other hand, in a study conducted in Kenya there was an increased likelihood of unprotected sex among never pregnant women following HCT (105). A study that was conducted in Ethiopia also has shown that testing was found to have no significant effect on condom use or abstinence (94).

Previous research has suggested that the effectiveness and uptake of VCT can be influenced by numerous characteristics, including certain social factors, fear of stigma, and differing cultural contexts (87).

Evidences suggest that people cope better if they share their HIV status with someone. Thus, understanding the level of HCT up-take of an individual or a group can help to facilitate effective intervention strategies (93).

Despite the fact that there are substantiated evidences that HCT can be an effective behavior change strategy for people infected with HIV, it remains a low priority in many places (103).

In general, the importance of HIV counseling and testing as the entry-point for the provision of medical care and psychosocial support cannot be questioned. Apart from providing the opportunity to prolong life, HCT also potentially facilitates prevention of the disease.

However, there have been debates about the effects of HCT, and two questions dominate the research field: Firstly, there is the question of whether HCT is helpful as a prevention strategy and secondly, whether factors that prevent people from seeking HCT can be identified. Furthermore, in light of the rapidly expanding and diversifying field of HIV testing and counseling, it is imperative to evaluate the potential predictors of HCT service utilization, and its significance as an entry point in to HIV prevention, care and treatment.

1.4.6. Risky sexual behavior among in school youths

HIV does not strike the population equally. The recent years have shown that young people are disproportionately affected. Worldwide, some 50% of all new cases occur in youth between the ages of 15 and 24years. HIV/AIDS thus strikes people in their most productive years and severely disrupting the economic and social base of whole families and societies (23).

The level of comprehensive knowledge on HIV/AIDS among young people in Sub Saharan Africa remains low (36%) for young men and (28%) for young women) (106). Even though youth are knowledgeable about AIDS prevention measures, many of them do little to prevent it or other sexually transmitted diseases (107).

According to the Health Impact Evaluation conducted in Ethiopia in 2008, 48%, 50% and 58% of women aged 15-24 reported consistent condom use, limited sexual intercourse with one uninfected partner and abstained from sex as means of preventing HIV infection, respectively (108). Condom use at first sex among young women ranged from 10 percent in Ethiopia to 48

percent in Uganda, and similarly among young men from 10 percent in Chad and Mozambique to 47 percent in Zimbabwe (109).

Another study conducted by the Family Guidance Association of Ethiopia on adolescent sexuality revealed that 71.9% of boys and 71.4% of girls have had their first sexual contact in the age range of 15-17 years (22). The 2000 Ethiopian DHS also found out that the median age for first sexual intercourse was 16.3 years (110).

Different studies in various countries showed that both in school and out of school youth are experiencing risky sexual behaviors (111-113,107). For example, a cross sectional study in Ethiopia on youth has revealed that among those who started sexual intercourse with their boy/girl friends, 58.5% reported that they used condom and 32.6 % tested for HIV (111) .

A study among high school students in North West Ethiopia, Gondar, showed that the prevalence of HIV and STIs are 1.1% and 10%, respectively (112). In that study, it was also shown that 17% of the students had sex with non-regular partners and commercial sex workers (112).

A survey that was conducted in Namibia has shown that in urban areas, HIV prevalence was 4.4% among 15 to 19 year olds, and 14.5% among 20 to 24 year olds (114). Grade 11 students are more significantly (32.3 %,) had sexual intercourse than Grade 9 students (20.8%) in the 12 months preceding survey (112, 114).

Many young people rule out the option of abstinence as AIDS –prevention method. A study showed that for many giving up sexual intercourse to prevent AIDS would be “impossible“ (115). Although young people believe that condoms effectively prevent STDs, only small proportions of college students have adopted measures such as condom use (116). A base line study done in Kenya showed that among sexually active students only 21% had ever used condom (115).

A study demonstrated that AIDS-orphans have more depression, peer problems, and behavior problems than other groups, but no difference in anxiety (117). Another study conducted in

Kenya reported that, although orphans are at higher risk for psychosocial problems that may affect their self-efficacy for safer sex practices more than non-orphans, no difference in HIV risk indicators were identified (118).

Nevertheless, various studies conducted in Sub-Saharan African countries have shown that orphaned children experience particular vulnerability to contract HIV (119, 120).

A Meta-analysis of six studies (n = 19,140) comparing HIV-positive sero status in orphaned versus non-orphaned youths indicated that there is significantly greater HIV prevalence in orphaned participants compared with non-orphans (11). The results of other four studies showed that orphans were significantly more likely to have experienced sexual debut than non-orphans (Cote d'Ivoire, Lesotho, Mozambique and Tanzania) (121).

The importance of concurrent sexual partnerships in the transmission of HIV has been highlighted in a study. A number of social drivers of concurrency, including factors which may be relevant to orphan hood, such as the need for partners in order to reduce fears of rejection or of being alone and concurrent partners as an economic strategy or necessity were reported from a qualitative data (122). A study identified that multiple sexual partnerships by both men and women, particularly overlapping or concurrent partnerships, to lie at the root of the HIV/AIDS epidemic in sub-Saharan Africa (123).

A study from South Africa showed that parental death among female participants was significantly associated with HIV-positive status, ever having had oral sex, ever having had vaginal sex and having more than 1 sex partner during the past year (124).

Another study demonstrated that female adolescent orphans in urban Zimbabwe were at higher risk of HIV and HSV-2 infection than non-orphans because of their higher likelihood of having had multiple sexual partners, having used condoms more inconsistently, and having experienced forced sex (119).

As the National Surveys of four African countries revealed, overall, 12 percent of boys and about 5 percent of girls reported that they had two or more sexual partners during the year before the survey (125). On the other hand, a higher proportion of older adolescents who were sexually active in the 12 months before the survey reported to have had two or more partners in Malawi (125).

The respondents of one of the studies on female adolescents in Addis Ababa reported that sex was initiated as early as 11 years (126). Some of the reasons for sexual debut were identified as maintaining relations with male partners (51%), for the sake of passionate love (45.8%), and to overcome loneliness (40%) (126).

A systematic review of school based interventions to prevent STI/HIV in sub-Saharan Africa showed that behavior change was least likely to occur and changes in favor of abstinence and condom use were very much influenced by pre-intervention sexual history (112).

A study showed that there are some associations between using substances like alcohol, tobacco and Khat and risky sexual behaviors (127). Furthermore, as studies from sub-Saharan Africa show, there is a link between alcohol drinking and a risk for concurrent sexual partnership (128, 129). In Kenya, orphaned children, especially maternal orphans, reported more alcohol use and risky sex (130).

Khat is a strong stimulant that causes mild to moderate psychological dependence although not as strong as that of alcohol and tobacco. Some of the possible effects of chewing Khat comprise increased levels of energy, increased self-esteem, euphoria, increased libido, excitement and tendency to social interaction (131, 132). Using Khat was positively associated with being male, using alcohol, not having comprehensive knowledge on HIV and viewing sex films (140). Khat is widely consumed among the youths of Ethiopia as shown by several prevalence studies (132, 133).

Young orphans may be at elevated risk of HIV including involvement in sexual activities with multiple partners because of being more likely to lack adult guidance than their peers. The

evidence on whether this is the case lacks clarity or shows mixed results (127). Thus, there are still critical gaps to be bridged regarding the required efforts for better support of children affected by HIV/AIDS.

Furthermore, young people in various countries continue to engage in high risk sexual behaviors despite the presence of robust HIV prevention strategies aimed at reducing risky sexual behaviors (60). High-risk behaviors such as having multiple sexual partners, alcohol and substance use, unplanned pregnancies and unprotected sexual activities of children and adolescents are major concerns for many countries of the world (60, 134-137).

School-based HIV/AIDS health education may be an effective way to prevent the spread of AIDS among adolescents and youth (138). It has been a cornerstone of youth-focused HIV prevention efforts since the early 1990s (138).

1.4.7 The interventions to mitigate the HIV epidemic in the primary and secondary schools of Sub-Saharan Africa

According to the UNAIDS, the HIV/AIDS epidemic continues to spread at an alarming rate in sub-Saharan Africa (SSA), and every indication is that the number of new infections in the 15–24 age group will increase exponentially over the next decade. School youths are among the hardest hit by the epidemic and at the same time, they present an opportunity for halting it. Since young people are amenable to change as it was expressed in the words of one proverb, “It is easier to straighten a tree when it is still young than when it is old”(139).

A combination of prevention approaches such as peer education on abstinence from sex before marriage, partner limitation, condoms, HIV counseling and testing, ART, etc, that are tailored to each setting are among very helpful intervention strategies. Different strategic and cost-effective methods are used for controlling the epidemic as well as containing its negative impacts in different countries of the world. The notion of “know your epidemic, act on its politics” is crucial (140). However, there is no “silver bullet” for the prevention of HIV/AIDS. But UNESCO and

UNAIDS indicated that peer education works very well among the school youths to keep the epidemic from getting worse in different countries of the world (141).

Several types of HIV/AIDS prevention interventions are targeting young people in SSA. Some offer HIV/AIDS education as part of the school curriculum and others offer it through extracurricular activities targeting in- or out-of-school youths (139). There are also various approaches to use peer groups and networks as agents of change. Peer education is especially effective in increasing condom use and reducing sexually transmitted infections in high-risk groups like students and teachers (142).

A quasi experimental study that was done in Nigeria on Health education intervention for students in secondary schools for three months indicated that after the study, the proportion of respondents who used condom at last sex increased from 51.5 % to 87.9% in the study group, while there was a marginal increase from 50% to 51.8% in the control group (143).

In order to maintain healthy sexual behaviors, change in risky sexual behaviors, and modify norms, peer-led HIV intervention that involve members of a specific at-risk group are thought to be more effective. Moreover, compared to professional health care providers, peer educators were perceived to be less expensive (144, 145).

Peer-based interventions have become a common method to effect important health-related behavior changes and it is one of the most widely used strategies to address the HIV/AIDS pandemic (109, 146).

Peer education began being applied in health education and especially for HIV/AIDS prevention during the 1980s and has been relatively popular in health education, perhaps because of the positive interaction it brings between peers (147, 148). It is a strategy whereby individuals from a target group provide information, training, or resources to their peers. These groups can be determined by social or demographic characteristics (e.g., age, education, type of work) or by risk-taking behavior (149). It is widely used and is generally a low-cost intervention.

A systematic review and meta-analysis of peer education interventions in developing countries demonstrated that peer education interventions were significantly associated with increased HIV knowledge, reduced equipment sharing among injection drug users and increased persistent condom use (109). However, biological outcomes like STIs were not found to have significant associations with peer education (109)]. A study showed that participants of school-based intervention group reported higher levels of HIV related knowledge, better condom use and more positive attitudes towards condoms at follow-up than participants in control schools (149).

The findings of a study also indicated that peer education brings about knowledge on HIV/AIDS amongst secondary school learners (150). On the contrary, the findings of some studies that were included in a systematic review have reported the limited effectiveness of peer education intervention in increasing knowledge, changing attitudes and reducing risky sexual behavior (107). Furthermore, the results of another review on school based intervention programs suggested that knowledge and attitude are the easiest to change, but changes in risky sexual behaviors are much more challenging (138). A Meta-analysis indicated that peer education programs in developing countries are moderately effective in improving behavioral outcomes, but show no significant impact on biological outcomes (144).

Although there are evidences for peer education intervention to bring positive changes in risky sexual behavior, the findings are not consistent among various study groups (151). In general, the goal of peer education is to develop knowledge, attitudes, beliefs, and skills needed to engage in healthy behaviors (151).

Despite the advantages of peer education, a study has shown no significant differences in the impact of teacher-led and peer-led AIDS prevention programs (152). And sex education in schools has been unable to reach its full potential in helping young people protect and enhance their sexual health (153). Furthermore, some studies reported that knowledge about HIV/AIDS is a relatively poor predictor of safe-sex behavior (154). It has been found that other factors, like attachment style and emotional control play an important role in determining whether knowledge about HIV/AIDS translates into safe practices (155) .

Nevertheless, currently available literature suggests that peer education is a widely used component of HIV prevention programs across population groups and geographical areas. The literature also indicates that peer education is seldom implemented alone. Rather, it is often part of a larger, more comprehensive approach to HIV prevention that includes condom distribution, STI management, counseling, drama, and/or advocacy (141, 149, 151).

Priorities for the national strategy to HIV/AIDS prevention and control in Ethiopia include increasing intervention efforts for most vulnerable and at-risk populations, such as orphans and vulnerable children (OVC), PMTCT and in school youths (54, 107).

Despite the fact that there are no well documented references for the effects and the status of the interventions and the consistency and sustainability of the programs, life skills education, peer education and school community conversation programs have been started in Primary and Secondary Schools, Colleges and Universities in collaboration with Non- governmental organizations as it was stated by the HIV/AIDS focal person in the Federal Ministry of Education of Ethiopia.

Furthermore, as the interventions against the epidemic, topics on HIV/AIDS were mainstreamed in to the curricula of the primary, secondary and tertiary levels of education in Ethiopia (Personal Communication with HIV/AIDS focal person in FMoE). However, there were no clearly documented and research based data of the capital city, Addis Ababa or entire nation for the effects brought on the sexual behaviors of the respective students and teachers as a result of the interventions so far implemented either by the government or the non-governmental organizations (Personal communication).

Therefore, this study was conducted in recognition of the importance of providing research – based, sound and up-dated information on the effects of HIV/AIDS and interventions to mitigate the epidemic on the primary and secondary schools for the valid and timely actions and the comparative advantage that the schools have in combating the epidemic.

1.4.8. Triangulation of various sources of data

Research is a process of trying to gain a better understanding of the complexities of human experience and to take action based on that understanding (156).

Public health problems are complex because of their multi-causality and newly emerging health problems. Hence, the need for the multiple approaches to understand and address contemporary public health related problems by the public health practitioners and researchers becomes unquestionable (157).

1.4.9 Conceptual or Theoretical Framework of the Research

A conceptual framework was constructed to evaluate factors that determine the various effects of HIV/AIDS and interventions against the epidemic on the public primary and secondary schools based on the literature review (Figure 1). The HIV/AIDS epidemic affects the education at primary and secondary schools in at least three ways: the supply of education through availability of teachers, the demand for education (total number of children and the number enrolled and staying in schools) and the quality of education (30, 45, 63, 65, 68).

The absenteeism of teachers from schools and ultimately their deaths affect the teaching resources available. Teachers who are infected with the HIV virus may try to transfer to another area or, once visibly ill, may disappear totally.

The most dramatic effect of HIV/AIDS among children is death of parents. Children who have lost parents are left emotionally and physically vulnerable by the illness or death. Many orphans drop out of school for economic reasons or fear of stigma and discrimination.

Some school-aged children may be infected with HIV/AIDS or suffer from AIDS-related illnesses. Such illnesses may cause them to be absent from school frequently, and they may interfere with their ability to learn and their academic performance. Equally important is the possible decrease in the quality of education, as teachers may be absent from schools or are too ill to provide the same quality of schooling they were providing before becoming sick.

Priorities for the national strategy include increasing intervention efforts for most vulnerable and at-risk populations, such as orphans and vulnerable children (OVC), and intervention efforts in the schools and other workplaces (54, 107).

The currently available literature suggests that peer education is a widely used component of HIV prevention programs across population groups and geographical areas (144, 148, 158). The literature also indicates that peer education is seldom implemented alone as an intervention in primary and secondary schools.

A combination of prevention approaches such as mainstreaming HIV/AIDS in the curricula, school community conversation, peer education for abstinence or delay of sex and partner limitation, condom distribution; HCT, and harm reduction tailored to each setting are very helpful. Different strategic and cost-effective methods are used for controlling the epidemics as well as containing its negative impacts on schools of different countries of the world. In addition, the notion of “know your epidemic, act on its politics” is crucial (140).

Research questions

1. What is the trend of HIV/AIDS related deaths among teachers during the era of HIV/AIDS at public primary and secondary schools in Addis Ababa, Ethiopia?
2. What proportion of the public secondary school students have lost one or both of their parents due to HIV/AIDS related deaths?
3. What are the factors associated with HIV Counseling and testing (HCT) up-take and risky sexual practices among secondary schools students?
4. What are the factors associated with HIV Counseling and Testing /HCT / and its correlations with the risky sexual practices among primary and secondary school teachers in Addis Ababa, Ethiopia?
5. What are the effects of the peer education intervention on sexual behaviors of secondary school students in Addis Ababa?

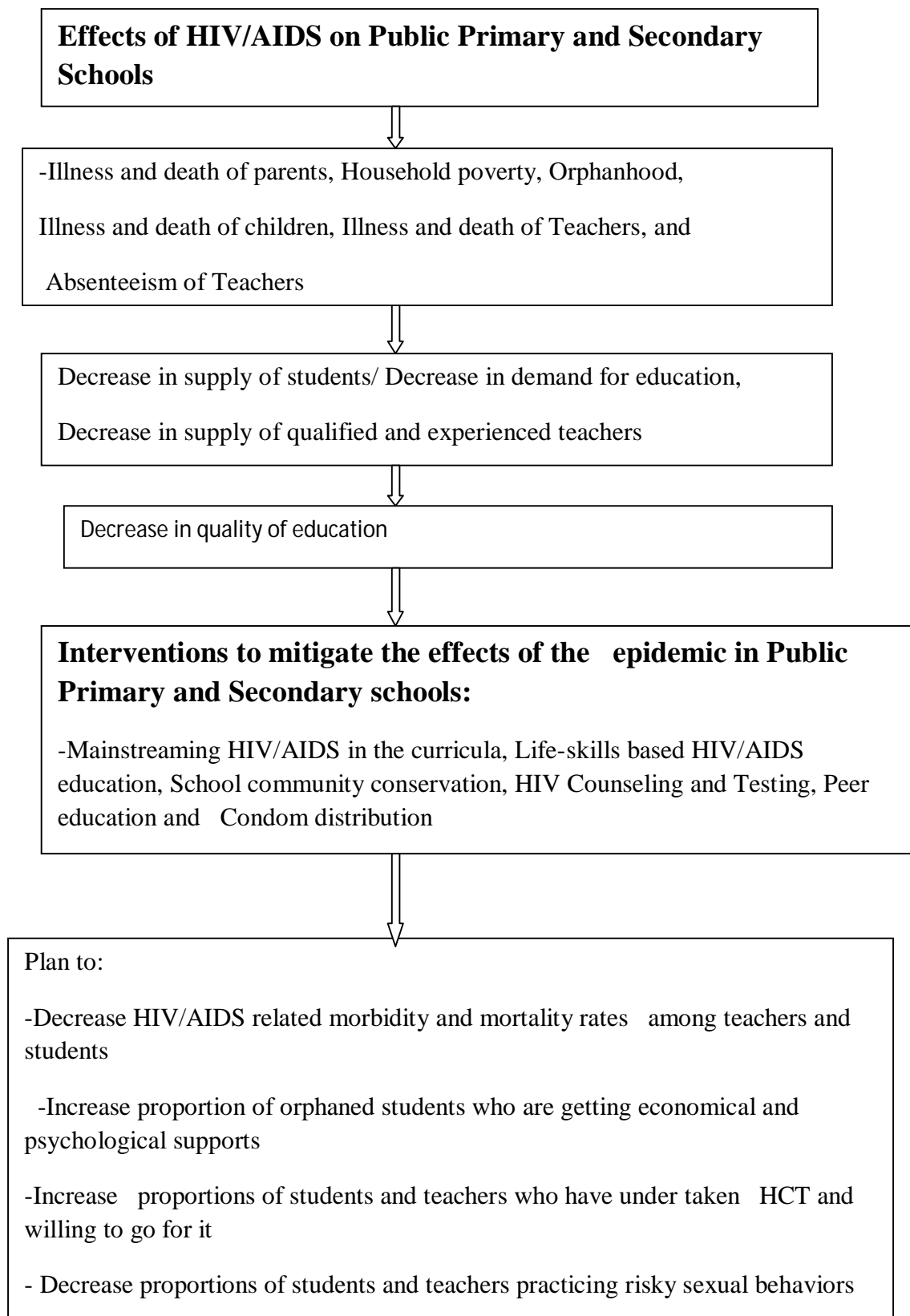



Figure 1: The Conceptual frame work for the Effects of HIV/AIDS and interventions against the epidemic in the public primary and secondary schools.

2. Objectives of the study

2.1. General Objective

-  To assess the effects of HIV/AIDS and the interventions against the epidemic with particular emphasis on public primary and secondary schools in Addis Ababa.

2.2 Specific objectives:

- I. To assess the trend of mortality among teachers in the era of HIV /AIDS between Nov.2005-Oct.2013
- II. To examine the proportion of students who lost one or both parents due to HIV/AIDS related causes and its association with sexual behaviour of students
- III. To investigate factors associated with HIV Counselling and Testing up-take among Secondary school students in Addis Ababa
- IV. To assess factors associated with HIV Counselling and Testing up-take and its correlations with risky sexual practices among primary and secondary school teachers in the capital
- V. To examine the effects of school- based HIV prevention /peer education/ intervention on sexual behaviours of students at secondary schools in Addis Ababa.

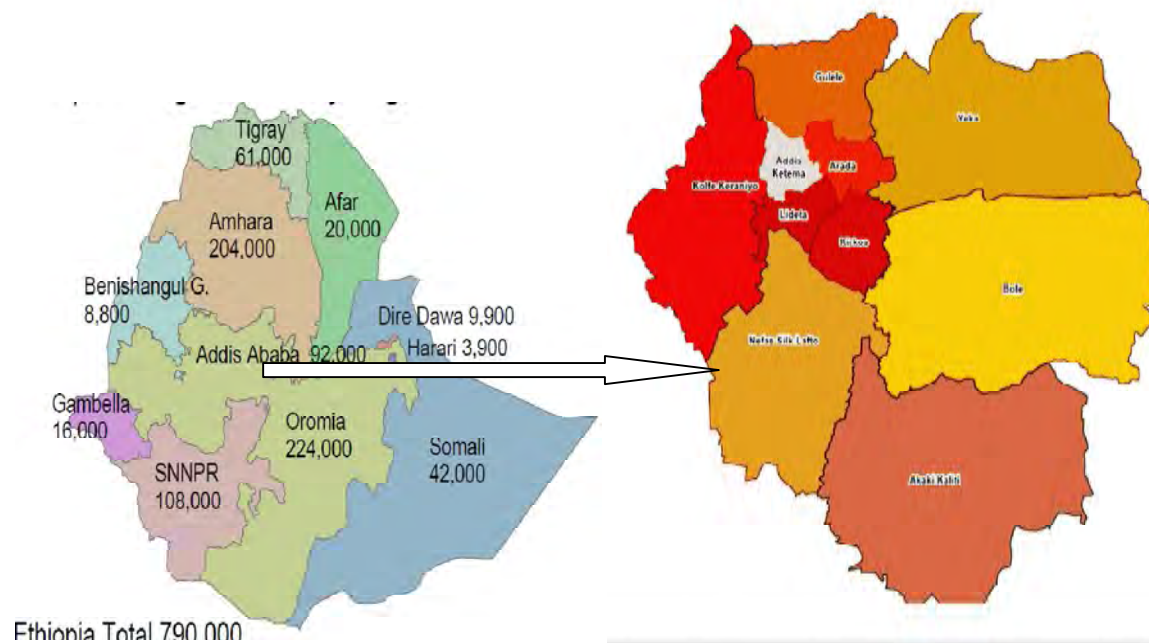
3. Subjects and Methods

3.1 Study setting /area and population

This study was conducted in Addis Ababa City Administration. Addis Ababa is located at 9 degree north latitude and 38 degree east longitude, in the range of 2200-2800 meters above sea-level. According to the national census report of 2007, the projected population of Addis Ababa for the year 2014 was 3, 197,000 and among those, about 52 % are females (53, 55, 159, 160).

Currently, the City is administratively divided in to ten sub-cities (Kifle- Ketemas), and one – hundred and sixteen districts /Woredas/. The City has potential health service coverage of 100%. There are 11 government hospitals and 62 health centres in Addis Ababa .The number of people tested for HIV until 2012/13 were 503,930. Of those, 19,149 individuals tested positive (3.8%) and that was also the highest compared to all regions in the country and that of the national (1.1%) (160). The estimated prevalence of HIV/AIDS was 5.2% for the year 2011 ,which was the highest, next to Gambella Region compared with other regions of the country and that of the national prevalence which was 1.5% (56) .

There were 730 primary and 163 secondary schools (both government and non-government schools) in Addis Ababa City Administration in the year 2012/13. The number of students enrolled for the same year in the primary and secondary schools of the City were 503,877 (54.9% female) and 136,636(53.9% female), respectively (161). In addition, there were 14, 893 (44.4% female) teachers in primary schools and 5,651 (17.2% female) teachers in secondary schools of the City for the same year (162,163).



Source raw data: CSA, ACBFED, EPHI

Figure 2: Map of the study area, Addis Ababa City Administration, 2011/12

3.2 Study Designs

This study focused on the effects of HIV/AIDS and the interventions against the epidemic among public primary and secondary schools in Addis Ababa. In order to have a broad understanding of how the HIV/AIDS epidemic affects the school community, a triangulation of study designs was used. It involved the mixing of longitudinal, cross sectional, comparative cross sectional and quasi-experimental study designs to increase the validity of the study. This research approach is regarded as an effective method, since using either study design alone is complemented by the counter-balancing strengths of another study design (164,165).

Accordingly, different study designs were conducted among teachers and students at public primary and secondary schools in Addis Ababa in 2012/13. The study was designed in such a way that it would answer various, but inter-related research questions.

3.3. Source and Study Population

3.3.1. Source population:

All students and teachers of the 730 primary and 163 secondary schools of Addis Ababa City Administration were considered as the source population of the study. Nevertheless, the actual data collections focused on those primary schools with both the first and second cycles or grades 1-8, and all secondary schools i.e., 187 primary and 163 secondary schools were considered with intent (163).

3.3.2. Study population:

The study populations were those teachers and students from randomly selected public primary and secondary schools in Addis Ababa that satisfied the inclusion and exclusion criteria.

3.3.2.1. Specific Objective I : Teachers from randomly selected one hundred and three schools (76 primary and 27 secondary schools) were the study population of the specific objective I (paper I).

3.3.2.2. Specific Objectives II & III:

For specific objectives II & III, the study populations were those students from 15 randomly selected public secondary schools in Addis Ababa among the above mentioned 27 secondary schools (papers II & III).

3.3.2.3 Specific Objective IV: The study populations were those teachers from randomly selected 30 schools in phase II (15 primary and other 15 secondary schools) among the above 103 schools (paper IV).

3.3.2.4: Specific objective V: Those students from purposively selected four public secondary schools in phase III (two schools for the intervention and the other two for the control group) were the study population for the specific objective V (paper V).

3.4 Sample Size and Sampling methods

3.4.1 Sample size

In order to get a representative sample among the students and teachers, a multi stage and multiphase random sampling techniques with reasonable formulas of assumptions and 15% contingency were used as per the required need of each of the five independent, but practically interrelated specific objectives of the study.

Specific objective I:

All deceased teachers from 103 (76 primary and 27 secondary) public schools between November 2005 and October 2013 were considered as a study population for the trend analysis of teachers' death (Paper I).

Specific objectives II & III:

For addressing the different specific objectives of this study, the respective sample size was calculated separately. This was done because of the different outcome variables with varying proportions. However, an average proportion of the values of the various sample sizes computed on the bases of different assumptions were taken to calculate the final and get a reasonable sample size.

Accordingly, the total number of students selected was estimated by using the following equation: $n = (Z^2 \cdot p \cdot q) / d^2$. As 'n' was the sample size for the study, Z was the upper $\alpha/2$ point of standard normal distribution, where $\alpha=0.05$, $Z_{\alpha/2}= 1.96$. As shown in various studies the proportion of children who lost one or both parents due to HIV/AIDS related causes compared to the number of total children of a certain country in sub-Saharan Region, the prevalence of risky sexual activity among youth in their secondary and above education, and the HCT up-take among primary and secondary school students and teachers range from 15-50% (18, 30, 38, 42, 45, 49, 54, 60, 63, , 85,87, 93, 125, 143, 166-168). Hence, the actual prevalence rates of the different conditions under this study were estimated to be in the above range, i.e., the probability of the occurrences was estimated to be about 33 % (average of 15% and 50% as indicated

above), ($p = 0.33$; $q = 0.67$).
$$\text{Sample Size} = \frac{Z^2 P(1 - P)}{d^2} \times 2$$

The maximum allowed difference between the maximum likelihood estimate and the unknown population parameter denoted by 'd' was desired to be 0.03 and regarding the specific objective II and III, a single population proportion formula for the sample size calculation of students was used. Accordingly, the sample size was calculated for the student population by multiplying the result that was found in the above single population proportion formula with the design effect of 2 ($D = 2$) as stated in the above formula, then 15 % contingency for the possible non-response rate was added.

Consequently, the calculated sample size was $1886 + 283 = 2,169$ students from the randomly selected 15 government owned secondary schools in Addis Ababa (Paper II & III). Adequacy of the above sample size for addressing the components of objective II and III, i.e., assessing the association between orphanhood due to HIV/AIDS and sexual behavior of students and factors associated with HCT among secondary school students was checked.

Specific objective IV: For the intended comparative cross sectional study on factors associated with HCT up-take among teachers and its correlations with sexual behavior, the required sample size was calculated using two population proportion formula, with 5% type I error and 80 % power where n_1 = number of primary school teachers, n_2 = number of secondary school teachers. P_1 = prevalence of HCT up take among primary school teachers = 0.20 taken from a study in Tanzania (169). P_2 = prevalence of HCT among secondary school teachers = 0.31 taken from a study in Kenya (87); r or ratio of n_2 , $n_1 = 1$; and $P = (0.20 + 0.31) \div 2 = 0.26$. Then, the result was multiplied by the design effect of 2 ($D = 2$) and then after 15 % contingency was added.

As shown below, using two population proportion formula, the calculated sample size was $494 + 74 = 568$ teachers from each of the comparison groups (568 teachers from the randomly selected primary schools and another 568 teachers from the randomly selected secondary schools) that makes the total sample size = **1136** (Paper IV).

$$n_1 = \frac{\left[Z_{\frac{\alpha}{2}} \sqrt{\left(1 + \frac{1}{r}\right) P(1-P)} + Z_{\beta} \sqrt{P_1(1-P_1) + \frac{P_2(1-P_2)}{r}} \right]^2}{(P_1 - P_2)^2}$$

Specific objective V: A quasi-experimental study design was conducted to evaluate peer education intervention in purposively selected four secondary schools. Change in risky sexual behavior or consistency of condom utilization among students was taken as an outcome variable. Because of the intended study (intervention and control groups) the two population proportion sample size calculation formula was chosen with 5% type I error and 80 % power, where n_1 = number of students selected for the intervention group, n_2 = number of students selected for the control group of the study. P_1 = prevalence of consistent condom use among intervention group = 0.88 taken from a study conducted in Nigeria (143). P_2 = prevalence of consistent condom use among the comparison or control group = 0.52 taken from the same study (143) ; r or ratio of $n_2 \div n_1 = 1$; and $P = 0.88 + 0.52 \div 2 = 0.7$. Then, 15 % contingency was added for the possible refusal to participate in the study. Thus, using the following two population proportion formula the calculated sample size was $244 + 36 = 280$ students for the intervention group and another 280 students for the control group that makes the total sample size of **560** students (Paper V).

$$n_1 = \frac{\left[Z_{\frac{\alpha}{2}} \sqrt{\left(1 + \frac{1}{r}\right) P(1-P)} + Z_{\beta} \sqrt{P_1(1-P_1) + \frac{P_2(1-P_2)}{r}} \right]^2}{(P_1 - P_2)^2}$$

3.4.2. Sampling Methods

The total number of primary and secondary schools in Addis Ababa for the year 2010 /2011 were 730 and 163 respectively. But from the total primary schools, those with both 1st and 2nd cycles (grade 1-8) were 473 (730-257) and all the secondary schools (163 schools) were considered in

the sampling procedures. However, from 473 primary and 163 secondary schools that satisfy the inclusion criteria of being public or government owned and established before 2005 were 187 and 27, respectively. And the focuses of the study were these schools.

A stratified multi-stage cluster sampling and multi-phase sampling techniques were used accordingly. The procedures carried out for the selection of the schools are stated as follows.

The number of participating primary schools from each sub-city was decided proportionally based on the total number of government primary schools in the respective sub-city. The entire primary (Grade 1-8) schools were alphabetically listed separately for each sub-city and simple random sampling technique was used to select the participating primary schools. But regarding the secondary schools all government owned secondary schools in the study area that satisfied the inclusion criteria were included.

Out of 187 primary and 27 secondary schools in all ten sub-cities of the capital, 103 (76 primary schools and 27 secondary government schools) participated in the study based on the selection criteria. The number of schools included in the actual study was believed to yield a well representative sample size from both primary and secondary schools in all sub-cities.

Then, the study subjects or teachers were taken from the randomly selected one hundred and three primary and secondary schools in phase one to address the first objective (the trend of teachers mortality in the HIV/AIDS era, **paper I**). Students from those randomly selected fifteen secondary schools were used to address the second and third specific objectives (**papers II&III**). In addition, in order to address specific objective IV, the study subjects or teachers were taken from systematically selected thirty schools that were chosen during phase II (15 primary and 15 secondary schools) (**paper IV**). Furthermore, in phase III, four secondary schools among the above 27 secondary schools were selected purposively and 280 students from each of the schools participated in the study to address the fifth specific objective (**paper V**).

In general, the selection of participant schools was done using the combinations of random, systematic, purposive, and multistage and multi-phase sampling methods. Grades were also randomly selected and then among the selected grades, sections were selected using systematic sampling methods. Finally, all students with in selected sections who were 15 and above years old and volunteer to participate in this study were included. But regarding the selection of

teachers as study subjects to address specific objective IV, those teachers randomly selected from systematically selected thirty public schools were taken.

In addition, for the trends of HIV/AIDS related deaths among teachers, eight years data (eight years were chosen just to minimize the possible recall bias that could be associated with the length of the duration of death and also to consider the period since ART was actively dispensed freely in government health facilities in Ethiopia) were collected, i.e., the data on teachers who died from November 2005 to October 2012 retrospectively and a longitudinal data for the new deaths during the year followed prospectively (November 2012 to October 2013).

3.4.3. Inclusion and exclusion criteria

Inclusion criteria

- All public primary and secondary schools in Addis Ababa, established before 2005 and had at least 40 teaching staff during 2010/11 academic year
- Primary schools with complete first and second cycles (Grades 1-8) in the study area
- Students and teachers who were in schools during the study period
- Teachers deceased between November 2005 and October 2013

Exclusion Criteria

- Teachers and students who were severely ill and were not able to participate in the study
- Students whose ages were below 15 years.

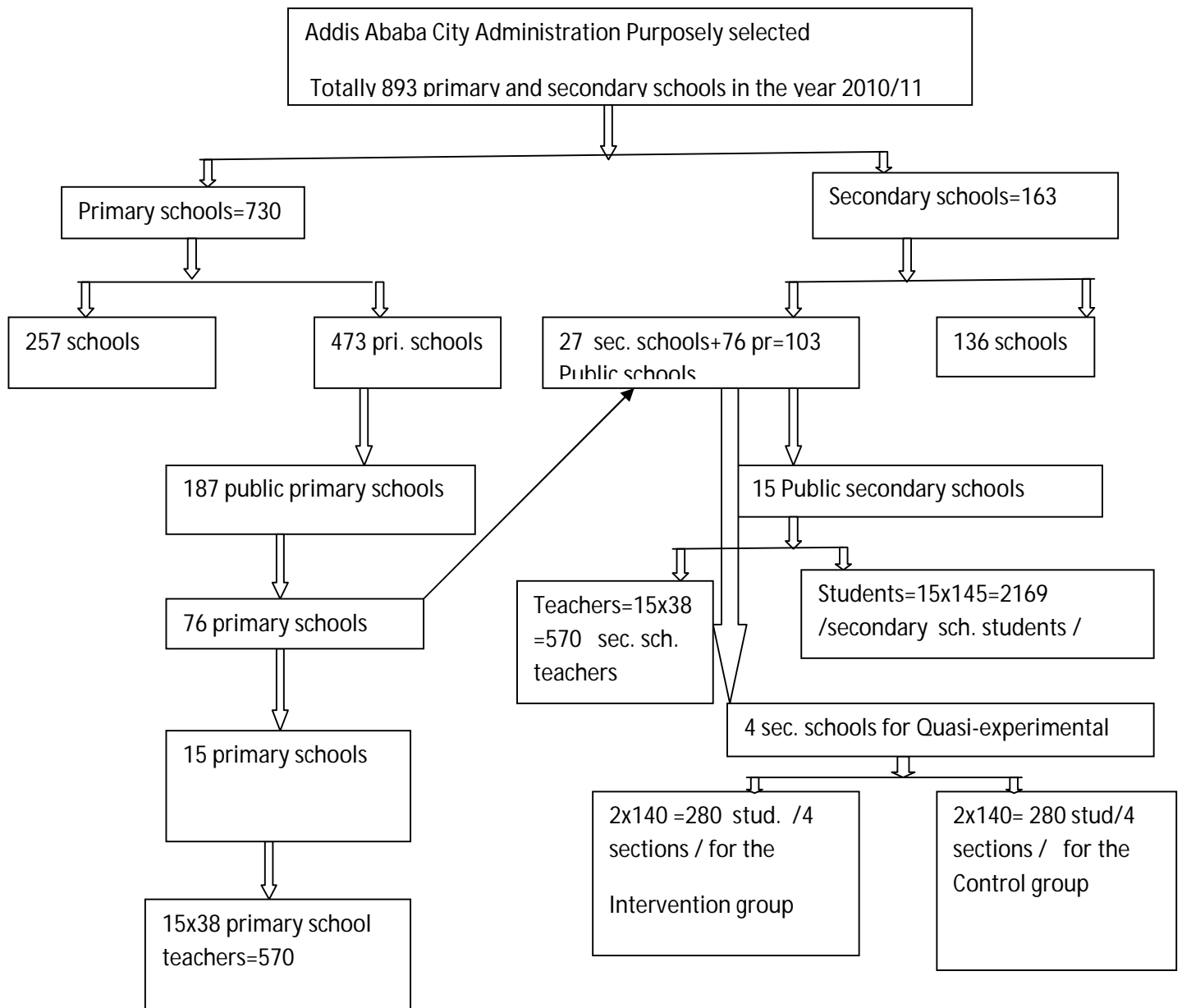


Figure 3: Sampling Procedures carried out for identifying the study subjects from Public Primary and Secondary Schools in Addis Ababa; 2012/2013

3.5 Data Collection Instruments

Data were collected in 2012 and 2013 using pre-tested, structured and Semi –structured questionnaires for interviewing study subjects and family members and/or care givers of the deceased teachers (Annexes I-III).

Paper I: Standardised verbal autopsy questionnaire was organized for the collection of data on HIV/AIDS related teachers deaths. The questionnaire was adopted from the one that was developed previously by INDEPTH/WHO (170). In addition, prior to the actual data collection using a standardized Verbal Autopsy questionnaire, preliminary assessments or surveys were conducted in all selected schools by the principal investigator and research supervisors to collect all pertinent information if there were deceased teachers in all targeted schools. The questionnaire included both open and close ended questions. The close ended questions were planned to collect data on the signs and symptoms observed during the illnesses of the deceased teacher/s/ while the open ended questions were aimed to the free explanations of family members or intimate friends regarding the conditions of the deceased teacher/s during his/her illnesses.

Moreover, field workers probed for completeness of information, the sequence of signs and symptoms, and responses to treatment (171). Several filtering questions followed, such as “did the deceased cough?” and, the answer either led to a detailed module on that symptom or the interview proceeded to the next filtering question (172).

The verbal autopsies collected from respondents were further assessed by three medical doctors to determine the valid cause of death (173). A probable cause of death was assigned by two doctors/General practitioners with ten or more years work experiences/ independently and the diagnosis of each case was accepted when their reviews corresponded. But whenever they differed, the doctors had discussions on each case and showed efforts in order to reach the consensus (171). If no consensus was reached, a third doctor, who is an internist, was given the respective questionnaire or case and he made an independent and blind assessment. The cases were reviewed if two out of three diagnoses corresponded. The diagnosis was accepted as the probable cause of death when consensus was achieved, if not, the cause of death was described as undetermined (173).

Papers II & III: In order to assess the proportion of students who lost one or both parents due to HIV/AIDS related causes and its effect on sexual behaviour of students as well as factors associated with HCT up-take among them, a structured questionnaire was employed in 15 randomly selected secondary schools in Addis Ababa from February to March 2013. The data were collected from 2,169 students who were 15 and above years old and also who provided oral consents to participate in the study. They were from randomly selected grades and systematically selected sections of the respective schools.

Paper IV: For factors associated with HCT up-take among primary and secondary school teachers and its correlations with sexual behaviour, a structured questionnaire was used to collect data from 1,136 teachers of 30 schools/15 primary and the other 15 secondary/ in February and March 2013.

Paper V: The survey instruments used for evaluating the effects of peer education intervention on sexual behaviour of secondary school students were pretested. Structured and self administered questionnaire was employed for 560 students (280 from each of the two intervention and control group schools) during both pre and post intervention periods i.e. in March and June 2013.

3.6 Data Management and Statistical Analysis

All collected data were entered into a computer with EPI Info software version 3.5.4 and analyses were done using the SPSS software program version 20.0. Different appropriate statistical methods were applied, including frequency distribution, percentages, proportions; odds ratios and adjusted odds ratio with 95% confidence intervals were calculated. Chi-square tests, bivariate and multivariable binary logistics regressions methods were used for the test of the association between the outcome and independent variables. Assumptions behind all procedures were checked.

The variables in multivariable analyses of all the five specific objectives (papers) were chosen based on existing theoretical knowledge on the variables and statistical significance found during bivariate analyses. Accordingly, the P-values less than 0.05 were considered as statistically significant

3.6.1. Specific Objective I:

The data on the trend of teachers' mortality in this era of HIV/AIDS among primary and secondary school teachers were collected for 150 deceased teachers. The sources for the collected verbal autopsy data were the family members, intimate friends or care givers of the deceased teachers.

The data from the completed teachers' VA questionnaires with assigned physician diagnosis were analyzed. After the data were entered into Epi-Info software version 3.5.4 for cleaning first, they were transported to SPSS software version 20.0 for analysis.

Descriptive statistics such as frequencies and proportions were used to describe the study population in relation to the relevant variables. Cross tabulation of variables were also done. HIV/AIDS proportionate mortality ratio was computed. The trend of deaths due to HIV/AIDS and total death over years was analyzed using Extended Mantel Haenszel Chi-square for linear trend test.

Specific Objectives II & III:

Data were entered and cleaned using Epi-Info software version 3.5.4 and then transferred to SPSS software version 20 for analysis.

Age, sex, orphanhood due to any cause and due to HIV/AIDS related causes, HIV/AIDS related knowledge, attitude towards "ABC" rules to prevent HIV, prevalence of HCT uptake, substance use and other sexual behavior related variables were chosen for statistical analyses in order to address the specific objective II/**Paper II**/.

Descriptive statistics such as frequencies and proportions were used to describe the study population in relation to relevant variables. Bivariate analysis between orphanhood as a main exposure and history of having multiple sexual partners (one of UNAIDS indicators of risky sexual behaviors) as dependent variable was employed.

Then, a stepwise multivariable binary logistic regression model was used to assess the associations between the outcome and orphanhood as well as other predictors for multiple sexual partners.

But regarding specific objective III /**Paper III**/, the main dependent variables were ever had HCT and willingness to go for it for those not tested until the survey. The independent variables such as the socio-demographic variables, HIV/AIDS related knowledge, attitude towards “ABC” rules to prevent HIV, history of HCT uptake, substance use and other sexual behavior related variables were chosen for statistical analyses. Descriptive statistics such as frequencies and proportions were used to describe the study population in relation to relevant variables.

Bivariate analyses between potential factors associated with being ever tested for HIV and willingness to go for it in the near future as dependent variables were employed. Then, a stepwise multivariable binary logistic regression model was used to assess the associations among the outcome variables and the suspected predictors for HCT up-take.

Specific Objective IV: The data collected to identify the factors associated with HCT and its correlations with sexual behaviors of primary and secondary school teachers were also entered and cleaned using Epi-Info software version 3.5.4 and then transferred to SPSS software version 20.0 as those of the others in the above.

In order to assess HCT correlations with sexual behavior among teachers, besides ever had HCT, some selected socio-demographic and sexual behavior related variables as factors and number of sexual partners and consistent use condoms in previous 12 months of the survey as outcome variables were used during data analysis. In addition, the outcome variable, number of sexual partners in previous year considered exposure to the sequential and/or concurrent multiple sexual partnerships as a risky sexual behavior.

Then, a stepwise multivariable binary logistic regression model was used to assess the associations among the outcome variables and the suspected predictors for HCT up-take.

Specific Objective V /Paper V/:

The pre and post intervention data of both the study and control groups were entered first into Epi-Info software version 3.5.4 for cleaning and then transported to SPSS software version 20 for analysis. Descriptive statistics, such as frequencies and proportions were used to describe the study population in relation to the relevant variables. Cross tabulation of variables were also done. Dependent variables measured were comprehensive knowledge of HIV/AIDS, ever initiated sexual intercourse, ever being tested for HIV, number of sexual partners, frequency of condom use and willingness to go for HIV counseling and testing within two months after the survey.

The independent variables were study allocations (being in intervention or control group) and some socio-demographic variables. In order to evaluate the association between peer education and HIV/AIDS related sexual behaviors and assess for any group difference, Chi-square test was used. Furthermore, multivariable binary logistic regression analyses were also done in order to assess the relations among various HIV related behavioral outcome variables and characteristics of the study participants being either in peer education intervention or control group by controlling for some socio-demographic confounders like sex, age, religion and ethnicity. The outcome variables selected were knowledge of HIV/AIDS, condom use in the last 12 months, i.e., in the year preceding the survey and willingness for HCT. Accordingly, P-values less than 0.05 were considered as statistically significant.

3.7. Data Quality assurance

In order to ensure data quality, various actions were taken at different levels. Before the actual administration of the intended questionnaires, they were edited and pre-tested (annex III) . In addition, the required training was conducted for data collectors and supervisors by the PI and an expert from HAPCO of the Addis Ababa City Administration. The data collections to address the five specific objectives of the study were carried out by 12 diploma graduate nurses, two supervisors, who have BSc in health sciences, and the principal Investigator.

Three days training on the peer education was given for 33 peer education facilitators who were selected from different sections of two secondary schools in Addis Ababa that were selected for the peer education intervention. The training was given by the principal investigator and invited experts on peer education before the actual base line data collection period.

The developed standard questionnaires in English were translated into Amharic and then back to English in order to check for consistency as well to make effective pre-tests and modifications as needed.

Moreover, prior to the main fieldwork, the pre testing of the data collection instruments was done using students and teachers from two public primary and three secondary schools. The schools that were involved in the pre-testing activity were not included in the main study. Those schools had similar characteristics to the study schools. The pre-test was helpful to identify problems and omissions as well as checking time spent in responding. Pre- testing of instruments was aimed at improving the precision, reliability, and cross-cultural validity of data. Following the pre-testing of study instruments, ambiguous or unclear questions were either rephrased or removed.

Also the data collectors and supervisors were given some guidelines in methods of how and when to administer questionnaires to the targeted students, teachers and care givers of the deceased teachers. The data collectors were equipped with some written Do's and Don'ts supposed to be implemented during data collection.

At the field level, filled questionnaires or data collection forms, including the VA questionnaires were checked first by the data collectors themselves and then by their respective supervisors on a daily basis. Then, the principal investigator cross -checked the filled and collected questionnaires randomly for their completeness and consistency on daily bases.

Finally, at the data entry level, checking for invalid codes, missing values, inconsistency of records and duplicated entries were done carefully with due emphasis on the expected quality of data.

3.8. Operational Definitions

Acceptance of HCT: Teachers and Students history of practising HCT

AIDS Orphans: A child aged 0-18 who has lost one or both of her/his parents due to HIV / AIDS related causes.

Counseling: Dialogue between a person in need and a care provider with the aim of reducing the stressful impact of HIV/AIDS on the individual and preventing transmission of HIV infection. Information, education and psychological support are given in a way that allows the individual to make decisions that facilitate preventive behaviors’.

Dropout Rates: The percentage of pupils who discontinue their learning from a given grade compared to the previous year’s total enrolment in the same grade

HIV/AIDS related deaths: Deaths that occurred either due to HIV/AIDS alone or in combination with other opportunistic infections

Intervention: A set of activities through which a strategy is implemented. For example, promoting -safer sexual behaviors in peer education was considered as important intervention to reduce sexually transmitted infections

Learner/student: A person receiving education and training from formal education institutions or schools.

Primary School: An institution, which provides teaching service from grade 1 to 8 (primary 1st cycle from grade 1-4 and primary second cycle, refers to grade 5-8)

Risk perception for HIV/AIDS: Respondents feeling of vulnerability of being infected with HIV/AIDS

Safe sex: Sexual practice during adulthood with sufficient precautions against infections and unwanted pregnancy.

Secondary school: An institution, which provides teaching service from grade 9 to 12

Teacher: A person, who is trained, certified and authorized by the Government of Ethiopia as competent to impart knowledge and skill within the education sector.

Unsafe sex/Risky sex: Sexual practice before adult-hood and/or without sufficient precautions against infections and pregnancy

Verbal Autopsy: An epidemiological tool that is used to describe causes of deaths from close relatives and /or friends whenever medical confirmation of the cause of death is absent or incomplete.

Voluntary HIV Counselling and Testing: the process by which an individual undergoes counselling enabling him/her to make an informed choice about being tested for HIV

3.9. Ethical Considerations

High concerns for the standard of ethical issues were applied during all the activities of this study. Since adolescents, young and adult populations in schools are the study subjects involved, due considerations were given for the ethical principles of respect, beneficence, and justice during all the data collection processes.

Moreover, the applications of the general principles of ethics to this study led to the consideration of the requirements for the informed consent of the study subjects which was crucial.

Voluntary Informed consent: Informed consents were obtained from all the study subjects, family members and/or friends or care givers of the deceased teachers, after being given the necessary information for their decision without coercion, undue influence, inducement or intimidation.

Benefits and risks of study participants: In the whole process of the research, due consideration had been given to the principles of risk reduction to the minimum and protection of participants by weighing risks and benefits. Moreover, due respects were given to the local social and cultural norms and confidentiality was maintained. The study results will be communicated to all concerned in the education sector and out of the education sector in the country who are working in HIV prevention, treatment, care and support activities to maximize the potential benefits of the community in the campaign against the deadly epidemic HIV/AIDS. And this

was hoped to benefit the participants as well as the community at large with minimum possible risks to the study participants and families and /or friends.

Justice: The importance of equity was considered in the process of selecting study subjects and exclusions were justifiable too.

Privacy: In the research context, privacy refers to how investigators collect or access identifiable data from participants. Protection of privacy naturally follows as an application of the ethical principles of respect for persons. Hence, in this research the personhood and autonomy of individuals were given due consideration during all the interactions with the participants.

Confidentiality: All the data of this study were handled with confidentiality and anonymity and the results will be disseminated later on to whom it should be disseminated for the possible benefits of the society.

Furthermore, an ethical clearance was obtained prior to this study from the IRB of the College of Health Sciences of Addis Ababa University. Then, official letter of co-operation was written from the School of Public Health of the Addis Ababa University to the Addis Ababa City Administration Education Bureau.

Similarly, the letter of cooperation was written from the Education Bureau of the City Administration to all concerned offices and schools under it. The objectives of the research were communicated also to all the respective Sub- Cities Education Departments and schools as per the administrative hierarchy of the education system of the City for the institutional consents. The school directors and deputy directors were also briefed about the objectives of the study before approaching to their respective teachers and students.

Moreover, all the study participants and targeted family members /friends of the deceased teachers had been informed about the objectives of the study and that their participation and/or permission were purely voluntary and they were free to decline or withdraw at any time in the course of the study. It was also transparently clarified that the information provided whether orally or in writing were for research purposes, strictly anonymous and therefore dealt with confidentially. Accordingly, written consent was obtained from each respondent (family

member, care giver and /or close friend of the deceased teacher) prior to the actual data collection.

In addition, oral consents from secondary school students of each section were obtained after clearly communicating in a group(each selected section of participant schools) about the objectives of the study as well as rights to decide freely to participate in the study or not prior to the data collection from secondary school students, .

Furthermore, regarding the data on HIV Counseling and Testing and its correlates with risky sexual behaviors among primary and secondary school teachers, written consent was secured from each of the participant teacher after clearly explaining about the objectives of the study and individual's right to decide freely as far as his/her participation in study was concerned.

In general, the data were collected by using interviews and/or semi- structured questionnaires for verbal autopsy data and self administered questionnaires preceded by informed written consents from the respective friends and /or families of the deceased teachers and teachers who were study participants by themselves. But regarding student participants, oral consents were obtained in their respective sections after being communicated in a group, though individuals' rights to decide freely whether to participate or not were clearly communicated. There were no personal identifications during responding to any of the questionnaires.

3.10. Summary of study objectives and methods

S N	Specific Objectives	Study Design	Sample size	Target /study population	Data collection Techniques	Analytical models
1	To assess the trend of HIV/AIDS related mortality among primary and secondary school teachers	Verbal autopsy method /both retrospectively as well as prospectively	150 cases /All deaths among teachers from November 2005 to October 2013/	All teachers in primary and secondary schools in Addis Ababa during the study period	Standardized adult VA Questionnaire	-Descriptive Statistics -Extended Mntel-Haenszel Chi-square Test for linear trend analysis
2	To examine the proportion of HIV/AIDS related orphan hood and its association with risky sexual practice	Cross sectional design with analytical component + FGDs	2,169 students from government secondary schools	All students in secondary schools of AA city in 2012/13	Questionnaire based school survey	-Descriptive Statistics -Chi square test -Binary Logistic Regression
3	To assess factors associated with HCT-uptake among school youth in Addis Ababa	Cross sectional study design with analytical component + FGDs	2,169 students from government secondary schools	All students in secondary schools of AA city in 2012/13	Questionnaire based school survey	-Descriptive Statistics -Chi square test -Binary Logistic Regression
4	To identify factors associated with HCT up-take and its correlations with sexual behaviour of teachers	Comparative cross sectional design +FGDs	1,136 teachers from both the primary and secondary schools	All teachers in primary and secondary schools for the year 2012/13	Questionnaire based school survey	- Descriptive Statistics -Logistic Regression
5	To evaluate the effects of school based peer education interventions on sexual behaviours of students	Quasi experimental design with pre test and post test evaluations	560 students (280 for the intervention; and other 280 for the control group).	Quasi experimental design with pre and post intervention evaluations	Questionnaire based school survey	-Descriptive Statistics -Chi-square test -Logistic regression

4. Main Findings

The main findings of this study are summarized under the following two main sections:

Effects of HIV/AIDS on public primary and secondary schools in Addis Ababa and effects of interventions / HCT and peer education interventions/ to mitigate the epidemic at public primary and secondary schools in Addis Ababa,

The findings are further illustrated in the following five scientific papers : the trends of mortality among teachers during HIV/AIDS era , proportion of HIV/AIDS related parental death and its association with risky sexual behavior, factors associated with HIV Counseling and Testing (HCT) among secondary school students, factors associated with HCT and its correlations with sexual behaviors of teachers and effects of peer education intervention on sexual behavior of secondary school students.

4.1. Effects of HIV/AIDS on public primary and secondary schools in Addis Ababa

4.1.1. The trend of HIV/AIDS related mortality among teachers (Paper I)

4.1.1.1. Socio-demographic characteristics of deceased teachers in previous 8 years /Nov.2005 –Oct.2013/ in Addis Ababa

Among 150 deceased teachers, those whose addresses were identified and verbal autopsy questionnaires were completed were 146 (97.0%). Of the study subjects 103(70.5%) were male (Table 3). Nearly half of the deceased teachers 70(48.6%) were in their most productive and reproductive ages (20-45 years). The vast majority 104(71.7%) and 119(81.5%) were married and Orthodox Christian Religion followers, respectively (Table 3). Fifty six point two percent of the deceased teachers were Amhara by ethnicity. Regarding educational status of the participants, 109(75.2%) had diploma or certificate in different subjects. In addition, 108(74.0%) were primary school teachers (Table 3).

Table 3: Socio-demographic Characteristics of deceased teachers (n=146) in Addis Ababa, Ethiopia, Nov 2005-Oct 2013

Variables	Number of deaths	Percent
Sex		
Female	43	29.5
Male	103	70.5
Age		
20-35	18	12.5
36-45	52	36.1
46-55	31	21.5
56 and above	43	29.9
Marital status		
Single	28	19.3
Married	104	71.7
Others	13	9.0
Religion		
Orthodox	119	81.5
Protestant	14	9.6
Catholic, Muslim and others	13	8.9
Ethnicity		
Amhara	82	56.2
Oromo	26	17.8
Tigrie	23	15.8
Others	15	10.3
Education		
Certificate	41	28.3
Diploma	68	46.9
First degree	26	17.8
Second degree and above	10	6.8
Type of school		
Primary	108	74.0
Secondary	38	26.0

4.1.1.2. Main findings of paper I:

The aim of this study was to examine the trends of mortality among primary and secondary school teachers in Addis Ababa during this era of HIV/AIDS. As confirmed by the physicians 'reviews, forty seven point three percent of the total number of teachers' deaths reported during the study period were due to communicable diseases (n=69). The HIV related proportionate mortality ratio was 22.6% with 95% confidence interval of (16.1%, 30.1%), (Table 4).

Of the assigned communicable diseases, tuberculosis and other lung infections were reported in 27 (18.5%). This shows that HIV/AIDS and tuberculosis with other lung infections were responsible for over 41% of teachers death in Addis Ababa, Ethiopia (Table 4).

In addition, non-communicable diseases were responsible for 77 (55.7%) of deaths among teachers during the study period. The main non-communicable diseases confirmed as causes of teachers mortality were: chronic liver diseases 16(11.0%), hypertension 19 (13.0%), malignancy or cancer of any type 15(10.3%), accidental injuries including road traffic accidents 13(8.9%) and all other non-communicable diseases 11(7.5%) (Table 4).

Alcohol use accounted for 68.1% among those whose causes of deaths were assigned to communicable diseases. Of those 26.1% and 31.9% of deaths were assigned as HIV/AIDS, and TB and other lung infections related (Table 4). On the other hand, it was reported that 49.9% of teachers, who died due to various communicable diseases, had been smoking cigarettes and among the diseases HIV/AIDS and TB with other lung infection share 26.1% and 18.8%, respectively.

The prevalence of alcohol use and cigarettes smoking among deceased teachers due to non-communicable diseases were 55.8% and 28.8%, respectively. The proportions of these health risk behaviors were among the assigned cases of chronic liver diseases (10.4% and 6.5%), hypertension (15.6% and 7.8%), and malignancy of any type (7.8% and 3.9%), respectively (See Table 4).

Table 4: Health risk behaviours in relation to Major causes of deaths among primary and Secondary school teachers, Addis Ababa, Ethiopia, Nov.2005- Oct.2013

<i>Causes of death</i>	<i>Number</i>	<i>Drink Alcohol</i>		<i>Smoke cigarette</i>	
	Total n(%)	Yes n(%)	No n(%)	Yes n(%)	No n(%)
Communicable diseases	69(47.3)	47(68.1)	22(31.9)	31(44.9)	38(55.1)
HIV/AIDS related	33(22.6)	18(54.5)	15(45.5)	15(45.5)	18(54.5)
TB and other respiratory infections	27(18.5)	22(81.5)	5(18.5)	13(48.1)	14(51.9)
Non-communicable diseases	77(52.7)	43(55.8)	34(44.2)	22(28.8)	55(71.4)
Chronic Liver Disease/CLD/	16(11.0)	8(50.0)	8(50.0)	5(31.3)	11(84.6)
Hypertension	19(13.0)	12(63.2)	7(36.8)	6(31.8)	13(68.4)
Malignancy or cancer of all types	15(10.3)	6(40.0)	9(60.0)	3(20.0)	12(80.0)
Accidental injuries including road traffic accidents	13(8.9)	8(61.5)	5(38.5)	2(31.9)	11(31.9)
Cardiac and renal diseases	6(4.1)	4(66.7)	2(33.3)	3(50.0)	3(50.0)
Diabetes Mellitus	4(2.7)	0(0.0)	4(100.0)	0(0.0)	4(100.0)
Undermined causes	4(2.7)	4(100.0)	0(0.0)	3(75.0)	1(25.0)

The overall mortality among teachers was 27(0.42%) in 2005/06 and 10 (0.14%) in 2012/13 (See Table 5). The decline in overall mortality was statistically significant (MH Chi-Square=7.79, $P<0.01$). Furthermore, HIV/AIDS related deaths among teachers were 15(33.3%) during the first two years of the study period /Nov. 2005 – Oct.2007/ and 4 (18.1%) during the last two years of the study period /Nov.2011-Oct.2013/. The decline in death due to HIV was also statistically significant (MH Chi-Square=7.04, $P<0.01$). (See Table 5).

Table 5: Total and HIV/AIDS related deaths among Primary and Secondary school teachers in Addis Ababa, Ethiopia; November 2005- October 2013; N=103 public schools

Year	Number of teachers per year	Number of deaths	Percent	Mantel-Haenszel summary OR	Deaths due to HIV/AIDS	Proportionate mortality ratio	Mantel-Haenszel summary OR
Nov.2005-Oct.2006	6,481	27	0.42	1	10	0.37	1
Nov.2006-Oct.2007	6,925	18	0.26	0.624	5	0.28	0.468
Nov.2007-Oct.2008	7,580	20	0.26	0.633	3	0.15	0.257
Nov.2008-Oct.2009	7,254	17	0.23	0.563	2	0.12	0.179
Nov.2009-Oct.2010	7,624	16	0.21	0.504	4	0.25	0.340
Nov.2010-Oct.2011	7,670	26	0.34	0.814	5	0.19	0.422
Nov.2011-Oct.2012	7,323	12	0.16	0.393	2	0.17	0.177
Nov.2012-Oct.2013	7,300	10	0.14	0.392	2	0.2	0.178
Total	58,157	146	0.25	MH Chi-Square=7.97 (P<0.01)	33	0.23	MH Chi-Square=7.04 (P<0.01)

4.1.2 Proportion of parental death and its association with sexual behaviours of secondary school youths in Addis Ababa /Paper II/

4.1.2.1 Socio-demographic characteristics of secondary school students who participated in the study/Paper II and III/

Among 2169 eligible study subjects 1,948 school youth (90.0%) completed the self administered questionnaires. Of those study participants 1,182(60.7%) were female. The vast majority (80.2%) of the respondents were in the age group of 15-18 years. Although the grades and sections were

randomly and proportionately selected 672(34.5%) were from grade 12, 874 (44.9%) were Amhara by ethnicity, 1,487 (76.6%) were Orthodox religion followers and 1851(95.0%) were not married (Table 6).

Table 6: Socio-demographic characteristics of secondary school students from Addis Ababa, who participated in the study, February-March, 2013

Factor	Frequency	Percent
Sex		
Male	766	39.3
Female	1182	60.7
Age		
15-18	1563	80.2
19-24	370	19.0
>24	10	0.5
Education		
Grade 9	350	18.0
Grade 10	432	22.2
Grade 11	492	25.3
Grade 12	672	34.5
Ethnicity		
Amhara	874	44.9
Oromo	450	23.1
Ghuragie	275	14.1
Tigrie	232	11.9
Others	114	5.9
Religion		
Orthodox	1487	76.6
Muslim	230	11.8
Protestant	199	10.2
Catholic	16	0.8
Others	9	0.5
Marital status		
Single	1851	95.0
Married	39	2.0
Others	38	1.9

4.1.2.2. Main findings of paper II

The purpose of this paper was to contribute to interventions serving orphans by exploring the proportion of parental death and its association with multiple sexual partners of school youth aged 15 and above years in a major urban setting in Ethiopia. This cross-sectional study was conducted from February to March 2013 in Addis Ababa, Ethiopia. The questionnaire survey covered 1937 secondary school students from 15 randomly selected schools in ten sub-cities.

The proportion of any parental death among the study subjects was 347(17.8%) with 95% CI (16.2%, 19.6%), (Table 7). Among those 211(60.8%), 70 (20.2%) and 66(19.0%) reported that their fathers, mothers and both parents respectively died due to various causes. Moreover, the HIV/AIDS proportionate mortality ratio was 28% (97/347).

Table 7: Distribution of socio-demographic background of students by parental death among school youth in Addis Ababa Ethiopia (N=1948), 2012/13

Variables	Both parents are alive n=1601 (%)	At least one of the parents deceased n=347 (%)	Father deceased n=211 (%)	Mother deceased n=70 (%)	Both parents deceased n=66 (%)
Sex					
Male	635(39.7)	131(37.8)	80(37.9)	21(30.0)	30(45.5)
Female	966(60.3)	216(62.2)	131(62.1)	49(70.0)	36(54.5)
Age category					
15-18	1301(81.5)	263(75.8)	160(75.8)	56(80.0)	47(71.2)
>18 years	295(18.5)	84(24.2)	51(24.2)	14(20.0)	19(28.8)
Education					
Over all	1599(82.2)	346(17.8)	211(10.9)	69(3.6)	66(3.4)
Grade 9-10	641(40.1)	140(40.6)	87(41.2)	25(36.2)	30(45.5)
Grade 11-12	958(59.9)	205(59.4)	124(58.8)	44(63.8)	36(54.5)
Percent of parental death		347 (17.8)	211 (60.8)	70 (20.2)	66 (19.0)
Proportion of HIV/AIDS related Orphans		97(4.99)	51(52.6)	19 (19.6)	27(27.8)
Ever had sex					
No	1271(79.8)	249(72.4)	154(74.0)	48(68.6)	47(71.2)
Yes	322(20.2)	95(27.6)	54(26.0)	22(31.4)	19(28.8)
Had Sex in Previous year					
No	90(29.8)	19(20.9)	11(21.2)	7(36.8)	1(5.3)
Yes	212(70.2)	72(79.1)	41(78.8)	12(63.2)	18(94.7)

No. of Sexual partners in previous year					
One	97(46.0)	32(44.4)	19(46.3)	3(25)	9(50.0)
Two or More	114(54.0)	40(55.6)	22(53.7)	9(75.0)	9(50.0)
Condom Used					
Consistently	83(39.7)	23(31.9)	11(26.8)	3(25.0)	8(44.4)
Inconsistently	126(60.3)	49(68.1)	30(73.2)	9(75.0)	10(55.6)

A multivariable logistic regression was done to assess the independent associated factors of having multiple sexual partners in previous year of the survey among secondary school students. High HIV/AIDS related knowledge (AOR= 0.39 ;CI, 0.18-0.84), positive attitude towards HIV prevention methods (AOR=0.48 ; 95% CI, 0.23-0.97), ever being tested for HIV (AOR= 0.52 ; 95% CI 0.31-0.87) and chewing Khat (AOR= 2.59 ; 95% CI,1.28-5.26) were significantly associated with having multiple sexual partners among secondary school youths during multivariate logistic analysis (Table 8).

Table 8: Sexual behavior and associated factors among Secondary school students in Addis Ababa, Ethiopia (N=417), 2012/13

Variable	No of Sexual partners in previous year			
	Two or more n(%)	Only one n(%)	Un adjusted OR(95% CI)	AOR(95% CI)
Sex				
Male	75(47.8)	82(52.2)	1.0	1.0
Female	54(42.9)	72(57.1)	1.22(0.76-1.96)	1.44(0.86-2.40)
Age in completed years				
15-18	84(44.2)	106(55.8)	1.0	1.0
>18	45(50.0)	45(50.0)	0.79(0.48-1.31)	0.76(0.44-1.32)
Lost at least one parent due to any cause				
No	97(46.0)	114(54.0)	1.0	1.0
Yes	32(44.4)	40(55.6)	1.06(0.62-1.82)	1.18(0.59-2.36)
Lost at least one parent due to HIV/AIDS related Cause				
No	117(45.3)	141(54.7)	1.0	1.0
Yes	12(48.0)	13(52.0)	0.90(0.40-2.05)	0.81(0.28-2.35)
Level of HIV/AIDS related knowledge				
Low	22(62.9)	13(37.1)	1.0	1.0
High	107(43.1)	141(56.9)	0.45(0.22-0.93)	0.39(0.18-0.84)
Attitude towards 'ABC' rules of HIV prevention				
Negative	25(61.0)	16(39.0)	1.0	1.0
Positive	104(43.0)	138(57.0)	0.48(0.25-0.95)	0.48 (0.23-0.97)
HCT up-take				
No	77(53.5)	67(46.5)	1.0	1.0
Yes	52(37.7)	86(62.3)	0.53(0.33-0.85)	0.52(0.31-0.87)
Drink alcohol				
No	75(55.1)	61(44.9)	1.0	1.0
Yes	79(53.7)	68(46.3)	0.95(0.59-1.51)	0.66(0.38-1.15)
Chew Khat				
No	113(51.4)	107(48.6)	1.0	1.0
Yes	40(65.6)	21(34.4)	1.80(1.0-3.26)	2.59(1.28-5.26)

4.2 Effects of interventions to mitigate the HIV epidemic on sexual behaviours of students and teachers at public schools in Addis Ababa

4.2.1. Factors associated with HIV Counseling and Testing among Secondary School Youths in Addis Ababa /paper III/

4.2.1.1 Socio-demographic characteristics of study participants/students/

The same as stated in section 4.1.2.1, i.e. paper II &III are based on the similar study subjects

4.2.1.2 Main findings of paper III

The purpose of this study was to identify factors associated with HCT among secondary school youths in Addis Ababa, Ethiopia. The proportion of study participants responded that they ever had been tested for HIV is 761/1942 (39.2%) with 95% CI (36.3% -41.8%). Among those who were never tested for HIV so far, 820 (69.4%) with 95%CI,(66.3%- 72.5%) reported their willingness to go for it within two months after the survey period (Table 9).

However,484 (24.8%), 417 (21.4%), 284 (14.6%),153(7.9%) and 106 (5.4%) of the study participants reported that they had sexual partners during the study period, ever had sexual intercourse, had two or more sexual partners and used condom consistently in previous 12 months , respectively (Table 9).

Of the study participants, 434 (22.3%), 106 (5.4%) and only 64(3.3%) reported that they had habits of drinking alcohol, chewing Khat and smoking cigarettes, respectively (Table 9)

As showed in Table 9 below, a multivariable logistic regression analysis was also done to assess the independently associated factors of ever being tested for HIV among the target students. Consequently, age being greater than 18 years (AOR= 2.64 ;CI, 1.46-4.77), religion being Muslim (AOR=2.90 ; 95% CI, 1.07-7.90) and having multiple sexual partners in previous year (AOR= 2.08 ; 95% CI, 1.21-3.57) were significantly associated with ever being tested for HIV among students (Table 9).

On the other hand, of the predicted and selected factors, sex, level of education, knowledge of HIV/AIDS, knowledge of HCT, attitude towards HIV prevention methods, ever having sexual intercourse and habit of drinking alcohol lost their statistical significance during multivariate analyses (Table 9).

Table 9: HCT utilization and selected associated factors among secondary school students in Addis Ababa; March-June 2013

	Ever had tested for HIV		Crude OR; 95%CI	AOR ; 95 % CI
	Yes (%)	No (%)		
Sex				
Female	468(39.2)	710(60.3)	1	1
Male	293(38.4)	471(61.6)	1.06(0.88-1.28)	1.27(0.74-2.24)
Age				
15-18 years	555(35.6)	1003(64.4)	1	1
>18 years	203(53.6)	176(46.4)	2.08 (1.66-2.62)	2.64(1.46-4.77)
Level of Education				
Grade 9-10	259(33.3)	519(66.7)	1	1
Grade 11-12	501(43.2)	659(56.8)	1.52(1.26-1.84)	0.80(0.45-1.44)
Religion				
Orthodox	589(39.7)	893(60.3)	1	1
Muslim	62(27.1)	167(72.9)	1.78(1.30-2.42)	2.90(1.07-7.90)
Protestant and others	110(47.6)	121(52.4)	0.73(0.55-1.0)	0.65(0.29-1.43)
Knowledge of HIV/AIDS				
High	666 (40.2)	991(59.8)	1	1
Low	95 (33.3)	190(66.7)	1.34 (1.03-1.75)	1.08 (0.48-2.40)
Attitude towards HIV Prevention methods				
Positive	669 (40.2)	996 (59.8)	1	1
Negative	92 (33.2)	185 (66.8)	1.35 (1.03-1.77)	0.88(0.41-1.86)
Knowledge of HCT				
High	656(41.7)	916(58.3)	1	1
Low	101(28.0)	260(72.0)	1.84(1.44-2.37)	1.51(0.792-2.89)
Have a sexual partner currently				
No	512(35.3)	938(64.7)		1
Yes	246(50.8)	238(49.2)	1.89(1.54-2.33)	1.08(0.63-1.86)
Ever had sexual intercourse				
No	558 (36.8)	957 (63.2)	1	1
Yes	201 (48.3)	215 (51.7)	1.60(1.29-2.0)	Ref
Number of sexual partners in previous 12 months				
One	77 (59.7)	52 (40.3)	1	1
Two and more	67 (43.8)	86 (56.2)	1.90 (1.18-3.06)	2.08 (1.21-3.57)
Condom used in previous 12 months				
Consistently	56 (52.8)	50 (47.2)	1	1
Not consistently	88 (50.6)	86 (49.4)	1.1(0.68-1.78)	1.22 (0.69-2.13)
Drink alcohol				
No	561 (37.5)	934 (62.5)	1	1
Yes	196 (45.3)	237 (54.7)	1.38 (1.11-1.71)	1.17 (0.64-2.14)
Chew Khat				
No	707(38.8)	1116(61.2)	1	1
Yes	50(47.2)	56(52.8)	1.41(0.95-2.09)	1.21(0.54-2.51)

During the multivariate logistic regression analyses, regarding those who were not tested, the odds of being age greater than 18 years (AOR=2.87; 95%CI, 1.19-6.93), level of education (AOR=0.26; 95 % CI, 0.13-0.55) and history of sexual intercourse in previous 12 months (AOR=2.54; 95%CI, 1.22-5.31) have shown statistically significant associations with willingness to go for HCT up-take in two months time (Table 10).

But gender and habit of drinking alcohol didn't show statistically significant association with willingness of secondary school youths to go for HCT during multivariate logistic regression analyses (Table 10).

Table 10: Intention to go for HCT and selected associated factors among secondary school students, Addis Ababa, March-June, 2013; n=1181

	<i>Showed willingness to go for HCT within two months after the survey</i>		Crude OR; 95%CI	AOR ; 95 % CI
	Yes (%)	No (%)		
Sex				
Female	530(75.4)	173(24.6)	1	1
Male	277(60.0)	185(40.0)	2.03(1.58-2.61)	0.54(0.28-1.06)
Age				
15-18 years	686(69.4)	302(30.6)	1	1
>18 years	120(68.6)	55(31.4)	1.03 (0.73-1.46)	2.87(1.19-6.93)
Level of Education				
Grade 9-10	379(74.2)	132(25.8)	1	1
Grade 11-12	427(65.6)	224(34.4)	1.52(1.18-1.96)	0. 26(0.13-0.55)
Attitude towards “ABC” rules				
Positive	693(70.6)	288(29.4)	1	1
Negative	114(62.0)	70(38.0)	1.46 (1.05-2.02)	1.26(0.50-3.19)
Had sex in previous year				
No	32(55.2)	26(44.8)	1	1
Yes	97(70.3)	42(29.7)	1.94(1.03-3.64)	2.54(1.23-5.31)
Drink Alcohol				
No	652(70.9)	268(29.1)	1	
Yes	149(63.4)	86(36.6)	1.40(1.04-1.89)	0.93(0.47-1.85)

4.2.2. Factors associated with HIV Counseling and Testing and its correlations with sexual behaviors of primary and secondary school teachers

4.2.2.1 Socio-demographic characteristics of teachers participated in the study/Paper IV/

Of the 1136 eligible study participants, 1034 (91.0%) teachers completed the self administered questionnaires (Table 11). Among 568 eligible study participants of primary schools and other 568 from secondary schools, 515 (90.7%) and 519 (91.4%), respectively completed the questionnaires.

The female study participants constitute 350 (33.8%) of the total participants and the majority 760 (73.3%) of teachers included in the study were in their most productive and reproductive age group of 18-34 years (Table 11).

In addition, 762(73.7%) of the study participants were Orthodox Christian religion followers, 572 (55.3%) were Amhara by ethnicity, 662 (64.0%) were single, 642 (62.1%) were bachelor degree holders, 519 (50.2%) had served for more than 10 years and 694(67.1%) were earning less than or equal to 2,500.ETB per month. Moreover, 739(71.7%) of them had ever tested for HIV (Table 11).

Table 11: Socio demographic characteristics of teachers from primary and secondary schools in Addis Ababa, Ethiopia, March-June 2013

Variable	Over all N=1041 n(%)	Primary School		Secondary School	
		Number	%	Number	%
Sex					
Male	684(66.2)	280	54.4	404	77.8
Female	350(33.8)	235	45.6	115	22.2
Age category					
18-24	208(21.3)	153	31.6	55	11.2
25-34	552(56.6)	235	48.6	317	64.4
35-44	95(9.7)	39	8.1	56	11.4
45 and above	121(12.4)	57	11.8	64	13.0
Religion					
Orthodox	762(73.7)	405	78.6	357	68.8
Protestant	165(16.0)	68	13.2	97	18.7
Muslim and others	107(10.3)	42	8.2	65	12.5
Ethnicity					
Amhara	572(55.3)	309	60.0	263	50.7
Oromo	236(22.8)	97	18.8	139	26.8
Tigrie	110(10.6)	55	10.7	55	10.6
Others	116(11.2)	54	10.5	62	11.9
Marital status					
Single	662(64.0)	332	64.5	330	63.6
Married	335(32.4)	162	31.5	173	33.3
Others	37(3.6)	21	4.1	16	3.1
Educational status					
Diploma and below	342(33.1)	325	63.2	17	3.3
First degree	642(62.1)	188	36.6	454	87.5
Second degree and above	49(4.7)	1	0.2	48	9.2
Work experience					
5 years and below	111(10.8)	69	13.5	42	8.1
6-10 years	398(38.7)	205	40.0	193	37.4
11-20 years	267(26.0)	139	27.1	128	24.8
21 years and above	252(24.5)	99	19.3	153	29.7
Monthly salary /income					
1,500 birr and below	178(20.6)	147	35.0	31	7.0
1,501-2,500 birr	516(59.6)	232	55.2	284	63.7
2,501-3,500 birr	112(12.9)	35	8.3	77	17.3
3,501 birr and above	60(6.9)	6	1.4	54	12.1
Ever tested for HIV					
Yes	739(71.7)	381	74.3	358	69.2
No	291(28.3)	132	25.7	159	30.8
Among not ever tested, intention to test					
Yes	134(46.5)	57	44.2	77	48.4
No	154(53.5)	72	55.8	82	51.6

4.2.2.2 Main findings of paper IV

The purpose of this study was to examine the factors associated with HCT and its correlations with sexual behaviors among teachers in Addis Ababa, Ethiopia, to enhance evidence based interventions.

Among the study participant teachers from primary and secondary schools in Addis Ababa , the proportion of life time undertaking of HIV counseling and testing was 739/1034 or 71.5% with 95% CI (69.1% -74.2 %). When teachers were classified by school level, the proportions of HCT undertakings were 381/513 (74.3%) and 358/517 (69.2%) among primary and secondary school teachers, respectively (Table 12).

Of those teachers never tested for HIV until the survey, 134/288 (46.5%) 95% CI (40.1% -52.2 %) showed interest to go for testing in the near future. In addition, when teachers who never had HCT were classified by school level, the proportions of reported willingness to go for HCT were 57/129 (44.2%) and 77/159 (48.4) among primary and secondary school teachers, respectively (Table 12).

The multivariate regression analyses in table 12 show that being male in gender was associated with a 37% decrease in being ever tested for HIV compared to female teachers (AOR=0.63;95% CI,0.44-0.90). Teachers whose ages were 45 and above were about four times more likely to have had HIV testing compared to younger ones (AOR=4.05;95% CI,1.82-9.03). The married (AOR=0.30;95% CI,0.19-0.47) and others (separated, divorced or widowed) (AOR=0.22;95% CI,0.07-0.63) teachers were less likely to have undergone HIV testing compared with unmarried ones. Moreover, teachers with high HCT related knowledge and perceived risk of HIV were more likely to have undergone HCT compared with their counterparts (AOR=3.56;95% CI,1.73-7.32) and AOR=1.43; 95% CI,1.04-1.96), respectively (Table 12).

On other hand, of the variables entered in to the multivariate logistic regression model to determine factors associated with willingness to go for HCT , only gender or being male

(AOR=0.44; 95% CI, 0.22-0.90) showed statistically significant/ negative/ associations. Nonetheless, there was no follow-up done and it was based merely on self reported intentions of study subjects. (Table 12). Although fear of stigma and discrimination (OR=0.59; 95% CI,0.35-1.0) and fear of confidentiality of HIV test results (OR=0.36;95% CI,0.20-0.67) showed statistically significant but negative associations with interest to go for HCT during bivariate logistic regression analyses, they lost their statistical significances during multivariate analyses. .

Table 12 : Factors independently associated with HCT among primary and secondary school teachers in Addis Ababa ,Ethiopia, March-June 2013

<i>Factor</i>	<i>Ever tested for HIV N=1034</i>				<i>Willing to go for HCT in the next two months N=293</i>			
	Yes n(%)	No n(%)	COR 95% CI	AOR 95% CI	Yes n(%)	No n(%)	COR 95% CI	AOR 95% CI
Level of school								
Primary	381(74.3)	132(25.7)	1	1	57(44.2)	72(55.8)	1	1
Secondary	358(69.2)	159(30.8)	1.28(0.98-1.68)	1.09(0.80-1.50)	77(48.4)	82(51.6)	0.84(0.53-1.34)	0.73(0.39-1.35)
Sex								
Female	277(78.5)	76(21.5)	1	1	41(56.2)	32(43.8)	1	1
Male	467(68.3)	217(31.7)	0.59(0.48-0.80)	0.63(0.44-0.90)	94(43.3)	123(56.7)	0.60(0.35-1.01)	0.44(0.22-0.90)
Age category								
18-24	149(72.0)	58(28.0)	1	1	27(46.6)	31(53.4)	1	1
25-34	411(74.3)	142(25.7)	0.89(0.62-1.27)	0.93(0.61-1.41)	71(50.7)	69(49.3)	0.85(0.46-1.56)	0.97(0.44-2.17)
35-44	72(74.2)	25(25.8)	0.89(0.52-1.54)	1.22(0.57-2.62)	8(32.0)	17(68.0)	1.85(0.69-4.96)	1.1(0.28-4.31)
45 and above	73(59.8)	49(40.2)	0.52(0.29-0.93)	4.05(1.82-9.03)	22(45.8)	26(54.2)	1.03(0.48-2.22)	0.54(0.12-2.57)
Religion								
Orthodox	539(70.8)	222(29.2)	1	1	108(49.3)	111(50.7)	1	1
Protestant	124(73.8)	44(26.2)	0.86(0.59-1.26)	0.86(0.57-1.31)	20(45.5)	24(54.5)	1.17(0.61-2.24)	1.12(0.46-2.71)
Muslim and others	81(75.0)	27(25.0)	0.81(0.51-1.29)	0.67(0.40-1.13)	7(25.9)	20(74.1)	2.78(1.13-6.84)	2.57(0.81-8.16)
Marital status								
Single	446(67.4)	216(32.6)	1	1	102(47.2)	114(52.8)	1	1
Married	268(79.3)	70(20.7)	0.54(0.40-0.74)	0.30(0.19-0.47)	30(43.8)	37(55.2)	1.10(0.64-1.91)	0.82(0.29-2.29)
Others	30(81.1)	7(18.9)	0.48(0.21-1.11)	0.22(0.07-0.63)	3(42.9)	4(57.1)	1.19(0.26-5.46)	1.17(0.13-10.33)
Work experience								
≤5 years	86(77.5)	25(22.5)	1		7(28.0)	18(72.0)	1	
6-10 years	282(71.2)	114(28.8)	1.39(0.85-2.28)	1.54(0.90-2.63)	63(55.8)	50(44.2)	0.31(0.12-0.80)	0.35(0.11-1.07)
11- 20 years	199(74.5)	68(25.5)	1.18(0.70-1.98)	1.52(0.84-2.74)	31(46.3)	36(53.7)	0.45(0.17-1.22)	0.55(0.17-1.86)
≥21	169(66.8)	84(33.2)	1.71(1.02-2.87)	1.68(0.77-3.67)	33(39.8)	50(60.2)	0.59(0.22-1.57)	1.03(0.23-4.67)
Knowledge of HIV/AIDS								
Low	4(66.7)	2(33.3)	1	1	1(50.0)	1(50.0)	1	1
High	740(71.8)	291(28.2)	1.27(0.23-6.98)	0.29(0.03-3.11)	134(46.5)	154(53.7)	0.87(0.05-14.03)	
Knowledge of HCT								
Low	18(46.2)	21(53.8)	1	1	125(46.6)	143(53.4)	1	1
High	726(72.7)	272(27.3)	3.11(1.63-5.93)	3.56(1.73-7.32)	10(45.5)	12(54.5)	1.05(0.44-2.51)	1.36(0.47-3.96)

Perceived risk of HIV								
No	456(70.0)	195(30.0)	1	1	94(48.5)	100(51.5)	1	1
Yes	279(74.6)	95(25.4)	1.26(0.94-1.67)	1.43(1.04-1.96)	40(43.0)	53(57.0)	0.80(0.49-1.32)	1.01(0.54-1.90)
Fear of stigma & discrimination								
No					47(57.3)	35(42.7)	1	1
Yes					73(44.2)	92(55.8)	0.59(0.35-1.0)	0.89(0.43-1.86)
Fear of confidentiality								
No					40(67.8)	19(32.2)	1	1
Yes					84(43.3)	110(56.7)	0.36(0.20-0.67)	0.51(0.23-1.12)

Correlations of HCT up-take with sexual behaviors among teachers

Table 13 presents results of multivariate logistic regression analyses of associations among being tested for HIV that was adjusted for some selected socio-demographic and HIV/AIDS related variables as explanatory variables, and risky sexual behavior related outcome variables (multiple sexual partnership and consistent use of condom in previous year).

Thus, teachers who never had HCT were more likely to have multiple sexual partners than their counter parts (AOR=1.85; 95% CI, 1.08-3.15). But, gender being female (AOR=0.42; 95% CI, 0.21-0.84), age being 45 and above (AOR=0.33; 95% CI, 1.0-1.15) and being married (AOR=0.34; 95% CI, 0.18-0.63) decreased the odds of involvements in multiple sexual partnerships by 58%, 67% and 66%, respectively compared to males, younger age groups and unmarried teachers (Table 13).

Furthermore, regarding using condoms consistently as one of the factors associated with HCT uptake, teachers ever tested for HIV (AOR=0.55; 95% CI, 0.32-0.96) were less likely to have used condoms consistently during sexual intercourse compared to those who were never tested.

However, male teachers were more likely to use condoms regularly than females (AOR=2.33; 95% CI, 1.2-4.39) (Table 13). Besides, unmarried teachers were more likely to have used condoms consistently than married teachers in previous 12 months (AOR=11.02; 95% CI, 5.99-20.27 (Table 13).

Table 13: The correlations of HCT Uptake with sexual behavior of primary and Secondary school teachers in Addis Ababa, Ethiopia, 2013 ;N=739

		Multiple sexual partners in previous 12 months			Consistent use of Condom in previous 12 months		
		Yes n(%)	No n(%)	AOR 95% CI	Yes n(%)	No n(%)	AOR 95% CI
Factors							
Ever had HCT	Yes	81 (18.8)	351(81.3)	1	117(27.3)	311(72.7)	0.55(0.32-0.96)
	No	44(31.2)	97(68.8)	1.85(1.08-3.15)	64(45.4)	77(54.6)	1
Sex	Female	18(9.9)	163(90.1)	0.42(0.21-0.84)	27(15.2)	151(84.8)	1
	Male	108(27.5)	285((72.5)	1	154(39.5)	238(60.7)	2.33(1.2-4.39)
Age	18-24	24(30.4)	55(69.6)	1	31(39.2)	48(60.8)	1
	25-34	71(23.3)	234(76.7)	0.59(0.31-1.12)	127(41.1)	182(58.9)	0.69(0.36-1.32)
	35-44	10(15.4)	55(84.6)	0.47(0.15-1.46)	8(12.5)	56(87.5)	2.01(0.61-6.57)
Religion	≥45	8(8.6)	85(91.4)	0.33(1.0-1.15)	12(13.5)	77(86.5)	0.85(0.26-2.76)
	Orthodox	96(22.4)	332(77.6)	1	149(34.7)	280(65.3)	1
	Protestant	15(16.5)	76(83.5)	1.08(0.52-2.23)	21(24.1)	66(75.9)	1.09(0.53-2.24)
	Muslim and others	15(27.3)	40(72.7)	1.64(0.75-3.58)	11(20.4)	43(79.6)	1.83(0.79-4.24)
Marital Status							
	Single	90(35.0)	167(65.0)	1	149(57.8)	109(42.2)	11.02(5.99-20.27)
	Married	30(10.0)	269(90.0)	0.34(0.18-0.63)	27(9.2)	267(90.8)	1
	Others	6(33.3)	12(66.7)	2.0(0.49-8.27)	5(27.8)	13(72.2)	3.53(0.79-15.76)
Monthly income in EtB	≤1,500	19(21.6)	69(78.4)	1	36(40.9)	52(59.1)	1
	1501-2,500	72(26.2)	203(73.8)	1.43(0.72-2.87)	101(36.7)	174 (63.3)	1.17(0.61-2.26)
	2501-3,500	13(17.8)	60(82.2)	1.73(0.59-5.09)	18(24.7)	55(75.3)	0.70(0.25-1.94)
	≥3,501	5(9.4)	48(90.6)	1.09(0.26-4.62)	7(13.5)	45(86.5)	1.47(0.37-5.78)
Attitude towards “ABC” rules	Positive	120(21.5)	439(78.5)	1		376(67.9)	1
	Negative	6(40.0)	9(60.0)	1.80(0.40-8.12)	3(18.8)	13(81.3)	3.32(0.59-18.67)
Level of school	Primary	58(22.1)	205(77.9)	1	79(30.6)	179(69.4)	1
	Secondary	68(22.1)	239(77.9)	0.86(0.50-1.46)	101(32.7)	208(67.3)	1.03(0.61-1.75)

4.2. 3. The effects of Peer Education Intervention on sexual behaviors of secondary school Students in Addis Ababa /Paper V/

4.2.3.1 Socio-demographic characteristics of students participated in a quasi-experimental study of Peer Education Intervention

All 280 (100%) eligible study subjects of the intervention group completed the self administered anonymous questionnaires during both the pre-intervention and post intervention periods (Table 14). But among those 280 eligible study participants of the control group, all 280 (100%) and 260 (92.9%) completed the questionnaires administered during the pre-intervention and post intervention periods, respectively. When the averages of pre and post intervention data of each group were analyzed, 81.6% of the control group and 84.3% of the intervention group students were in the age group of 15-18 years (Table 14).

The female study participants constituted on average / pre and post intervention data/ 61.8% and 62.0% in the control and intervention groups, respectively (Table 14).

Table 14: Socio-demographic Characteristics of the study participants of peer education intervention study from secondary schools in Addis Ababa, Ethiopia, March-June 2013

Variables	Control group		Intervention group	
	Pre intervention n(%)	Post intervention n(%)	Pre intervention n(%)	Post intervention n(%)
Age group (in completed years)				
15-18	234(83.6)	223(79.6)	240(85.7)	232(82.9)
>18	46(16.4)	36(12.9)	40(14.3)	48(17.1)
Sex				
Male	99(35.4)	95(33.9)	108(38.6)	105(37.5)
Female	181(64.6)	165(58.9)	172(61.4)	175(62.5)
Marital status				
Single	266(95)	247(95)	271(96.8)	266(95)
Married and others	14(5)	11(4)	7(2.5)	13(4.6)
Religion				
Orthodox	214(76.4)	211(81.2)	199(71.1)	203(72.5)
Protestant	32(11.4)	25(9.6)	17(6.1)	22(7.9)
Catholic	-	-	1(0.4)	1(0.4)
Muslim	30(10.7)	19(7.3)	61(21.8)	52(18.6)
Others	4(1.4)	5(1.9)	2(0.7)	2(0.7)
Ethnicity				
Amhara	114(40.7)	104(37.1)	95(33.3)	98(32)
Oromo	65(23.2)	71(25.4)	48(17.1)	46(16.4)
Tigrie	43(15.4)	42(15)	32(11.4)	36(12.9)
Ghuragie	40(14.3)	30(10.7)	79(28.2)	76(27.1)
Others	18(6.4)	13(4.6)	26(7.3)	24(8.6)

4.2.3.2 Main findings of Paper V:

The main objective of the quasi-experimental study was to evaluate if peer education is an effective method of HIV prevention in high school settings. Its initial hypothesis was whether the use of the specific behavioral intervention in secondary schools to prevent and control HIV/AIDS epidemic could change the knowledge, attitudes and practices of in school youth in urban Ethiopia.

The proportions of study participants in intervention group with comprehensive HIV/AIDS related knowledge during pre and post intervention periods were 72.0% and 82.1%, respectively

(P-value =0.004) , and those who showed their willingness to go for HIV counseling and testing, 44.7% during pre intervention and 59.6% during post intervention periods (P-value 0.01) have shown positive associations (Table 15).

In addition, among the study subjects in intervention group as the post intervention findings presented, 22.3% had ever initiated sex (P-value 0.72), 49.1 % ever tested for HIV (P-value 0.53), 47.7% reported that they had only one sexual partner (P-values 0.21) and 53.5% reported consistent use of condom (P-values 0.24) during the year preceded the survey (Table 15).

On the other hand , as the post intervention period data of the control group indicated, no significant changes were observed between the pre and post intervention periods in 78.0% of having high knowledge of HIV/AIDS ((P-value 0.97), 20.8% ever initiated sex (P-value 0.24) , 48.3% ever being tested for HIV (P-value 0.52), 43.2% having only one sexual partner (P-values 0.78), and 48.6% consistent use of condom in the year preceding the post intervention survey (P-value 0.09) , and 54.5% showing willingness to go for HCT service within two months after the study period (P-value 0.05) (Table 15) .

Table 15: The sexual behaviors of students in the intervention and control groups during pre and post intervention period among secondary school students in Addis Ababa, Ethiopia, March-June 2013

Indicators			Control group			Intervention Group		
			Base line (n=280)	End line(n= 260)		Base line (n=280)	End line (n=280)	
			n(%)	n(%)	P- Value	n(%)	n(%)	P- Value
High	Knowledge	of	218(77.9)	202(78.0)	0.97	201(72.0)	230(82.1)	0.004
	HIV/AIDS							
Ever had	initiated sexual	intercourse	47(16.8)	54(20.8)	0.24	59(21.1)	62(22.3)	0.72
Ever tested for HIV			127(45.5)	125(48.3)	0.52	130(46.4)	136(49.1)	0.53
Limiting sexual partner only	to one in the last12 months		14(40.0)	16(43.2)	0.78	16(34.8)	21(47.7)	0.21
Consistent use of Condom in	the last 12 months		19(54.3)	10(31.2)	0.06	18(40.9)	23(53.5)	0.24
Willingness to HCT within	2 months after the survey		65(42.8)	73(54.5)	0.05	63(44.7)	84(59.6)	0.01

In the multivariable logistic regression analysis being in peer education intervention group [AOR=4.73 (95% CI: 1.40-16.0)] and Oromo by ethnicity [AOR=0.45 (95% CI: 0.23-0.89)], have shown statistically significant associations with some risky sexual behavior related factors.

However, comparing with the students of a control group, the intervention did not show statistically significant effect in improvising HIV knowledge [AOR=1.20 (95% CI: 0.77-1.87)] and in improving the magnitude of willingness to HCT [AOR=1.23 (95% CI: 0.75-2.02)] during the multivariable logistic regression analysis among the group (Table 16).

Table 16: The effects of Peer education on sexual behavior of Secondary school students in the study group during post intervention period; Addis Ababa, Ethiopia, 2013

		Knowledge of HIV/AIDS			Condom use in the previous 12 months			Willingness to go for HCT		
		Hig h	Lo w	AOR 95% CI	Alw ays	Not alwa ys	AOR 95% CI	Willin g	Not Willi ng	AOR 95% CI
Factors										
Group	Intervention	230	50	1.20(0.77-1.87)	23	18	4.73(1.40-16.0)	84	57	1.23(0.75-2.02)
	Control	202	57	1	10	22	1	73	61	1
Sex	Male	168	31	1.57(0.98-2.50)	15	25	2.63(0.84-8.23)	66	45	1.12(0.67-1.82)
	Female	264	76	1	18	15	1	91	73	1
Age	15-18	363	91	0.91(0.50-1.69)	20	29	2.09(0.66-6.60)	138	108	0.70(0.31-1.59)
	>18	69	15	1	13	11	1	19	10	1
Religion	Orthodox	329	84	0.71(0.33-1.53)	27	34	3.51(0.48-25.51)	116	82	1.0(0.50-2.0)
	Protestant, Catholic and others	42	13	0.68(0.26-1.77)	1	4	5.64(0.30-104.70)	12	16	0.53(0.20-1.45)
	Muslim	61	10	1	5	2	1	29	20	1
Ethnic Group	Amhara	164	38	0.76(0.40-1.45)	17	14	1.12(0.30-4.24)	54	45	0.72(0.37-1.39)
	Oromo	85	32	0.45(0.23-0.89)	1	10	0.07(0.01-0.88)	33	22	1.0(0.46-2.15)
	Ghuragie	84	21	0.59(0.28-1.23)	5	7	3.37(0.55-20.85)	31	27	0.69(0.32-1.46)
	Tigrie and others	99	16	1	10	9	1.	39	24	1

4.3. Summary of major findings by specific objectives

S. N	Specific Objectives	Main findings
1	Assess the trend of HIV/AIDS related mortality	<p>The trend of total and HIV-related mortality among teachers declined significantly</p> <p>The proportionate mortality ratio between the total and HIV/AIDS related mortality among teachers declined from 0.33 to 0.18 during Nov.2005 - Oct. 2007 and Nov.2011-Oct.213, respectively</p> <p>The decline in the HIV/AIDS related mortality among teachers was statistically significant with Mantel Haenszel Chi-square=7.04(P<0.01).</p>
2	Examine the proportion of HIV/AIDS related parental deaths	<p>About one –fifth of school youth lost one or both parents due to various causes 347(17.8 %.)</p> <p>The HIV/AIDS proportionate mortality ratio was 28% (97/347).</p> <p>High HIV/AIDS related knowledge (AOR= 0.39 ; 95% CI, 0.18-0.84), positive attitude towards HIV prevention methods (AOR=0.48 ; 95% CI, 0.23-0.97) , being tested for HIV (AOR= 0.52 ; 95% CI, 0.31-0.87) and chewing Khat (AOR= 2.59 ; 95% CI,1.28-5.26)] were significantly associated with having multiple sexual partners among secondary school youths.</p>
3	Investigate factors associated with HCT-uptake among secondary school students	<p>Over 60% of students were never tested for HIV until the survey (only 39.1% ever tested for HIV).</p> <p>Of those who were not tested so far, 820 (69.4%) reported their willingness to go for HCT within two months after the survey period.</p> <p>Age being >18 (AOR= 2.64 ; 95% CI, 1.46-4.77), being Protestant religion follower (AOR= 4.50 ; 95% CI, 1.33-15.23) , having multiple sexual partners in previous year (AOR= 2.08 ; 95% CI, 1.21-3.57, being in grade 11 and 12/preparatory level/ (AOR= 0.26 ; 95% CI, 0.13-0.55) and having sex in previous 12 months (AOR= 2.54 ; 95% CI, 1.23-5.31) were statistically significant factors of HCT up-take among in school youth .</p>
4	Assess factors associated with HCT up-take and its	<p>The proportion of teachers who had ever tested for HIV was good (71.5%) .</p> <p>Male (AOR= 0.63 ; 95% CI, 0.44-0.90) and married teachers (AOR=0.30;95% CI,0.19-0.47) have decreased odds of being ever tested for HIV compared with female and unmarried teachers.</p>

	correlations with sexual behaviour of teachers	<p>Age being ≥ 45 (AOR= 4.05 ; 95% CI, 1.82-9.03) , high HCT related knowledge (AOR=3.56;95% CI,1.73-7.32) and perceived risk of HIV AOR=1.43; 95% CI,1.04-1.96) were positively associated factors associated with HCT-uptake among teachers.</p> <p>Teachers who never had HCT were more likely to have multiple sexual partners than their counterparts (AOR=1.85; 95% CI, 1.08-3.15). But teachers ever tested for HIV were less likely to use condoms consistently compared to never tested (AOR=0.55; 95% CI, 0.32-0.96).</p>
5	Evaluate the effects of peer education interventions on sexual behaviours of students	<p>Students in the intervention group were more empowered compared to those in the control group.</p> <p>Comprehensive Knowledge of HIV (P-Values =0.004) and willingness to go for HIV counseling and testing (P-value= 0.01) were significant differences of intervention group students observed during pre and post intervention period as a result of peer education intervention.</p> <p>Students in the intervention group were more likely to use condoms during post intervention period compared to students of control group [AOR=4.73 (95% CI (1.40-16.0)].</p>

5. Discussions.

Some of the main findings of the study included in discussion section show a significant decline in the trend of total and HIV-related mortality among teachers, about one-fifth of school youth lost one or both parents due to various causes and the HIV/AIDS proportionate mortality ratio was 28% , over 60% of secondary school students were never tested for HIV until the survey, the proportion of teachers who had ever tested for HIV was good, age being ≥ 45 , high HCT related knowledge and perceived risk of HIV were factors associated with HCT-uptake among teachers, and students in the peer education intervention group were more empowered compared to those in the control group regarding comprehensive Knowledge of HIV, willingness to go for HIV counseling and testing and more likely to use condoms during post intervention period.

5.1. Effects of HIV/AIDS on public primary and secondary schools in Addis Ababa

5.1.1. The trend of HIV/AIDS related mortality among primary and secondary school teachers

This longitudinal study was conducted on the deceased teachers from public primary and secondary schools in Addis Ababa. As the findings in Table 3 show, there was about a twofold decrease in mortality rates among teachers when the first and the last two years data of the study period were computed.

The major causes of deaths among communicable diseases were HIV/AIDS and TB, and other respiratory infections. Hypertension, chronic liver diseases, malignancy and accidental injuries had also significant contributions to teachers deaths among causes assigned as non-communicable diseases. These findings are in agreement with the world Health Organization's statistical report of 2010 and the results of a verbal autopsy study done in Addis Ababa among general population (174,175).

The deaths of teachers were more prevalent among those in their most productive and reproductive ages. The findings are consistent with the results of studies among teachers in Botswana and Namibia (29,67).

The effect of HIV/AIDS seemed to be more serious among married teachers. This is also consistent with a study conducted previously in another sub Saharan country (67).

The Verbal Autopsy data demonstrated that 22.6% of all deaths among primary and secondary school teachers was related to HIV/AIDS. This is the highest share compared with other reported communicable and non-communicable causes of mortality. The leading role of HIV/AIDS for adult mortality was reported from various previous studies and the finding of this study is also in agreement with those studies (176,177). However, our finding is much lower than the results of some other studies conducted in different sub-Saharan African countries, including a study conducted in the same setting of Ethiopia before a decade (30,178-180).

Although the HIV/AIDS proportionate mortality ratio among teachers was high during the first two years of the study period (0.30), it declined by 40% during the last two years of this study period (0.18). This finding is also consistent with other studies that reported significant decline in HIV/AIDS mortality among general adult population and/ or specific occupations like that of teaching (178-181).

Finally, some health risk behaviors like alcohol drinking were found to be more prevalent among teachers deceased due to various communicable diseases including HIV/AIDS. These findings are in line with the results of other previous studies (174,175).

5.1.2. Proportion of “HIV/AIDS related ”parental death and its association with sexual behavior of secondary school youth

This cross sectional study was conducted among secondary school students in Addis Ababa. It identified the proportion of the total and HIV/AIDS parental deaths and its association with having multiple sexual partners in previous year among students .The high proportions of age category from 15-18 and female population in the sample were in agreement with the characteristics of current student population in secondary schools in Ethiopia (161).

The findings of this study showed that the prevalence of sexual initiation among secondary school youths was 21.5%. This finding is almost similar to those of the previous studies conducted among high school adolescents in the country (60, 109, 135). An individual's level of

risk of contracting HIV was assessed through one of the UNAIDS proposed core indicators or having multiple sexual partners in previous 12 months (25, 182).

The proportions of having multiple sexual partners among the study participants in general and those who ever had sexual intercourse in preceding 12 months of the survey were 7.9% and 54.4%, respectively. In addition, one of the important findings of this study was the prevalence of inconsistent condom use among sexually active school youth in preceding year that was 62.3%. This finding is in harmony with the findings of studies conducted previously in Ethiopia and other African countries (108, 119, 125).

Nearly one-fifth (17.8%) of the study participants experienced death of at least one parent. Most of the orphaned students had lost their fathers. This finding is also in line with the findings of the demographic and health surveys and related household surveys of ten African countries (183).

Although the magnitude of the prevalence of orphan-hood was very significant, our finding was slightly lower than those reported previously from Zimbabwe in 2008 (119). However, among the students who lost one or both parents due to various causes, 28% reported that they lost their parents due to HIV/AIDS.

This study also showed that the proportion of students who had multiple sexual partners in previous year didn't have statistically significant variation in age and sex. Nonetheless, these findings are not consistent with the findings from National surveys of four African countries that showed differences in sex and age groups regarding exposure to multiple sexual partners. Other studies that were conducted in South Africa and Burkina Faso also indicated variations in sexual behaviors among different sex and age groups (124, 183, 184).

The hypothesis on risky sexual behavior that states, students who lost at least one parent due to any cause, including HIV/AIDS, are more exposed to HIV because of the likelihood that the orphaned youths could face more economic challenges and /or lack parental guidance (185), was not supported by our findings. This is also in agreement with the study done in a neighboring country, Kenya (118). But our findings are not in line with findings of the previous studies conducted in some other countries (13, 119, 121). This could be explained in terms of the

difference in economic statuses of surveyed countries and effectiveness of intervention programs to care and support orphaned children and adolescents.

The most significant findings of this study, having high knowledge on HIV/AIDS , positive attitude towards the common preventive methods “ABC” rules and being tested for HIV, had shown an intended positive associations with having multiple sexual partners among school youths during both bivariate and multivariate analyses . However, these observations were not in accordance with the findings from different countries reported “ both in school and out of school youth are experiencing risky sexual behavior and do little to prevent HIV and other STIs despite their high knowledge on HIV/AIDS and positive attitude towards its prevention methods” (107, 108).

On the other hand, in many instances, low knowledge of HIV transmission methods and negative attitude to preventive measures like using condoms are associated with sexual behavior among adolescents who are most at risk (184).

Furthermore, having multiple sexual partners among school youth was not associated with parental loss due to HIV/AIDS or any other cause during both bivariate and multivariate analyses. But being tested for HIV and Chewing Khat were significantly associated with multiple sexual partnerships among secondary school youths.

As the primary aim of HCT is preventive, the finding of this study is in agreement with the findings of studies conducted in many other African countries that revealed the significant effects of HCT on reducing the magnitude of risky sexual practice (91, 100, 186). On the other hand, our findings were not in line with the findings of a study that revealed individuals who tested negative were more likely to report multiple sexual partnership and intercourse with non-primary sexual partners (94).

The observed association between having multiple sexual partners and chewing Khat could be because of the effects of stimulant substance found in Khat that may impair the ability of the mind for right judgment by temporarily decreasing the level of fear against any risk factor including HIV. In addition, comparing with their peers, those youths who were actively involved in chewing Khat were more likely to drink alcohol and smoke cigarettes which could

increase the probability of indulging into risky sex. Similar associations were also observed in the findings of various studies conducted in different countries (119, 131-133).

5.2. Effects of interventions /HCT and Peer education/ to mitigate the HIV epidemic at primary and secondary schools

5.2.1 Factors associated with HIV Counseling and Testing among Secondary School Youths

This school based cross sectional study tried to assesses the determinants of HCT among secondary school students in the Capital City. As the finding of this study shows, the extent of secondary school students who had been ever tested for HIV was 39.1%. It is slightly higher than the reported prevalence among those tested during the national Demographic and Health Survey that was conducted in 2011 in Ethiopia and reports on HCT prevalence among young people from various sub-Saharan countries (53, 170, 187,188). However, the finding of this study is lower than that of a study conducted previously in one of the colleges in Ethiopia on the prevalence of HCT among students (189). In addition, as over 60% of the secondary school youth didn't go for HIV counseling and testing, it is an indication for a lot to intervene is remaining.

The main factors associated with HCT uptake among secondary school students were age, educational status, religion, knowledge of HIV/AIDS, attitude towards HIV prevention methods, knowledge of HCT, having a sexual partner during the study period, number of sexual partners in previous 12 months and habit of drinking alcohol.

Students with ages greater than 18 years were found to have HCT up-take of about three times more likely than younger ones. This could be explained in terms of the probabilities of being more exposed to HIV/AIDS and having HCT related information from various sources, be it in school or out of school. This finding is in agreement with findings of a study conducted in Zimbabwe that reported associations of age, education and knowledge with voluntary HIV counseling and testing (190). However, it is not in line with the findings of studies that reported socio-demographic factors like age and education were not found to have associations with HIV counseling and testing (191,192).

Although the level of education or being in grade 11 and 12, having high knowledge of HIV/AIDS, high knowledge of HCT, having a sexual partner during the survey and habit of drinking alcohol showed significant associations with HCT up-take among secondary school youths during bivariate logistic regressions analyses, they lost their significances during multivariate logistic regression analysis. Nevertheless, those findings were not consistent with the findings from various countries that reported significant associations of those variables with HCT (119, 193,194,195).

The other observed determinant of this study was being faithful to a sexual partner during the previous 12 months of the survey. Students who had sexual relationship with only one partner in previous year were about two times more likely to be tested for HIV counseling and testing compared to their counterparts. This could be due to the reason that students who were faithful to their partners may think that they are at lower risk to be infected with HIV, develop less fear and more self confidence to go for HIV counseling and testing and know self more, compared to those who were exposed to multiple sexual partners. On the other hand, being faithful to a partner could be the correlation of HCT besides being a factor for it. Studies have witnessed changes in sexual behaviors and decrease in the number of sexual partners following HCT utilization (91, 196,197).

Regarding those students who were not tested until the survey (60.9%), factors associated with their intention to go for HCT within two months after the survey were assessed. Dealing with factors associated with ever tested , students in the age category of above 18 years were found to be about three times more likely to seek for HIV counseling and testing service compared with other age groups (age 15-18 years) (190).

Being in preparatory school / grade 11 and 12 / was found to be one of the important determinants to show willingness to be tested. Those students from grade 11 and 12 were less likely to show interest to be tested within two months time after the survey period compared with students from grade 9 and 10. This finding is in agreement with the finding of a study conducted in Uganda where younger age was found to be associated with increased likelihood of willingness to be tested (193). But it is in disagreement with the study done in Zimbabwe where increased age, education and knowledge of HIV were positively associated with VCT up-take

and that of a study from Kenya which reported no association between HCT up-take and school level among school adolescents (190, 192).

According to the findings of this study, being sexually active during the previous 12 months was found to be one of the important factors associated with showing willingness to go for HIV counseling and testing among secondary school students. This could be explained in terms of perceived risk of HIV among those who had sexual exposure in previous year. Students who had practiced sexual intercourse in previous year were more likely to express their interest to be tested in the near future. This was also in line with the findings of a study conducted in Ethiopia among college students in which being sexually active and having sex with their partners are among determinants of showing willingness to go for HIV counseling and testing (189). Nevertheless, it was not in line with the findings of a study conducted in Uganda where self-perception of HIV risk didn't have statistically significant association with VCT (198).

Sex being female and habits of drinking alcohol were also positively associated with willingness to go for HCT up-take during bivariate analyses, though they lost their statistical significance during multivariate analyses. These could also be explained in terms of the more probability that females residing in urban areas have to visit health service delivery institutions for reasons associated with early pregnancy and /or contraceptives (199). In addition, habit of drinking alcohol and its association with showing willingness to go for HCT could be explained in terms of the increased probability of exposure to risky sexual behavior and perceived risk of HIV (119, 194).

5.2.2. Factors associated with HIV counseling and testing and its correlations with sexual behaviors of teachers

This comparative cross sectional study was conducted among primary and secondary school teachers. It assessed the determinants of HIV counseling and testing and its effect on sexual behavior. HIV counseling and testing uptake among teachers in Addis Ababa (71.7%) is significantly high compared with the national HCT prevalence among adult population in Ethiopia (200). However, it is not in agreement with previous studies that reported low

prevalence of HCT utilization in many low income countries including Ethiopia (66, 86, 87, 201, 187). The proportion of HCT uptake was slightly higher among female study participants than their male counterparts. This could be explained in terms of the more chance of women to contact health services for family planning and/or pregnancy related issues. It is also consistent with the findings of the Demographic and Health Surveys conducted in eighteen low and middle income countries (187).

As shown in this study, being ever tested for HIV was significantly associated with gender, age and marital status of teachers. Teachers aged 45 years or more were more likely to go for HIV testing compared with the younger age categories. But this finding is not in agreement with findings of similar studies (187, 193).

The married, widowed, divorced and /or separated teachers were less likely to go for HCT than unmarried ones. This may be explained in terms of their probable current or perceived risk of contracting HIV and fear of the possibility of being positive. However, the findings were not consistent with the results reported from a study conducted in Uganda (198) and other studies that reported none of the socio-demographic factors were significantly associated with intention to go for HIV counseling and testing (76, 202).

Those teachers with high knowledge of HCT were more likely to use HCT service compared with their counterparts. This finding is in line with many previous studies (193, 203, 204).

The variable perceived risk of HIV also showed positive association with being ever tested. This may be explained in terms of the role of better self awareness among teachers for timely interventions against certain health related challenges. Moreover, among never tested teachers, males were less likely to go for HCT service in two months time after this study. This finding is in agreement with the finding of a study (205). However, it was not in agreement with the findings of studies that reported no socio-demographic factors showed significant association with intention of HCT up-take (198, 202).

Furthermore, this study examined the role of HCT to bring change in the sexual behavior of the primary and secondary school teachers. Accordingly, there was a significant association

between being never tested for HIV and having multiple sexual partners in previous 12 months among the study participants.

This finding could be explained in relation to the fact that those tested for HIV and collected their results as negative may develop more confidence to have sex, including unprotected sexual intercourse only with their respective and already existing partners. This fact was also reported from previous studies conducted in Ethiopia and Kenya in which prevalence of having sexual intercourse increased among those tested negative and also prevalence of unprotected sex increased among non-pregnant women following HCT, respectively (94, 95).

In addition, over eighty one percent of teachers who were ever tested for HIV have reported that they had only one sexual partner in 12 months prior to the survey. This shows that the very significant number of teachers tested for HIV was found to be more faithful to their respective partners. This finding is also in agreement with the findings of studies conducted in Nigeria and other countries (81, 84, 91, 97, 206, 207). But it is not in agreement with findings of some other studies that reported no or little change in risky sex following HCT (94, 95, 201). Of the teachers ever had HCT, females were more likely to limit themselves to only one sexual partner during the year preceding the study.

Furthermore, as the findings of this study showed using condoms consistently during sexual intercourse was less likely among teachers who were ever tested for HIV compared with never tested. But the finding is consistent with the results of studies conducted previously in Kenya and Ethiopia those reported an increase in the number of unprotected sex following HCT (94, 95). Nevertheless, those teachers who were males and not married were more likely to use condom consistently after having HCT compared with their counterparts. These findings are also consistent with those reported previously (91, 102).

5.2.3 Effects of Peer Education Intervention on Sexual Behaviors of Secondary School Youth

Researches that were conducted previously in some countries on the role of peer education in HIV/AIDS prevention reported improvements in HIV/AIDS related behaviors and attitudes among intervention groups compared with controls (109, 148, 151, 208-210).

This study also endeavored to deliver important insights into the effects of peer education to enhance comprehensive knowledge of HIV/AIDS and improve attitudes towards prevention methods to decrease the magnitude of risky sexual behaviors among school youth in Ethiopia.

According to this study, the level of comprehensive knowledge on the major routes of HIV transmission and ways of prevention amongst both the study group (71.9%) and control group (77.9%) have already reached to an encouraging level during the pre-intervention period. This finding is higher than the recent Global report by UNAIDS on comprehensive HIV /AIDS knowledge among young people in sub-Saharan countries (211).

The HIV/AIDS related knowledge of the intervention group increased significantly during the post intervention period. This could be explained by the assumption that peer educators are the trustworthy sources of information on HIV/AIDS for the school youth. This finding is in line with other studies conducted on the effects of peer education in various countries (109, 138, 148, 208, 210).

Although the number of students with high HIV/AIDS related knowledge increased during the post intervention period, it lost statistical significance during multivariable logistic analysis. Moreover, despite an increased knowledge during post intervention period among intervention group students, risky sexual behaviors like limiting number of sexual partners only to one in the year preceded the study didn't show statistically significant association to peer education intervention. But the findings are in agreement with that of some other studies conducted previously in other countries (107, 138, 212), while they are in disagreement with the findings of other studies (109, 145, 209). These observations may be explained by the assumption that the school adolescents and youths perhaps were not fully convinced with the information given by their peers on HIV related risky sexual behaviors.

Furthermore, although most of the findings of the current study did not show statistically significant differences between the intervention and control groups, peer education intervention seemed to empower students to adopt less risky sexual behaviors. These differences could be explained in terms of the current theoretical knowledge on HIV/AIDS and $P\text{-values} < 0.05$. In addition, the observed slight differences between the students in the intervention and control

groups are in line with the findings documented previously in various studies conducted on the effects of peer education interventions (109, 138).

Significantly more students in intervention group have shown their willingness to go for HIV counseling and testing within 2 months after the study period compared to their counterparts. These findings are consistent with the findings of previous studies from various developing countries (109, 146, 213,214).

6. Validity and Generalizability

6.1. Validity

Validity, which refers to the conceptual and scientific soundness of a research study or investigation (215), may be threatened in this survey due to self-reported data (216). However, validity takes different forms including content, criterion-related and constructs validity (217).

Content validity that refers to whether the items measure the substance or subject matter they were intended to measure was an important aspect to be addressed. In this study, content validity was achieved in two ways. The first one was through administering the instruments in Amharic, the language that was familiar and well understood by all teachers and students, who participated in the study. The translation of English version questionnaire into Amharic, then back into English and pre testing the Amharic version prior to final data collection were important steps taken to ensure content validity. Second, as mentioned earlier, the pre test was carried out in similar setting prior to the main study conducted in primary and secondary schools in Addis Ababa so as to test the content of the instruments for data collection.

The study also has to determine the criterion-related or predictive validity, which reflects whether the findings corroborate results of previous studies. One way to obtain this would be to use standardized questions that provide a criterion measure. However, due to the lack of HIV/AIDS effect scales that had been tested to check internal consistency or test-retest reliability in previous studies conducted elsewhere, it was implausible to establish criterion-related validity.

However, despite the fact that most items used in the questionnaires of this study were partly built on identified salient contextualized information, the standardized Verbal Autopsy questionnaire that measured HIV/AIDS-related mortality among teachers was also used (Paper I).

Furthermore, mixed methods of research were used in this study, i.e., triangulated the longitudinal, cross- sectional, comparative cross-sectional and quasi-experimental study designs. In addition, socio-demographic and sexual behavior related variables were incorporated in the

process of analyzing data collected from students and teachers of randomly selected public primary and secondary schools under all the ten sub-cities in the Capital.

Consequently, the findings of this study are believed to have internal validity as well as external validity or generalizability.

6.2. Reliability

A scale or test is reliable if measurements made under constant conditions are likely to give the same results, assuming that no changes in the basic characteristics being measured occur (218). However, in a research situation, measurement scores normally constitute the true component and the error component. In this way, the reliability is higher when the degree of error in an instrument is lower (219).

Accordingly, this study employed different study designs with various data collection instruments to generate reliable and valid information related to the effects of HIV/AIDS and interventions against the epidemic by different actors at public primary and secondary schools in Addis Ababa.

6.3. Generalizability

It is worth considering the extent to which findings based on a sample are generalizable and applicable to the study populations as well as outside the study setting. As discussed above in various sections of this study, the participants were those in most cases randomly sampled from all the public primary and secondary schools in the Capital City. Hence, it is reasonable not to doubt the generalizability of the findings to all teachers and students in Addis Ababa. As all sub-cities were included and the school selection criteria were representative of all primary and secondary schools, the generalizability of the findings of this study can be expressed in terms of evaluating the reliability and validity of it. Moreover, validity and reliability are two factors which any researcher should be concerned about while designing a study, analyzing results and judging the quality of the study (220).

As scholars argue the use of multiple methods of data collection by a researcher and using different data sources as that of implemented in this study give far stronger findings than one method alone. They further argue that seeing things from two different perspectives can provide researchers with different kinds of knowledge about it, help to answer different questions, give the opportunity to corroborate findings, enhance the validity of the data and help to give some confidence that the meaning of the data has some consistency across methods. Likewise, in this study, triangulation was promoted through asking similar questions to public primary and secondary school teachers and also similar questions to students from randomly selected 15 public secondary schools (221,222).

6.4 Chances of non-response and missing information bias

Non-response bias that refers to “misrepresentation of the target population by the sample that constituted the responders” is likely to be of great concern when characteristics of the non-respondents are not known (199). Likewise, there is a concern for the missing information mainly because missing values of a particular value hides a true underlying value that is meaningful for analysis.

Despite these remarks, there seem to be no consensus on the maximum proportion acceptable for the non response and missing cases. However, in general, this study had a very low attrition rate (10% or less) and none of the items had missing information of above 15%. It is thus feasible to argue that the non response and missing information might not have biased the study findings.

Furthermore, this study focused on a setting where little or no similar studies were conducted, and the younger, future hopes of the country and relatively more exposed population to HIV/AIDS are concentrated. Consequently, the findings of this study might not only fill the research gap of the country but also help policy makers and implementers of HIV/AIDS prevention, care, treatment and support programs in the country. Even though, the findings might not be generalizable for the whole country as data were collected only from public primary and secondary schools in Addis Ababa City, they can be generalized to the urban context and also can be applicable in rural settings of the country with care.

7. Strengths and Limitations

7.1. Strengths

The uses of different sources for data collection or triangulation of various study designs for better understandings of the situation under study are strengths of this study. Moreover, the data analyses were done using appropriate statistical methods and main factors were adjusted for potential confounding factors. Besides, the study setting being Addis Ababa City with over three million populations and the second highest prevalence of HIV/AIDS among adult population compared to that of other regions and that of national adult prevalences are considered as the strengths of the study.

In addition, the random selection of study participants, large sample size, participants being from all randomly selected public secondary schools of the capital city, data collectors and supervisors being health professionals with diploma and above educational background and high response rates for the surveys can be taken as the significant strengths of this study.

Furthermore, as it is in line with the national research gaps emphasized on the national HIV/AIDS policy and strategy as well as the education sector HIV/AIDS Policy and strategy documents, it may have significant role in bridging the research gaps of the country related to HIV/AIDS epidemic and risky sexual behavior among school youth

7.2. Limitations

This study suffers from the following limitations:

The private schools and the evening program students of the public primary and secondary schools in the study setting were not included due to resource constraints.

As most of the data were collected from self reports of the study participants and no other sources were used to cross check, it could be taken as one of the limitations of this study.

As the verbal autopsy data of deceased teachers of seven years were collected retrospectively, recall bias and social desirability bias are also possible.

Since most of the variables were related to some sexual behavior related characteristics of individuals that are sensitive, during self reported information, recall and social desirability biases are likely to occur.

The data collected for one of the outcome variables, number of sexual partners in previous year were not specified whether the exposure was to the sequential or concurrent multiple sexual partners, as the latter group was most at risk.

In addition, the HIV and ART statuses of both the students and teachers who ever had HCT were not included in this study

Cross sectional studies are not strong to identify the true effects of orphanhood and HCT on sexual behaviors among students and teachers, respectively.

Regarding a quasi-experimental study on the peer education intervention, the shorter follow –up period (about 3 months) because of the very nature of the school programs and scarcity of the required resources like free time and money, and lack of motivation among some of the peer educators and study participants due to our inability to respond positively to their request to be paid for could have also an influence on the results of this study.

8. Conclusions

- This study endeavored to provide some insights into the effects of HIV/AIDS and interventions to mitigate the epidemic in public primary and secondary schools.
- Despite some limitations related to poor practices on compiling teachers' data in education sector in general, and in Addis Ababa City Administration Education Bureau in particular, this study has shown that the trend of HIV/AIDS related mortality among public primary and secondary schools' teachers is declining significantly.
- Significant decrease in death rate among teachers could be due to increasing access to life-prolonging anti-retroviral therapies and/or change in risky sexual behavior because of increased knowledge on HIV/AIDS.
- Evaluation of causes of death among teachers by verbal autopsy gave a better understanding about the major causes of death among teachers.
- Alcohol drinking and cigarettes smoking were found to be more prevalent among deceased teachers in Addis Ababa.
- About one- fifth of school youths in Addis Ababa experienced parental death due to various causes.
- High knowledge of HIV/AIDS, positive attitude towards “ABC” rules for HIV prevention, being tested for HIV and chewing khat were more likely to be factors associated with multiple sexual partnerships of both orphaned and non-orphaned secondary school students in Addis Ababa.
- The state of being tested for HIV so far is low among secondary school students.

- Of the selected predictors, age, religion, grade level, having sexual partner, and having sexual intercourse and practicing sex with multiple sexual partners in previous year were associated with ever having HCT as well as intention to go for it in the near future among the students.
- Very encouraging number of teachers from primary and secondary schools experienced life time HCT
- From variables selected for analysis of associated factors of HCT among teachers, gender, age, marital status, knowledge of HCT and perceived risk of HIV were variables that showed statistically significant associations with being ever tested for HIV and showing willingness to go for it among those never tested.
- Being tested for HIV is positively associated with limiting number of sexual partner to one among teachers. In contrast, the observed high proportion of inconsistent condom use among tested was also observed.
- Regardless of the very short follow-up period for the effect evaluation, due to the very features of the school environment and the critical financial constraints, in over all, more positive sexual behavior related changes were realized among the peer education intervention group students compared with their counterparts.

9. Recommendations

In the light of the above conclusions, the following recommendations are made.

For Policy makers

- The Ministry of Education and its collaborators in HIV/AIDS prevention, care and support programs, should inject more resources to improve the quality of teaching and learning of HIV and AIDS program for the school community, so as to be able to reach the society at large .
- HIV/AIDS related interventions in the primary and secondary schools should get due consideration to the strategies of controlling health risk habits besides sexual risky behaviors.
- Implementing the peer education program in secondary schools by allocating reasonable resources could play significant role in bringing positive changes in the sexual behaviors of school youth and preventing them from the deadly epidemic (HIV/AIDS).

School community

- The findings of the present study are useful to design an HCT intervention programme specifically for secondary school students. In practice, factors significantly associated with the use of HCT services and anticipation of HIV/AIDS-related stigma are likely to be useful in scaling-up HCT service uptake among secondary school students
- Given that HIV/AIDS is a stigmatized health problem due to its mode of transmission as well as its chronic and lethal characters, it is very important to design HCT related messages that would mitigate subjective feelings of HIV/AIDS-related stigma so as to decrease students' and teachers' resistance to seeking HCT services.

- The school community and its stakeholders should strengthen the current interventions against HIV/AIDS epidemic by giving due attention to the intended outcomes of risky sexual behaviors among in school youths and teachers through mini media, HIV/AIDS clubs, peer education, school community conversation and the like.

Future research

- Since the present study is just an initial step towards exploring effects of HIV/AIDS and interventions to mitigate the epidemic at primary and secondary schools that was focused in Addis Ababa, there is a need for large scale or nationwide studies with more representative sample size to consolidate much needed empirical evidence on HIV/AIDS effect among school community.
- Further research can look at enhancing quality teaching and learning of HIV/AIDS at Tertiary Institutions in Ethiopia so as to improve the quality of teachers who qualified from colleges and Universities for effective prevention, care and support programs implementations in primary and secondary schools.

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12. Appendices:

Appendix A.: Original Papers Published and Under reviews

PAPER I

PAPER II

PAPER III

PAPER IV

PAPER V

Appendix B: Questionnaires for teacher and student participants

Appendix I: Verbal Autopsy Questionnaire for Teachers' Death

Adapted from International Standard Verbal Autopsy Questionnaire 3 (Death of a person aged 15 years and above)

CONSENT STATEMENT

Good Morning/Good Afternoon/ Good Evening.

Our names are _____ and _____. We are working with a research team from Addis Ababa University. We are collecting information on the health problems of teachers with particular emphasis on the health problems associated with or causes of the deaths of teachers. We have been informed by _____ that Mr/Mrs /Ms _____ who had been a teacher at _____ school was passed away _____ months/years back. Although it could cause distress to you, we would very much appreciate your participation in this study. We want to ask you about the circumstances leading to the death of the deceased teacher. Whatever information you provide regarding the deceased will be kept strictly confidential. No information identifying you or the deceased teacher will ever be released to anyone outside of this information-collection activity.

Your participation in this study is voluntary and you have the right to choose or not to answer any individual question or all of the questions. You may also stop responding to the questionnaire at any time without any consequences at all. However, we hope that you will cooperate to participate in this study and respond honestly to our questionnaire, since the results will have significant importance for improving the health services of the country in general, and health planning and intervention efforts of the education sector in particular.

At this time, do you want to ask me anything about the purpose or content of this interview?

May I begin the interview now?

Signature of interviewer: _____ Date: _____

1. RESPONDENT AGREES TO BE INTERVIEWED 2. Respondent does not agree to be interviewed → END



Section 1: VA Interviewer Contact Result			
Name of interviewer: _____		Kebele _____	Telephone No.
Interviewer signature : _____		Gote _____	
Name of supervisors: _____		Gote _____	
Supervisors signature : _____		House number: _____	
Outcome of first visit	1. Completed 2. Not around home 3. Interrupted 4. Refused		Date of appointment for other time visit _____
Outcome of second visit	1. Completed 2. Not around home 3. Interrupted 4. Refused		Date of appointment for other time visit _____
Outcome of third Visit	1. Completed 2. Not around home 3. Interrupted 4. Refused		Date of appointment for other time visit _____
Date of interview (ETC): Day/Month/Year		_____/_____/_____	

Section 2: Basic information about the respondent /family member or friend of a deceased teacher

No.	Questions and Filters	Response	Skip
201	Record the time at the start of the interview	Hour _____ Minutes _____	
202	Name of the respondent	Name _____	
203	Sex of the respondent	1. Female 2. Male	
204	Age of the respondent	In completed years _____	
205	What is your relationship to the deceased?	1. Father 2. . Mother 3. Spouse 4. Sibling 5. Child 6. Other relative (Specify) _____ 88. No relationship	
206	Did you have an opportunity to live with the deceased before his/her death?	1. Yes 2. No	If 2 , skip to Q.301
207	For how long have you lived with the deceased in the period leading to his/her death ?	1. From the first day of the illness 2. After the start of the illness 3. Few days before her/his death	

Section 3 : Information about the deceased

301	What was the name of the deceased?		
-----	------------------------------------	--	--

		Name _____	
302	Was the deceased male or female?	1. Female 2. Male	
303	How old was the deceased when he/she died?	Age in completed years-----	
304	What was his/her occupation	1. Primary school teacher(first Cycle or Grade 1-4) 2. Primary school teacher(second Cycle or Grade 5-8) 3. Secondary school teacher (first cycle or Grade 9-10) 4. Secondary school teacher (second cycle or Grade 11-12) 5. Others (Specify) _____	
305	What was his/her highest level of formal education?	1. Certificate / 12 +1 , 10+1 , 10+2 2. Diploma 3. First Degree 4. Second Degree and above 88. Do not know	
306	Religion	1. Orthodox Christian 2. Protestant Christian 3. Catholic Christian 4. Muslim 5. Other (specify) _____	
307	Marital Status (Circle your response)	1. Never married 2. Married living the partner 3. Cohabitation 4. Separated	

		5. Divorced 6. Widowed 88. Don't know	
308	Ethnicity (Circle your response)	1. Amhara 2. Oromo 3. Tigrie 4. Ghuragie 5. Others (specify) _____ 88. Don't know 99. No response	
309	Work experience in teaching	1. Less than 2 years 2. 2-5 years 3. 6-10 years 4. Greater than 10 years	
310	When did he/she die? Record '98' if Don't know Day or Month and record '9998' if Don't know year	Day _____ Month _____ Year _____	
311	Where did s/he die?	1. Hospital 2. Health center 3. Clinic 4. Home 5. Others (Specify) _____ 6. 88. Do not know	If the answer is Home or others Skip to 315
312	What is the name of the Health institution that he died in?	Name of Health Institute _____ _____	

313	Were you informed the cause of death by the medical personnel?	1. Yes 2 .No 88. Do not know	
314	If the answer is “yes” probe to specify the cause he /she was informed.	Cause1. _____ Cause 2 _____ _____	
315	Could you tell me more about the illness /events that led to his/her death? _____ _____ _____		
316	Cause/s of death according to the respondent	1. _____ 2. _____ _____	

Section 4. History of previous known medical Conditions of the deceased

No.	Questions and Filters Please tell me if the deceased suffered from any of the following illnesses	Coding Classification	Skip
401	Had any of the following illnesses? (More than one answer is possible):		
401.1	High blood pressure?	1. Yes 2. No 88. Don't know	
401.2	Diabetes?	1. Yes 2. No 88. Don't know	
401.3	Epilepsy?	1. Yes 2. No 88. Do not know	
401.4	Tuberculosis?	1. Yes 2. No 88. Don't know e.	

401.6	HIV/AIDS?	1. Yes 2. No 88. Don't know	If 2 or 88 skip to 501
401.7	Liver disease?	1. Yes 2. No 88. . Don't know	
401.8	Asthma ?	1. Yes 2. No 88. . Don't know	
401.9	Malnutrition?	1. Yes 2. No 88. . Don't know	
401.10	Cancer?	1. Yes 2. No 88. . Don't know	
401.11	Can you specify type of site of cancer?	Type/site _____	
401.12	Did s/he suffer from any other medically diagnosed illnesses?	1. Yes 2. No 88. . Don't know	
	Can you specify the illness?	Illness : _____ _____	

Section 5: Questions to probe for symptoms and signs of Final illness of the deceased

501	For how long was s/he ill before s/he died /	1. Days _____ 2. Months _____ 3. Years _____	
502	Did the deceased have fever?	1. Yes 2. No 88. Don't know	(If the answer is no or Don't know skip to question No. 507)
503	For how long did the fever stay?	1. Days _____ 2. Months _____ 88. Don't know	
504	Was the fever high?	1.. Yes 2. No 88. Do not know	
505	Was the fever continuous or on and off ?	1. Continuous 2. On and off 88. Don't know	
506	Did s/he have fever only at night?	1. Yes 2. No	

		88. do not know	
507	Did s/he have chills /rigor?	1.Yes 2. No 88. Don't know	
508	Did s/he have cough?	1.Yes 2. No 88. Don't know	If 2 or 88 Skip to Q. 512
509	Was the cough severe?	1. Yes 2. No 88. Don't know	
510	Was the cough productive with sputum?	1. Yes 2. No 88. Don't know	
511	Did s/he cough out blood?	1. Yes 2. No 88. Don't know	
512	Did s/he have night sweats?	1. Yes 2. No 88. Don't know	
513	Did s/he have night breathlessness?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q. 517
514	For how long did s/he have breathlessness?	1. Days _____ 2. Months _____ 88. Don't know	
515	Was s/he un able to carry out daily routines due to breathlessness	1. Yes 2. No	

		88. Don't know	
516	Was s/he breathless while laying flat?	1. Yes 2. No 88. Don't know 99. No response	
517	Did s/he have wheezing?	1. Yes 2. No 88. Don't know	
518	Did s/he have chest pain?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q 521
519	For how long did s/he have chest pain?	1.Days _____ 2.Months _____ 88. Don't know	
520	Did the chest pain start suddenly or gradually?	1. Suddenly 2. Gradually 88. Don't know	
521	Did s/he have diarrhea?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q 525
522	For how long did s/he have diarrhea?	1.Days _____ 2.Months _____ 88. Don't know	
523	Was the diarrhea continuous or on and off?	1. Continuous 2. On and off	

		88. Don't know	
524	Was the diarrhea bloody?	1. Yes 2. No 88. Don't know	
525	Did the deceased have rash?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q 528
526	For how long did the rash stay?	1.Days _____ 2.Months _____ 88. Don't know	
527	What did the rash look like?	1. Watery 2. Pusy 3. Others (Specify)_____ 4. 88. Don't know	
528	Did the deceased have weight loss before death?	1. Yes 2. No. 88. Don't know	If 2 or 88 Skip to Q 530
529	How was the degree of weight loss? If known write in kilogram_____.	1.Too much 2. Medium 88. Don't know =	
530	Were the legs edematous?	1. Yes 2. No 88. Do not know	If 2 or 88 Skip to Q 532
531	For how long did the edema of leg stay?	Duration in : Days _____ Months _____ Don't know = 99	
532	Did the deceased have yellowish eye (jaundice)?	1. Yes 2. No. 3. Don't know	
533	Did the deceased have swollen lymph nodes?	1.Yes 2. No. 88. Do n't know	

534.	Did the deceased have any swelling/wound of the body?	1. Yes 2. No 88. Do n't know (If the answer is yes probe for the site and duration)_____	
535	Did the deceased have an abdominal distension?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q 537
536	Was the abdominal distension sudden or progressed gradually?	1.. Suddenly 2. Gradually 88. Don't know	
537	Did the deceased have difficulty in swallowing food or drink?	1.Yes 2. No 88. Don't know	If 2 or 88 Skip to Q.539
538	For how long was the difficulty in swallowing stayed? _____	Days _____ Months _____ 88. Do n't know	
539	Did the deceased have headache?	1. Yes 2. No. 88. Do n't know	
540	Did the deceased have neck stiffness?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q. 542
541	For how long did the neck stiffness stay?	Days _____ Months _____ Don't know	
542	Did the deceased have any loss of consciousness?	1.Yes 2. No 88. Don't know	If 2 or 88 Skip to Q 545
543	What was the degree of unconsciousness?	1.Stuperous 2. Unconsciousness 3. Others, specify 88. Don't know	

544	For how long did the unconsciousness stay?_____	Days _____ Months _____ 88. Don't know	
5435	Did the deceased have difficulty in opening the mouth?	1. Yes 2. No 88. Don't know	
546	Did the deceased have hemiplegia?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to Q 548
547	For how many days did the hemiplegia stay?	_____ 88 Don't know	
548	Did the deceased have paraplegia?	1. Yes 2. No 88. Don't know	
549	For how many days did the paraplegia stay?	_____ 88 Don't know	
550	What was the color of urine looked like?	1. Yellow 2. Brown 3. Bloody 88. Do n't know	
551	For how many days did the urine color change stay?_____	_____ 88 Don't know	
552	Was the amount of daily urine changed?	1. Yes 2. No 88. Don't know	
553	Did the deceased have difficulty in urination?	1. Yes 2. No 88. Don't know	
554	Did the deceased have any operation recently?	1. Yes 2. No 88. Don't know	If 2 or 88 Skip to 601
555	How many days before death was the operation done? _____	_____ 88 Don't know	

556	On which part of the body was the operation done?	1.Abdomen 2. Head 3. Chest 4. Other part of the body (Specify) 88. Don't know	
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Section 6: Symptoms and Signs associated with illness of Women

If the deceased was male or women aged above 50 skip to question No.616

No.	Questions	Coding Classification	Skip
601	Did she have an ulcer or swelling in the breast?	1. Yes 2. No 88. Don't know	If 2 or 88 skip to 603
602	For how long did she have an ulcer or swelling on her breast?	<hr/> 88. Don't know	
603	Did she have excessive vaginal bleeding during menstrual period?	1. Yes 2. No 88. Don't know	
604	Was the deceased pregnant at the time of death?	1.Yes	If 2 or 88 skip

		2. No 88. Don't know	to 606
605	How long was she pregnant?	1. Weeks _____ 2. Months _____ 88. Don't know	
606	Did she die during labor, but undelivered?	1. Yes 2. No 88. Do not know	
607	. Did the deceased give birth 45 days before her death?	1. Yes 2. No 88. Don't know	If 2 or 88 skip to 613
608	How many days after giving birth did she die?	Days _____ 88. Don't know	
609	Where did she give birth?	1. Hospital 2. Other health facility 3. Home 4. Others (Specify) 88. Don't know	
610	How long was the duration of labor?	1 .One day 2. Two days 3. More than two days 88. Don't know	
611	Did the deceased have too much bleeding during labour?	1. Yes 2. No 88. Don't know	

612	Was the bleeding before or after delivery?	1. Before delivery 2. During delivery 3. After delivery 88. Don't know	
613	Did she experience abortion recently?	1. Yes 2. No 88. Don't know	If 2 or 88 skip to 616
614	Did she die during abortion	1. Yes 2. No 88. Don't know	
615	Did she take medicine or treatment to induce?	1. Yes 2. No 88. Don't know	
616	Did the deceased suffer from any accidental injury?	1. Yes 2. No 88. Don't know	If 2 or 88 skip to 619
617	What type of accident had occurred to the deceased?	1. Assault 2. Car accident 3. War wounded 4. Animal bite 5. Burning 6. Poison 7. Others, specify _____ 88. Don't know	
618	How many days before the death did the accident occur?	Days : _____	
619	Did the deceased commit suicide?	1. Yes	If 2 or

		2. No 88. Don't know	88skip to 701
620	How did the deceased commit suicide?	1.Poisoning 2. Burning 3.Hanging 88. Don't know	

Section 7 : Treatment and health service use for the final illness

No.	Questions :	Coding Classification	Skip
701	Did s/he receive any treatment for the illness that led to death	1.Yes 2. No 88. Don't know	If 2 or 88skip to 703
702	Can you please list the drugs s/he was given for illness that led to death (Copy from the prescription/Discharge notes if available)	_____ _____ _____	
703	In the month before death, how many contacts with formal health services did s/he have?	Number of contacts _____ 88. Don't know	
704	Did the health care worker tell you the cause of death?	1.Yes 2. No 88. Don't know	If 2 or 88skip to 801

705	What did the health care worker say ?	<hr/> <hr/>	
Section 8 : Risk Factors			
801	Did s/he drink alcohol?	1.Yes 2. No 88. Do 't know	If 2 or 88skip to 805
802	How long had s/he been drinking?	Years _____ 88. Do not know	
803	How often did s/he drink alcohol?	1. Daily 2. Frequently (weekly) 3. Once in a while 88. Do not know	
804	Did s/he stop drinking	1.Yes 2. No 88. Do n't know	
805	Did s/he smoke tobacco (cigarette ,pipe, etc)	1.Yes 2. No 88. Don't know	If 2 or 88skip to 901
806	How often did s/he smoke?	1.Daily 2.Frequently (weekly) 3.Once in a while	

		88. Do not know	
<p>Section 9: Data abstracted from Death Certificates</p>			
901	Do you have a death certificate for the deceased?	1.Yes 2. No 88. Don't know	If 2 or 88 skip to 903
902	If possible ask to see the death certificate and copy the day , month and year of the death certificate	<hr/> <hr/>	
903	Record the cause of the death from the death certificate if any	<hr/> <hr/>	
<p>Section 10 : Data abstracted from other health records</p>			
1001	Other health records if available	<hr/> <hr/>	
1002	Burial permit (cause of death), if there is any	<hr/> <hr/>	
1003	Post mortem results (Cause of death) if there are any	<hr/> <hr/>	

1004	MCH/ANC card (Relevant information)if there is any		
1005	Hospital prescription (Relevant information) ,if there is any	_____	
1006	Treatment card (Relevant information)	_____	
1007	Hospital Discharge (Relevant information)	_____	
1008	Laboratory results (Relevant information),if any	_____	

1009	Other Hospital documents if any	Specify _____	
1010	Record the time at the end of the interview	Hours _____ Minutes _____	

That is the end of our Interview. Thank you very much for taking time to answer our questions.
We very much appreciate your cooperation.

INTERVIEWER'S OBSERVATIONS AND COMMENTS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

SUPERVISOR'S OBSERVATIONS AND COMMENTS

NAME OF THE SUPERVISOR: _____ DATE _____

Appendix II :

Questionnaire for examining the Proportion of Students who lost one or both of their parents due to various causes, and identifying the factors associated with orphan-hood and HIV counseling and testing among the secondary school students in Addis Ababa ,Ethiopia.

2.1. General information for the students who are aged 15 and above, and are randomly selected from grade 9-12.

Dear student,

My name is Takele Menna. I am a PhD student of public Health at the School of Public Health, College of Health Sciences, Addis Ababa University. I am here to study the effects of HIV/AIDS on the education sector and the reponse against the epidemic in Addis Ababa.

You are chosen to participate in this study and the choice was done randomly.

The purpose of this study is to generate research based and more appropriate intervention methods for students against the impacts of HIV/AIDS epidemic.

In order to achieve the desired goal, I request your honest and genuine participation. I will provide you with a questionnaire containing several intimate and private life questions concerning the study. There is no need to put your name on the questionnaire and your response will not be passed to a third person, i.e. it is very confidential and will be used only for the purpose of this study.

Moreover, it is your full right not to participate, to discontinue or to participate in the study. If you do not like to participate you are not obliged to fill the questionnaire. There will be no negative impact on you whatever your decision is. But your honest participation will have useful contribution to generate information that will help to fight against the fatal HIV/AIDS epidemic and its impact in our country in general and among the young and productive age group in particular.

So, please take a few minutes to complete the questionnaire. If you have any question or complaints don't hesitate to ask me using my private address.

Takele Menna

Tele: 0911-134934

Mail: takelemena@yahoo.com

If you wish to participate in this study please indicate your willingness by ticking the following options and fill the consent form in the next page.

Yes, I want to participate ☐

No, I do not want to participate ☐

Annex 2.2

Consent form

I the undersigned have read and understood that the objective of this particular research Project is to find out the the effects of HIV/AIDS on the education sector and the response against the epidemic in Addis Ababa.

I have been informed that the information I give will be used only for the purpose of this study; my identity and the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study, not to respond to the question I am not interested or stop responding to the questions at any time in the process.

Accordingly, I agreed to participate in this research voluntarily.

Signature of the participant: _____

Date: _____

Annex 2.3 English version Questionnaire on the factors associated with risky sexual practice and HIV counseling and testing among secondary school students, and the Proportion of Students who lost one or both of their parents due to various causes in Addis Ababa.

Section 1: Personal identification of the respondent

- 01 .Region _____
02. Sub-City _____
03. Name of School _____
04. Type of School (please under line your appropriate response) : private/ public
05. Questionnaire identification number / -----/-----/-----

Section 2: Socio-demographic Characteristics

No.	Questions and Filters	Response	Skip
201	Sex of the respondent	1. Male 2. Female	
202	Age in years(completed years)	Age in completed years----- 1. 15- 18 years 2. 19-24 years 3. 25 years and above	
203	Religion	1. Orthodox Christian 2. Protestant Christian 3. Catholic Christian 4. Islam 5. Other (specify) _____	
204	Ethnicity	1. Amhara 2. Oromo 3. Tigrie 4. Ghuragie 5. Others (specify) _____	

205	Educational status	1. Grade 9 2. Grade 10 3. Grade 11 4. Grade 12	
206	Marital Status	1.Single 2.Married 3. Divorced/separated 4. Widowed 5. Other (Specify)-----	
207	Location of your School	1. Urban 2. Semi urban	

Section 3 : Knowledge and attitude towards HIV/AIDS . Read the questions below carefully and circle the number of your choice.

No.	Questions and Filters	Coding Classification	Skip
301	Have you ever heard of HIV or the disease called AIDS?	1. Yes 2. No 99. No response	If “No” Go to 315
302	HIV transmits from an infected person to a healthy person through _____ (More than one answers are possible)	1. Insect bite 2. Un protected sexual intercourse 3. Shaking hands 4. Infected blood and blood products 5. Mother to a child 6. Sharing unsterile sharp materials	
303	From where did you hear about HIV epidemic? (more than one answer is possible)	1. From health professionals 2. From mass media 3. From friends 4. From teachers 5. Others (specify)_____	
304	Can a healthy looking person be infected with HIV?	1.Yes 2. No 88. Don't know	

305	Do you know that there are Anti HIV/AIDS drugs for HIV positive patients?	1.Yes 2. No 99. No response	
306	Can HIV/AIDS be cured?	1.Yes 2. No 88. Don't know 99. No response	
307	Once infected with HIV virus, can a person infect others for the rest of his/her life?	1. Yes 2. No 88. Don't know 99. No response	
308	Abstaining from sex before marriage is the best preventive method against HIV for any body. Do you agree with this statement?	1. Strongly agree 2. Agree 3. Disagree. 4. Strongly disagree	
309	The frequency of illness and death among students and teachers has increased after the era of HIV/AIDS? Do you agree?	1. Yes 2. No 99. No response	
310	Controlling HIV/AIDS transmission could have significant role for achieving the goal of education sector which is vital for the development of a country? Do you agree?	1.Yes 2.No 99. No response	
311	Does HIV/AIDS worsen the general health conditions of students and teachers if timely treatment is not started early?	1.Yes 2.No 99. No response	
312	Does having many sexual partners increase a person's risk of being infected with the HIV/AIDS virus?	1. Yes 2. No 88. Don't know	

		99. No response	
313	Can people protect themselves from HIV, the virus that causes AIDS, by using a condom correctly every time they have sex?	1. Yes 2. No 88. Don't know 99. No response	
314	Some one cannot get HIV if he or she stick to one sexual partner	1. Yes 2. No 88. Don't know	
Section 4: Questions on Sexual history and other related habits			
401	Do you have a husband/wife or boy / girl friend? [Under line the kind of sexual partner you have currently].	1. Yes 2. No 99. No response	
402	Have you ever had sexual Intercourse? [it is only for those who are never married].	1. Yes 2. No 99. No response	If 2 skip to Q 406
403	Have you had sex in the past 12 months	1 Yes 2 No	
404	How many sexual partners did you have in the last 12 months	1. One 2. Two 3. More than two	
405	With what frequency did you and all of your regular partner(s) use a condom during the past 12 months?	1. Every time 2. Almost every time 3. Some times 4. Never 88. Don't know 99. No response	
406	Do you drink beer or any other alcoholic drink?	1. Yes 2. No 99. No response	
407	Do you chew chat ?	1. Yes 2. No 99. No response	

408	Do you smoke cigarette?	1. Yes 2. No 99. No response	
409	How can a person know whether he/she has HIV/AIDS?	1. Simply by looking at him/herself 2. By physical examination of health personnel 3. Go to traditional Healers/Wizard 4. Go to counseling/testing service 5. Others (Specify)----- 88..Donot know	
410	Have you ever heard of HIV Counseling and testing?	1. Yes 2. No	If 2 Skip to Q 417
411	If your response for Q. no 324 is yes , from where did you hear?(more than one answer is possible)	1. From health professionals 2. From mass media 3. From friends 4. From sexual partner 5. Others (specify)_____	
412	Do you know from where you can get confidential HIV Counseling and Testing service?	1. Yes 2. No.	
413	Which facilities do you think can provide HIV counseling and testing services? (More than one answer is possible)	1. Gov. Hospital 2. Health center 3. Private Hospitals 4. Private clinics 5. Others(specify)_____	
414	Have you ever tested for HIV?	1. Yes 2. No	If 2 skip to Q.418
415	When did you get tested?	1. In the last 3 months 2. In the last 6 months	

		3. In the last 12 months 4. Before 2 years	
416	How did you get the test result?	1. By telephone 2. Face- to -face 3. Through post office 4. Spouse/partner brought it 5. I didn't get it at all 6. Other(specify)_____	
417	Why did you go for the HIV counseling and testing center or get tested for HIV?	1. Because I wanted to know my HIV status simply 2. For marriage purpose 3. It was initiated by the sexual partner 4. Because of risky sexual practice 5. Initiated by the health professional 6. Others (specify)_____	
418	If you are not tested for HIV so far how, likely are you intending to be tested in the coming two months?	1. Very likely 2. Likely 3. Neutral 4. Unlikely 5. Unlikely at all 88. I do not know	

Dear respondents!

The following questions are for those students who lost one or both of their parents because of various causes. Therefore, other students have finished responding to the questionnaire here.

I thank them all for their cooperation and taking time in order to respond to the questionnaire

Section 5 : Questionnaire for examining the proportion of students who lost either one or both of their parents due to various causes.

NO	Questions and filters	Coding classifications	Skip
501	Do you know someone who died due to HIV/AIDS?	1. Yes 2. No	If 2 Skip to Q.505
502	What is your relationship to the deceased? He /She is my _____.	1. Father 2. Mother 3. Brother 4. Sister 5.Friend 6. Neighbor 7.Other relative (Specify) _____ 88. No relation ship	
503	Did you live with the deceased in the period leading to his/her death?	1. Yes 2.No 99. No response	
504	If your answer to Q.503 is “No” What was your reason ?	1.Although s/he is my immediate family member , we were living in different houses 2. S/he died before my birth 3. I was very young while s/he died 4. S/he was someone who lived far from our house 5. Any other reason (Please specify) _____	
505	Please indicate those of your parents who are alive?	1. Both my father and mother are alive 2. My Father only is alive 3. My Mother only is alive 4. Both of my parents have passed away 99. No response	

506	With whom are you living currently (Your prime care giver who is alive is the one who is mentioned first)	1. With both my father and mother , and others 2. With my Father and others 3. With my Mother and others 4. With My brother and others 5. With my sister and others 6. With my Guardian and others 7. With Grand parents and others 8. Any other (Please Specify)_____	
Section 6 : Information about the family condition or private life of the respondent student			
601	Which one of your parents has passed away	1. My father 2. My mother 3. Both of my parents 4. None of them	
602	How old was the deceased when he/she died?	Age in completed years----- 88. Don't know	
603	What was his/her occupation	1. Teacher 2. Merchant 3. . Farmer 4. Driver 5. Office worker 6. Soldier 7. House wife 8. Others (Specify) _____	
604	What was his/her highest level of formal education?	1. Illiterate 2. Primary school	

		3. Secondary school 4. .Certificate / 12 +1 , 10+1 , 10+2 5. .Diploma 6.First Degree 7.Second Degree and above 88. Do not know	
605	Religion	1.Orthodox Christian 2. Protestant Christian 3. Catholic Christian 4. Islam 5. Other (specify) _____	
606	Marital Status of the deceased during the final year of his/her death (Circle your response)	1.Single 2.Married and living together 3. Separated 4. Divorced 5. Widowed 6.Others (specify) _____	
607	Ethnicity (Circle your response)	1.Amhara 2.Oromo 3.Tigrie 4.Ghuragie 5.Others (specify)_____ 99. No response	
608	Where did s/he die?	1. In hospital 2. In health center 3. In clinic 4. In home 5.Others (Specify) _____	If the answer is 4,5 or 88 Skip to

		88. Do not know	701
609	What is the name of the Health institution that s/he died in?	Name of Health Institute _____ _____	
610	Were you informed about the cause of death by medical personnel?	1. Yes 2 .No 88. Do not know	
611	If the answer is yes, specify the cause you were informed.	Cause1. _____ Cause 2 _____	

Section 7 : History of previous known medical Conditions of the deceased

No.	Questions and Filters Please respond honestly if the deceased suffered from any of the following illnesses	Coding Classification	Skip
701	Had s/he any of the following illnesses? (More than one answer is possible):		
701.1	High blood pressure?	1. Yes 2. No 99. Don't know	
701.2	Diabetes?	1. Yes 2. No 88. Don't know	
701.3	Epilepsy?	1. Yes 2. No 88. Do not know	
701.4	Tuberculosis?	1. Yes 2. No 88. Don't know e.	
701.5	HIV/AIDS?	1. Yes 2. No 88. Don't know	
701.6	Liver disease?	1. Yes 2. No 88. . Don't know	
701.7	Asthma ?	1. Yes 2. No 88. . Don't know	
701.8		1. Yes 2. No 88. . Don't know	If 2 or

701.9	Malnutrition?	1. Yes 2. No 88. . Don't know	88 Skip to 701.11 If 2 or 88 skip to 701
701.10	Cancer?	Type/site _____	
701.11	Can you specify type of site of cancer?	1. Yes 2. No 88. . Don't know	
701.12	Did s/he suffer from any other medically diagnosed illnesses? Can you specify the illness?	Illness : _____	
Section 8 : Questions related to symptoms and signs of Final illness of the deceased			
801	For how long was s/he ill before s/he died /	1. Days _____ 2. Months _____ 3. Years _____	
802	Did s/he have diarrhea ?	1. Yes 2. No 88. Don't know	If 2 or 88.Skip to 806
803	For how long did s/he have diarrhea ?	1.Days _____ 2.Months _____ 88. Don't know	
804	Was the diarrhea continuous or on and off?	1. Continuous 2. On and off 88. Don't know	
805	Was the diarrhea bloody?	1. Yes 2. No 88. Don't know	
806	Did the deceased have rash?	1. Yes 2. No 88. Don't know	If 2 or 88.Skip to 809

807	For how long did the rash stay?	1.Days _____ 2.Months _____ 88. Don't know	
808	What was the nature of the rash ?	1. Watery 2. Pusy 3.Other (Specify)----- 4. Do n't know	
809	Did the deceased have weight loss before death?	1. Yes 2. No. 88. Don't know	If 2 or 88.Skip to 811
810	How was the degree of weight loss? If known write in kilogram_____.	1. Too much 2. Medium 88. Don't know	
811	Did the deceased have hemiplegia or paraplegia?	1. Yes 2. No 88. Don't know	If 2 or 88.Skip to 813
812	For how many days did the hemiplegia or paraplegia stay?	_____ 88 Don't know	
813	Did the deceased have any operation recently?	1. Yes 2. No 88. Don't know	If 2 or 88.Skip to 816
814	How many days before death was the operation done? _____	_____ 88 Don't know	
815	On which part of the body was the operation done?	1.Abdomen 2. Head 3. Chest 4. Other part of the body (Specify) 88. Don't know	

816	Did the deceased suffer any accidental injury?	1. Yes 2. No 88. Don't know	If 2 or 88. Skip to 819
817	What type of accident had occurred to the deceased?	1. Assault 2. Car accident 3. War wounded 4. Animal bite 5. Burning 6. Poison 7. Others, specify _____ 88. Don't know	
818	How many days before the death did the accident occur?	Days : _____	
819	Did the deceased commit suicide?	1. Yes 2. No 88. Don't know	If 2 or 88. Skip to 821
820	How did the deceased commit suicide?	1. Poisoning 2. Burning 3. Hanging 88. Don't know	

821	Did s/he receive any treatment for the illness that led to death	1. Yes 2. No 88. Do n't know	If 2 or 88. Skip to 824
822	For how long did s/he take the treatment?	1. For Days _____ 2. For weeks _____ 3. For months _____ 4. For years _____ 88. Don't know	

823	Can you please list the drugs s/he was given for illness that led to death (if possible)	<hr/> <hr/> <hr/>	
824	Did the health care worker tell you the cause of death?	1.Yes 2. No 88. Do n't know	If 2 or 88.Skip to 901
825	What did the health care worker say ?	<hr/> <hr/> <hr/>	
Section 9 : Risk Factors			
901	Did s/he drink alcohol?	1.Yes 2. No 88. Do 't know	If 2 or 88.Skip to 905
902	How long had s/he been drinking?	Years _____ 88. Do not know	
903	How often did s/he drink alcohol?	1.Daily 2.Frequently (weekly) 3.Once in a while 88. Do not know	
904	Did s/he stop drinking	1.Yes 2. No 88. Do n't know	
905	Did s/he smoke tobacco (cigarette	1.Yes	If 2 or

	,pipe, etc)	2. No 88. Do n't know	88.Skip
906	How often did s/he smoke?	1.Daily 2.Frequently (weekly) 3.Once in a while 88. Do not know	

That is the end of our Interview. Thank you very much for taking time to answer our questions.
We very much appreciate your cooperation.

Appendix III: Questionnaires on factors associated with HCT and its correlations with sexual behavior among teachers at primary and secondary schools in Addis Ababa.

Annex 3.1 General information:

Dear teacher,

My name is Takele Menna. I am a PhD student of public Health at the School of Public Health, College of Health Sciences, and Addis Ababa University. I am here to study the practice of HIV counseling and testing (HCT) and factors associated with it among teachers .You are chosen to participate in this study and the choice was done randomly.

The purpose of this study is to generate research based behavioral information that could play pivotal role for the development of appropriate and possible work place interventions.

In order to achieve the desired goal, I kindly request your honest and genuine participation. I will provide you a questionnaire containing several intimate and private life questions in relation to the study. There is no need to put your name on the questionnaire and an individual's response will not be passed to a third person; it will be used only for the purpose of this study.

Moreover, it is your full right not to participate, to discontinue or to participate in the study. If you do not like to participate you are not obliged to fill the questionnaire. There will be no negative impact on you whatever your decision is. How ever, your honest participation will have useful contribution to generate information that will help to fight against the fatal HIV/AIDS epidemic.

So, please take few minutes to answer the questionnaire. If you have question or complaints don't hesitate to ask me using my private address.

Takele Menna

Tele: 0911-134934

Mail: takelemena@yahoo.com

If you wish to participate in this study please indicate your willingness by ticking the following options and fill the consent form in the next page.

Yes, I want to participate ☐

No, I do not want to participate ☐

Annex 3.2

Consent form

I, the undersigned, have read and understood that the objective of this particular research Project is to find out factors associated with HIV counseling and testing and HCT correlations with risky sexual behaviors among primary and secondary school teachers. I have been informed that the information I give will be used only for the purpose of this study; my identity and the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study, not to respond to question I am not interested or stop responding to the question at any time in the process.

Accordingly, I agreed to participate in the research voluntarily.

Signature of the participant: _____

Date: _____

Annex 3.3. English version questionnaire: a questionnaire for identifying the determinants of HIV counseling and Testing (HCT) among primary and secondary school Teachers in Addis Ababa.

Section 1: Identifying the respondent

1. Region _____
2. Sub-City _____
3. Name of School _____
4. Questionnaire identification number / -----/-----/-----

Section 2: Socio-demographic Characteristics

No.	Questions and Filters	Response	Skip
201	Sex of the respondent	1.Male 2.Female	
202	Age in years(completed years)	Age in completed years-----	

203	Religion	1. Orthodox Christian 2. Protestant Christian 3. Catholic Christian 4. Islam 5. Other (specify) _____	
204	Marital Status (Circle your response)	1. Single 2. Married 3. Separated 4. Divorced 5. Widowed 6. Others (specify) _____	
205	Ethnicity (Circle your response)	1. Amhara 2. Oromo 2. Tigrie 3. Ghuragie 3. Others (specify) _____ 99. No response	
206	Educational status	1. Certificate (10+1/ 12+1) 2. Diploma 3. Bachelor's Degree 4. Master's Degree and above	
207	Occupation (your current status)	1. Primary school teacher (First Cycle or Grade 1-4) 2. Primary school teacher (Second Cycle or Grade 5-8) 3. Secondary school teacher (Grade 9-10) 4. Secondary school teacher (Grade 11-12) 5. Others (Specify) _____	
208	Work experience in teaching	1. Less than 2 years 2. 2-5 years 3. 6-10 years 4. Greater than 10 years	
209	Gross monthly income in Eth. Birr	Birr _____	

210	Type of school you are working in currently	1. Public 2. Private 3. Other (please specify)_____	
211	Location of your school	1.Urban 2.Peri -urban	

Section 3 : Questions on Knowledge , Attitude and Practice of HIV Counseling and Testing, and Sexual history. Read the questions below carefully and circle the number of your choice/s.

No.	Questions	Coding Classification	Skip
301	Have you ever heard of HIV or the disease called AIDS?	1. Yes 2. No 99. No response	If “No’’ Go to 214
302	Can a healthy looking person be infected with HIV?	1.Yes 2.No 88. Don’t know 99. No response	
303	The frequency of illness and death among school community has increased after the era of HIV/AIDS? Do you agree?	1.Yes 2.No 99. No response	
304	Controlling HIV/AIDS transmission could have significant role for achieving the goal of education sector which is vital for the development of a country? Do you agree?	1.Yes 2.No 99. No response	
305	Does HIV/AIDS worsen the general health conditions of teachers if timely treatment is not started?	1.Yes 2.No 88. Don’t know	

306	Once infected with HIV virus, can a person infect others for the rest of his/her life?	1. Yes 2. No 88. Don't know	
307	Do you know that there are Anti HIV/AIDS drugs for HIV positive patients?	1.Yes 2. No 99. No response	
308	Can HIV/AIDS be cured?	1.Yes 2. No88. Don't know	
309	Does having many sexual partners increase a person's risk of being infected with the HIV/AIDS virus?	1. Yes 2. No 88. Don't know	
310	Have you ever had sexual intercourse	1. Yes 2. No 88. Don't know	If 2 skip to Q 314
311	Have you had sex in the past 12 months	1. Yes 2 . No	
312	How many sexual partners did you have in the last 12 months	1. One 2. Two 3. More than two	
313	With what frequency did you and all of your regular partner(s) use condom during the past 12 months?	1. Every time 2. Almost every time 3. Some times 4. Never 88. Don't know 99. No response	
314	Can people protect themselves from HIV, the virus that causes AIDS, by using a condom correctly every time they have sex?	1. Yes 2. No 88. Don't know	

315	How can a person know whether he/she has HIV/AIDS?	1. Simply by looking at him/her 2. By physical examination of health personnel 3. Goto traditional Healers/Wizard 4. Go to counseling/testing service 5. Others (Specify)----- 88..Donot know	
316	Have you ever heard of HIV Counseling and testing?	1. Yes 2. No	If 2 Skip to Q 320
317	From where did you hear? (more than one answer is possible)	1. From health professionals 2. From mass media 3. From friends 4. From sexual partner 5. Others Specify)_____	
318	Do you know from where you can get confidential HIV counseling and testing service?	1. Yes 2. No.	
319	Which facilities do you think can provide HIV counseling and testing services? (More than one answer is possible)	1. Gov. Hospitals 2. Health centers 3. Private Hospitals 4. Private clinics 5. Others(specify)_____	
320	Have you ever been tested for HIV?	1. Yes 2. No	If 2 skip to Q.401
321	When did you get tested?	1. In the last 3 months 2. In the last 6 months 3. In the last 12 months	

		4. Before 2 years	
322	How did you get the test result?	1. By telephone 2. Face- to -face 3. Through postal office 4. Spouse/partner brought it 5. I didn't get it at all 6. Other(specify)_____	
323	Why did you go for the HIV counseling and testing center or get tested for HIV?	1. Because I wanted to know my HIV status simply 2. For marriage purpose 3. It was Initiated by the sexual partner 4. Because of risky sexual practice 5. Initiated by the health professional 6. Others(specify)_____	
324	Was your partner /spouse ever tested for HIV?	1. Yes 2. No 88. Don't know	
325	What is the highest level of formal education of your partner/spouse?	1. Illiterate 2. Primary school 3. Secondary school 4. Certificate (12+1,10+1 or 10+2) 5. Diploma 6. Bachelor Degree and above	

Section 4: Perceived Risk of HIV

No.	Questions	Coding Classification	Skip
401	Do you think that you can be infected with HIV?	1. Yes 2. No 99. No response	If “No” Go to 404
402	What is your chance of getting infected with HIV?	1. High 88. Don’t know 2. Moderate 99. No response 3. Low	
403	If your response for 401 is " Yes" what are the reasons?	1. I had multiple sexual partners 2. I had sexual intercourse without condom 3. I had sexual inter course with some one who was suspected for HIV. 4.I was injected with un sterile syringes and needles 5. I am a TB patient 88. Don’t know 99. No response	
404	Did you ask your spouse/ or current partner to go for VCT before you start the sexual intercourse with him or her?	1.Yes 2. No 3. No response	
405	If your answer for the ques. 404 is “No” what are your reasons ?	1. I myself didn’t go for testing 2. Fear of separation /divorce 2. Fear of stigma and discrimination 3. Because I trust my partner	

		4. No response	
406	If your response for 401 is "No" what are the reasons? (Circle all you think are possible reasons)	1. I didn't start sexual intercourse with her/him 2. I trust my sexual partner 3. I always use condom 88. Don't know 99. No response	
407	After having HIV counseling and testing, if someone is found to be positive there is a high degree of stigma and discrimination. Do you agree?	1. Strongly agree 2. Agree 3. Indifferent 4. Disagree 5. Strongly disagree	

NB. 1. Those teachers who have practiced VCT/HCT or tested for HIV before have completed the questions targeted for them. I would like to thank them all for their cooperation in filling the questionnaire

2. The following questions are only for those teachers who have not under taken HCT or are not tested for HIV so far

Section 5 : The following questions are asking about your opinion or belief in and the likely outcome of using HCT services. Circle your degree of agreement to each of the statements provided below.

501	Using VCT/HCT services in the coming two months is likely to:	Coding Classification	Skip
501.1	Decreases your chance of HIV infection	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
501.2	Help you not to transmit the HIV	1. Strongly Agree 2. Agree 3. neutral	

	virus to your partner, if you found to be positive	4. Disagree 5. Strongly disagree	
501.3	Result in happy life if your result is negative	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
501.4	Help you to plan for your future life	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
501.5	Improve the trust between you and your partner	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
501.6	Help you to seek timely the ART services if your test result is positive	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
502	Accepting HCT is the only means for a patient to get ARV drugs if he/she is found to be infected with HIV/AIDS. Do you agree?	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
How do you evaluate HIV Counseling and Testing in the next two months			
503	For you knowing that you are HIV negative is _____.	1. very good 2. good 3. neutral 4. bad 5. Very bad	

504	For you knowing that you are HIV Positive and preventing your partner and /or family from getting the virus from you is_____.	1. very good 2. good 3. neutral 4. bad 5. Very bad	
505	For you knowing that you are HIV Negative and lead a happy life is _____.	1. very good 2. good 3. neutral 4. bad 5. Very bad	
506	For you knowing your HIV status and planning your future life is_____.	1. very good 2. good 3. neutral 4. bad 5. Very bad	
507	For you knowing your HIV status and Improving the trust between you and your partner is_____.	1. very good 2. good 3. neutral 4. bad 5. Very bad	
508	If you are found to be HIV positive starting ART early is_____.	1. very good 2. good 3. neutral 4. bad 5. Very bad	
509	How good or bad would your "Knowing for sure whether or not your partner(s) are infected with HIV" be?	1. Very good 2. Some what good 3. Neither good nor bad 4. Somewhat bad 5. Very bad	

Section 6 . The following questions ask your beliefs about the normative expectation of Others and your motivation to comply with their expectation. Please read the question Carefully and Circle the choice of your degree of agreement to each of the statements.

601	The following individual would approve your getting tested for HIV inthe next two months		
601.1	Your spouse/partner	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
601.2	Your close friend(s)	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
601.3	Your fellow teachers	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
601.4	Your relatives	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
601.5	Your children	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	
601.6	Your religious leader	1. Strongly Agree 2. Agree 3. neutral 4. Disagree 5. Strongly disagree	

Section 7: The following questions ask your beliefs about the presence of factors that may facilitate or impede the use of HCT services and the perceived power of these factors.

Please read the question carefully and Make a tick (✓) in the box provided according to your degree of agreement to the statement.

7001. It will be difficult for you to be tested for HIV in the coming 2 months...			
701.1	If your spouse do not want you to be tested	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	
701.2	Because of your fear to hear HIV positive result	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	
701.3	Because you fear to be stigmatized if Your result is positive	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	
701.4	Because you doubt the counselor might disclose your result to other person	1. Very likely 2. likely 3. neutral 4. somewhat not likely	

		5. unlikely at all	
701.5	Because disclosing HIV positive result will be difficult for you	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	
You will decide to be tested for HIV in the coming two months even if			
702.1	Your spouse does not want you to be tested	1. completely certain 2. certain 3. neutral 4. uncertain 5. completely uncertain	
702.2	You fear to hear HIV positive result	1. completely certain 2. certain 3. neutral 4. uncertain 5. completely uncertain	
702.3	There is possibility of stigmatization	1. completely certain 2. certain 3. neutral 4. uncertain 5. completely uncertain	
702.4	You are in doubt that the counselor might not keep your result confidentially	1. completely certain 2. certain 3. neutral 4. uncertain 5. completely uncertain	
702.5	You know it will be difficult for you to disclose your result, if you are tested positive	1. completely certain 2. certain 3. neutral 4. uncertain 5. completely uncertain	

	<p>Part 8 :The following question asks you about your intention of using HIV counseling and testing in the coming two months. Please read the question carefully and circle the best choice that describes your opinion for each of the statements below.</p>		
801	In the coming two months...		
801.1	How likely are you intending to be tested?	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	
801.2	How likely do you look for and request the HIV counseling and testing services	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	
801.3	How likely you accept HIV counseling and testing services, if you visit health services for other health issues	1. Very likely 2. likely 3. neutral 4. somewhat not likely 5. unlikely at all	

That is the end of our questionnaire. Thank you very much for taking time to answer these questions. We very much appreciate your cooperation.

Appendix IV.

Questionnaire on the Effects of School based interventions among students in AA

Annex 4.1: General information for the students who are aged 15 and above, and are randomly selected from grade 9-12 (The principal investigator and /or the data collectors may request the consents of students orally in a selected class room/s/ whether they are willing to participate or not in the study after clear introduction to the objectives of the study as well as to the dos and don'ts to be considered , while responding to the questionnaire as an alternative strategy for cost minimizing)

Dear students,

My name is Takele Menna. I am a PhD student of public Health at the School of Public Health, College of Health Sciences, and Addis Ababa University. I am here to study the **effects of school based interventions against HIV/AIDS epidemic among students at secondary schools in Addis Ababa City Administration**. You are chosen to participate in this study and the choice was done randomly.

The purpose of this study is to generate research based and more appropriate intervention methods for students against the HIV/AIDS epidemic.

In order to achieve the desired goal, I request your honest and genuine participation. I will provide you with a questionnaire containing several intimate and private life questions in relation to the study. There is no need to put your name on the questionnaire and an individual's response will not be passed to a third person, i.e it is very confidential and will be used only for the purpose of this study.

Moreover, it is your full right not to participate, to discontinue or to participate in the study. If you do not like to participate you are not obliged to fill the questionnaire. There will be no negative impact on you whatever your decision is. But your honest participation will have useful contribution to generate information that will help to fight against the fatal HIV/AIDS epidemic and its impacts in our country in general and among the youth in particular.

So, please take few minutes to answer the questionnaire. If you have any question or complaints don't hesitate to ask me using my private address.

Takele Menna

Tele: 0911-134934

Mail: takelemena@yahoo.com

If you wish to participate in this study please indicate your willingness by ticking the following options and fill the consent form in the next page.

Yes ,I want to participate ☐

No, I do not want to participate ☐

Annex .4.2

Consent form

I, the undersigned, have read and understood that the objective of this particular research Project is to find out the **effects of school based interventions against HIV/AIDS among secondary school students of Addis Ababa City Administration**

I have been informed that the information I give will be used only for the purpose of this study; my identity and the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study, not to respond to the question I am not interested or stop responding to a question at any time in the process.

Accordingly, I agreed to participate in this research voluntarily.

Signature of the participant:_____

Date:_____

Annex 4.3. English version questionnaire for exploring the effects of school based interventions among students at secondary schools in Addis Ababa.

Section 1 : Personal Identification of the respondent

01 .Region _____

02. Sub-City_____

03. Name of School _____

04. Type of School (please under line your appropriate response) : private/ public

05. Questionnaire identification number / -----/-----/-----

Section 2 : Socio-demographic Characteristics

No.	Questions and Filters	Response (Circle your choice where appropriate)	Skip
201	Sex of the respondent	1.Male 2. Female	
202	Age in years(completed years)	Age in completed years----- 1. 10-14 years 2. 15- 18 years 3. 19-24 years 4. 25 and above	
203	Religion	1.Orthodox Christian 2. Protestant Christian 3. Catholic Christian 4. Islam 5.Other (specify) _____	

204	Ethnicity (Circle your response)	1. Amhara 2. Oromo 3. Tigrie 3. Ghuragie 4. Others (specify)_____	
205	Educational status (Circle your Choice)	1. Grade 9 2. Grade 10 3. Grade 11 4. Grade 12	
206	Marital status	1. Single 2. Married 3. Divorced 4. Widowed 5. Other (Specify)_____	

Section 3: Knowledge and attitude towards HIV/AIDS. Read the questions below carefully and circle thef your choice/s.

No.	Questions	Coding Classification	Skip
301	Have you ever heard of HIV or the disease called AIDS?	1. Yes 2. No 99. No response	If 2 skip to Q.401
302	HIV transmits from an infected person to a healthy person through _____ (More than one answers are possible)	1. Insect bite 2. Un protected sexual intercourse 3. Shaking hands 4. Infected blood and blood products 5. Mother to a child 6. Sharing unsterile sharp materials	
303	From where did you hear about HIV epidemic? (more than one answer is possible)	1. From health professionals 2. From mass media 3. From friends	

		4. From teachers 5. From parents 6. Others (specify)_____	
304	Can a healthy looking person be infected with HIV?	1.Yes 2.No 88. Don't know	
305	Do you know that there are Anti HIV/AIDS drugs for HIV positive patients?	1.Yes 2. No 99. No response	
306	Can HIV/AIDS be cured?	1.Yes 2. No 88. Don't know 99. No response	
307	Once infected with HIV virus, can a person infect others for the rest of his/her life?	1. Yes 2. No 88. Don't know 99. No response	
308	Abstaining from sex before marriage is the best preventive method against HIV. Do you agree with this statement?	1. Strongly agree 2. Agree 3. Disagree. 4. Strongly disagree	
309	The frequency of illness and death among students and teachers has increased after the era of HIV/AIDS? Do you agree?	1. Strongly agree 2. Agree 3 . Disagree. 4. Strongly disagree 88. Don't know	
310	Controlling HIV/AIDS transmission could have significant role for achieving the goal of education sector which is vital for the development of a	1.Yes 2.No 99. No response	

	country? Do you agree?		
311	Does HIV/AIDS worsen the general health conditions of students and teachers ,if timely treatment is not started?	1.Yes 2.No 99. No response	
312	Does having many sexual partners increase a person's risk of being infected with the HIV/AIDS virus?	1. Yes 2. No 88. Don't know 99. No response	
313	Can people protect themselves from HIV, the virus that causes AIDS, by using a condom correctly every time they have sex?	1. Yes 2. No 88. Don't know 99. No response	
314	Some one cannot get HIV if he or she stick to one sexual partner	1.Yes 2. No 88. Don't know	

Section 4: Questions on Sexual history and other related habits

401	Do you have a sexual partner ora boy/ girl friend currently?	1. Yes 2. No 99. No response	
402	Have you ever had sexual Intercourse? /for those never married/	1. Yes 2. No 99. No response	If 2 skip to Q .406
403	Have you had sex in the past 12 months?	1 Yes 2 No	If 2 skip to Q 406
404	How many sexual partners did you have in the last 12 months	1. One 2. Two 3. More than two	
405	With what frequency did you and all of your regular partner(s) use a condom during the past 12 months?	1 .Every time 2. Almost every time 3. Some times 4 . Never 88. Don't know 99. No response	

406	Do you drink beer or any other alcoholic drink?	1. Yes 2. No 99. No response	
407	Do you chew chat ?	1. Yes 2. No 99. No response	
408	Do you smoke cigarette?	1. Yes 2. No 99. No response	
409	How can a person know whether he/she has HIV/AIDS?	1. Simply by looking at him/her 2. By physical examination of health personnel 3. Go to traditional Healers/Wizard 4. Go to counseling/testing service 5. Others (Specify)----- 88..Donot know	
410	Have you ever heard of HIV Counseling and testing?	1. Yes 2. No	If 2 Skip to Q 418
411	From where did you hear? (more than one answer is possible)	1. From health professionals 2. From mass media 3. From friends 4. From sexual partner 5. From parents 6. Others (specify)_____	
412	Do you know from where you can get confidential HIV counseling and testing service?	1. Yes 2. No.	
413	Which facilities do you think can provide HIV counseling and testing Services? (More than one answer is possible)	1. Gov. Hospital 2. Health center 3. Private Hospitals 4. Private clinics 5. Others(specify)_____	
414	Have you ever been tested for HIV?	1. Yes 2 . No	If 2skip to Q.418
415	When did you get tested?	1. In the last 3 months	

		2. In the last 6 months 3. In the last 12 months 4. Before 2 years	
416	How did you get the test result?	1. By telephone 2. Face- to -face 3. Through postal office 4. Spouse/partner brought it 5. I didn't get it at all 6. Other(specify)_____	
417	Why did you go for the HIV counseling and testing center or get tested for HIV?	1. Because I wanted to know my HIV status simply 2. For marriage purpose 3. It was Initiated by the sexual partner 4. Because of risky sexual practice 5. Initiated by the health professional 6. Others (specify)_____	
418	If you are not tested for HIV so far ,how likely are you intending to be tested in the coming two months ?	1. Very likely 2. Likely 3. Neutral 4. Un likely 5. Un likely at all 88. I do not know	

That is the end of our questionnaire. Thank you very much for taking time to answer these questions. We very much appreciate your cooperation.

VI: Amharic version Questionnaire

Appendix I: Verbal Autopsy Questionnaire for Teachers Death;

Adapted from International Standard Verbal Autopsy Questionnaire 3(Death of a person aged 15 years and above)

የስምምነት ማረጋገጫ :

እንደምን አደሩ/አደራችሁ/ ፣ ዋሉ/ዋላችሁ/፣አመሹ/አመሻችሁ?

ስማችን -----እና ----- ይባላል :: በአሁኑ ጊዜ ከአዲስ አበባ ዩኒቨርሲቲ በትምህርት ስክተር ህብረተሰብ ጤና ችግሮች ላይ ጥናት እያካሄደ የሚገኝ ቡድን አባል በመሆን እየሠራን እንገኛለን::

በዚሁ መሠረት ከመምህራን ጤና ጋር የተያያዙት ችግሮችን ማለትም ለመምህራን ሞት በዋና ምክንያትነት ሊጠቀሱ የሚችሉት የጤና ችግሮች ወይም መንስኤዎች ምን እንደነበሩና እንደሆኑ በመለየት በበቂ ጥናት ላይ የተመሰረተ የመፍትሄ ሀሳቦችን ለማመንጨት እንዲያግዝ በህብረተሰቡ መካከል እየዘርን ተገቢ የሆኑት መረጃዎችን በማሰባሰብ ላይ እንገኛለን ::

ለዚሁ ጥረታችን ስከታማነት እርስዎ ለሚያደርጉልን ትብብር አድናቆታችን እጅግ ከፍተኛ ነው :: ለጥናቱ ተግባራዊነት በአዲስ አበባ ከተማ ውስጥ በሚገኙት ት/ቤቶች እየዘርን አግባብነት ያላቸውን መረጃዎች ስናሰባስብ ባለቤትዎ /ጓደኛዎ/ወዳጅዎ../ ልጅዎ /አባትዎ/እናትዎ/ዘመድዎ ማለትም የ.....ት/ቤት መምህር/ት የነበሩት አቶ/ወ/ሮ/ሪት ----- ከ..... ቀናት/ወራት/ዓመታት በፊት ማረፋቸውን ለመረዳት ችለናል :: በእርግጥ ይህን አሳዛኝ ክስተት ማስታወስ ሀዘንዎን እንደገና መቀስቀስ ሊሆን እንደሚችል ብንረዳም የጥናቱ ውጤት ለአገራችን በአጠቃላይ ይበልጥ ደግሞ ለትምህርት ስክተር ጤና አገልግሎት መረሐ-ግብሮች መሻሻል ልኖረው ከሚችል ፋይዳ አንፃር በዚህ ጥናት በመሳተፍዎ አድናቆታችን ከፍተኛ ነው::

በመሆኑም ሟች መምህር/ትንበተመለከተ ለሞታቸውምከንያት/ቶቹ ምን እንደነበር/ሩ አንዳንድ ጥያቄዎችን ልንጠይቅዎት እንፈልጋለን:: የሚሰጡን ማንኛውም መረጃ እጅግ ምስጢራዊ ከመሆኑም በላይ እርስዎንም ሆነ ሟች መምህር/ትን የሚመለከት ማንኛውም መረጃ ከዚህ ጥናት ዓላማ ውጪ ለማንም ሌላ ወገን የማይሰጥ መሆኑን እንገልጻለን ::

የጥናቱን ዓላማ ለማሳካት እርስዎ ለጥያቄዎቻችን የሚሰጡን ትክክለኛና ቀና መልስ ወሳኝ ሚና :: የእርስዎ የግል ምላሽ ለማንም ሰው ሪፖርት የማይደረግና በጣም በምስጢር የሚያዝ መሆኑን ከወዲሁ በድጋሚ እንገልጻለን::መጠይቁን የምንሞላው እርስዎ ፈቃደኛ ስለሆኑ ብቻ ነው:: በቃለ-መጠይቁ ላለመሳተፍ ከፈለጉ ወይም ለመሳተፍ ፈቃደኛ ከሆኑ በኋላም ቢሆን ለመመለስ ያልፈለጉት ጥያቄ ካለ ያለመመለስ መብትዎ ነው::በጥናቱ ላይ ባለመሳተፍዎ ወይም በማቋረጥዎ ምንም የሚደርስብዎት ጉዳት አይኖርም::

ይሁን እንጂ ሁሉም ጥያቄዎች ካልተሞሉ የጥናቱን ዓላማ ሙሉ በሙሉ ለማሳካት አስቸጋሪ ስለሚሆን በቃለ-መጠይቁ ላለመሳተፍ ፈቃደኛ እንዲሆኑልን እንዲሁም ለመጠይቆቹ ሁሉ ትክክለኛና ቀና ምላሽ በመስጠት እንዲተባበሩን በማክበር እንጠይቃለን::በተጨማሪም የእርስዎ በዚህ ጥናት ላይ ለመሳተፍ ቀና ትብብር ማሳየት ብሎም ትክክለኛ መልስ መስጠት በአገራችን በአጠቃላይ ይበልጥ ደግሞ በትምህርት ስክተር ውስጥ በሚገኙት የአገራችን የነገ ተስፋ በሆኑት ወጣት የማህበረሰብ ክፍሎች ላይ አሉታዊ ተጽዕኖ በማድረስ ላይ የሚገኙት የጤና ችግሮችን በአግባቡ ለመለየትና የመፍትሔ አቅጣጫዎችን ለመቀየስ እጅግ ጠቃሚ ሚና ይኖረዋል ::

በመጨረሻም የጥናቱን ዓላማም ሆነ ይዘትን በሚመለከት ግልጽ እንዲሆንልዎ ወይም ለመጠየቅ የሚፈልጉት ነገር ካለዎት አሁን መጠየቅ ይችላሉ ?

ቃለ-መጠይቁን አሁን ለመጀመር እንችላለን ?

የጠያቂዉ ፊርማ _____ ስም _____

1. ተጠያቂዉ በጥናቱ ለመሳተፍ ፈቃደኛ ከሁኑ ወደሚከተሉት ጥያቄዎች እለፍ/ፊ
2. ተጠያቂዉ በጥናቱ ለመሳተፍ ፈቃደኛ ከልሆኑ እዚህ ላይ አቁም/ሚ

በሞት የተለዩት መምህራንን በተመለከተ መረጃ ለማሰባሰብ የተዘጋጀ መጠይቅ:-

01. የሚች መለያ: _____

02. የሚች ስም _____

03. _የሞቱበት_ ቀን / _ወር/ ዓ.ም _____

04. ቃለ መጠይቁ የተደረገበት ቀን _____

የመለያ ቁጥር / -----/-----/-----

ክፍል 1 : ጠያቂዉ/ዋ ቃለ-መጠይቁን ለመሙላት ወደሚች ቤተሰብ/ዘመድ/ጓደኛ ሄዶ/ዳ ያገኘዉ/ችዉ ምላሽ :-

የጠያቂዉ ስም _____	ቀበሌ _____	ስልክ ቁጥር _____
የጠያቂዉ ፊርማ _____	ጓጥ _____	_____
የተቆጣጣሪዉ ስም _____	ጓጥ _____	የቤት ቁጥር _____
የተቆጣጣሪዉ ፊርማ _____	ፊርማ _____	_____
የመጀመሪያዉ ጉብኝት ወጤት _____.	1.ሙሉ በሙሉ ተሞልቷል 2.እቤት አልነበሩም 3.በመሀል ተቋርጧል 4.ፈቃደኛ አልነበሩም	ለሌላ ቀን ጉብኝት የተሰጠ ቀጠሮ _____
የሁለተኛዉ ጉብኝት ወጤት _____	1.ሙሉ በሙሉ ተሞልቷል 2.እቤት አልነበሩም 3.በመሀል ተቋርጧል 4.ፈቃደኛ አልነበሩም	ለሌላ ቀን ጉብኝት የተሰጠ ቀጠሮ _____
የሦስተኛዉ ጉብኝት ወጤት _____	1.ሙሉ በሙሉ ተሞልቷል	ለሌላ ቀን ጉብኝት የተሰጠ ቀጠሮ

	2.እቤት አልነበሩም 3.በመሀል ተቋርጧል 4.ፈቃደኛ ልነበሩም	_____
ቃለ-መጠይቁ የተደረገበት ቀን /ቀን ፤ ወር ፤ ዓ.ም	____/____/____	

ክፍል 2: ስለተጠያቂው መሠረታዊ መረጃዎች

ተ. ቁ	ጥያቄ	መልስ	ይለፍ
201	ቃለ መጠይቁ የተጀመረበት ሰዓት ይጠቀስ	ሰዓት -----	
202	የተጠያቂው ስም	ስም _____	
203	የተጠያቂው የታ	1. ሴት 2. ወንድ	
204	የተጠያቂው ዕድሜ	ዕድሜ /ያለፈው ዕድሜ በሙሉ ቁጥር ይጻፍ/:- -----	
205	ከሚች ጋር ያለዎት ዝምድና	1. አባት 2. እናት 3. ባል/ሚስት 4. ወንድም/እህት 5. ልጅ 6. ሌላም (ይጠቀስ) _____ 88. ዝምድና የለንም	
206	ሚች ከመሞታችሁ በፊት አብራችሁ የመኖር አጋጣሚ ነበራችሁ ?	1. አዎን 2. አልነበረንም	መልሱ 2 ከሆነ ወደ ጥያቄ 301 ዕለፍ/ፊ
207	ሚች ከመሞታችሁ በፊት ለምን ያህል ጊዜ ነበር አብራችሁ የኖራችሁት ?	1. ህመሙ ሲጀምር ጀምሮ 2. ከታመመ/ች/ሙ በኋላ ነው አንድ ላይ መኖር የጀምረነው 3. ከመሞቱ/ባ/ታችሁ ከጥቂት ቀናት በፊት ጀምሮ	

ክፍል 3 : ስለሚችሉ ማንነት የሚገልጹ መረጃዎች

301	የሚችሉ ስም ማን ይባል ነበር?	ስም _____	
302	የሚችሉ የታ?	1. ሴት 2. ወንድ	
303	ሚችሉ በስንት ዓመታቸው ነበር የሞቱት ?	ዕድሜ -----	
304	የሚችሉ ሥራ ምን ነበር?	1. የአንደኛ ደረጃ መምህር አንደኛ ሳይክል መምህር /ከ1ኛ- 4ኛ ክፍል/ 2. የአንደኛ ደረጃ መምህር አንደኛ ሳይክል መምህር /ከ5ኛ- 8ኛ ክፍል/ 3. የሁለተኛ ደረጃ አንደኛ ሳይክል መምህር/9ኛ፤ 10ኛ ክፍል/ 4. የሁለተኛ ደረጃ መምህር ሁለተኛ ሳይክል /11ኛ፤ 12ኛ ክፍል/ 5. ሌሎች (ይጠቀስ)_____	
305	ሚችሉ ያጠናቀቁት ክፍተኛ የትምህርት ደረጃ ምን ነበር?	1. ስርተፍኬት / 12 +1 , 10+1 , 10+2 2. ዲፕሎማ 3. የመጀመሪያ ዲግሪ 4. ሁለተኛ ዲግሪና ከዚያ በላይ 88. አላወቅም	
306	የሚችሉ ሀይማኖት ምን ነበር ?	1. ኦርቶዶክስ ክርስቲያን 2. ፕሮቴስታንት ክርስቲያን 3. ካቶልክ ክርስቲያን 4. ሙስሊም 5. ሌላ (ይጠቀስ) _____	
307	የሚችሉ የጋብቻሁኔታ ምን ነበር ?	1. ያላገባ /ች/ 2. ያገባ /ች 3. የተለያየ/ች/ 4. የፈታ/ች / 5. ሚስት የሞተችበት/ ባል የሞተባት 6. ሌላ (ይጠቀስ) _____	
308	የሚችሉ ብሔር ምን ነበር ?	1. አማራ 2. አሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላ (ይጠቀስ) _____	
309	ሚችሉ በመምህርነት ሙያ ለምን ያህል ጊዜ ነበር ያገለገሉት ?	1. ከ2 ዓመት በታች 2. ከ2-5 ዓመት 3. ከ6-10 ዓመት	

		4. ከ10 ዓመት በላይ	
310	መቼ ነበር የሞቱት ?	ቀን _____ ወር _____ ዓመተ ምስረት _____	
311	የት ነበር የሞቱት ?	1.ሆስፒታል 2.ጤና ጣቢያ 3.ክልኒክ 4.ቤት 5.ሌላ ይጠቀስ) _____ 88. አላወቅም	መልሱ 4፤5 ወይም 88 ከሆነ ወደ ጥያቄ 315 ዕለፍ /ፊ
312	የሞቱት በጤና ተቋም ውስጥ ከሆነ የጤና ድርጅቱ ስም?	የጤና ድርጅቱ ስም? _____ _____	
313	የሞታቸው መንስኤ ምን እንደሆነ ከጤና ባለሙያዎች ተነግሮታት ነበር?	1.አዎን 2 . አልተነገረኝም 88. እርግጠኛ አይደለሁም	
314	መልሱ አዎን ከሆነ ስለ ተነገራቸው የሞት መንስኤ ይበልጥ ይጠየቁ .	መንስኤ 1. _____ መንስኤ 2 _____ _____	
315	ስለሟች የሕመማቸው ሁኔታ እንዲሁም ሌሎች ወደ ሞት ያደረሳቸው ክስተቶች ተጨማሪ የሚነገሩኝ ነገር ካለ ቢነገሩኝ? _____		
316	እንደተጠያቂው ሟችን ለሞት የዳረጉት ምክንያቶች ?	1. _____ 2. _____	

ክፍል 4:-ሟች ከመሞታቸው በፊት በሚከተሉት በሽታዎች ስለመታመማቸው ይጠየቁ ፤

ተ.ቁ.	ጥያቄ	መልሶች	ይለፍ
	/እባክዎን ሟች ከዚህ በታች ከተዘረዘሩት በሽታዎች መካከል የታመሙባቸው እንዳሉ ቢነግሩን!		
401	ከነዚህ በሽታዎች መካከል በየትኞቹ ታምመው ነበር? (ከአንድ በላይ መልስ መስጠት		

	ይቻላል)፤		
401.1	የደም ግፊት ሕመም ነበረባቸው?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.2	የስኳር ሕመም ነበረባቸው?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.3	የሚጥል በሽታ /ኤልላፍስይ/	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.4	የሳንባ ነቀርሳ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.5	ኤች.አይ.ቢ/ኤድስ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.6	የጉበት በሽታ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.7	አስም ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.8	የምግብ እጥረት?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.9	ካንሰር?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
401.10	የካንሰር ሕመም ከነበረባቸው በየትኛው የሰውነት አካል ላይ እንደነበር ልነግሩን	አካል 1.-----	መልሱ 2 ወይም 88 ከሆነ ወደ 501 እለፍ /ፊ
401.11	ይችላሉ?	-	
401.12	ሟች በሀኪም በተረጋገጠ በማናቸውም ሌላ ህመም ተይዘው ያዉቃሉ	አካል 2.-----	
		-	
	የህመሙን /የበሽታውን / ዓይነት ልነግሩን ይችላሉ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም ሕመም 1.----- ህመም 2-----	

ክፍል 5 :-ሟች ከመሞታቸው በፊት ወደ መጨረሻ አካባቢ ይታባቸው የነበሩትን የህመም ምልክቶችን ይበልጥ ለመረዳት የሚያግዙ ጥያቄዎች

501	ሟች ከመሞታቸው በፊት የታመሙት ለምን ያህል ጊዜ ነበር ?	1. ቀናት _____ 2. ወራት _____ 3. ዓመታት _____	
502	ሟች ትኩሳት ነበረባቸው?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ

			507 እለፍ /ፊ
503	ትኩሳቱ ምን ያህል ቆየባቸዋል?	1. ቀናት _____ 2. ወራት _____ 88. አላዉቅም	
504	ትኩሳቱ ከፍተኛ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
505	ትኩሳቱ በተከታታይ ነበር ወይስ ሄድ መጣ የሚል ዓይነት ነበር ?	1. የማያቋርጥ /ተከታታይ/ 2. ሄድ መጣ የሚል 88. አላዉቅም	
506	ትኩሳቱ ሌሊት ሌሊት ብቻ የሚመጣ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	
507	ብርድ ብርድ የሚል ነገር ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	
508	ሳል ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 512 እለፍ /ፊ
509	ሳሉ ኃይለኛ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
510	ሳሉ አክታ ነበረዋል?	1. አዎን 2. አልነበረም 88. አላዉቅም	
511	በአክታ ውስጥ ደም ይቀላቀል ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
512	ማታ ማታ ያልባቸዋል ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
513	ማታ ማታ ትንፋሽ ያጥራቸዋል ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 517

			እለፍ/ፊ
514	የትንፋሽ ማጠር ለምን ያህል ጊዜ ይቆይ ነበር?	1. ቀናት _____ 2. ወራት _____ 88. አላዉቅም	
515	በትንፋሽ ማጠር ምክንያት የዕለት ከዕለት ተግባር ለማከናወን ይቸገሩ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
516	የትንፋሽ ማጠር በጀርባ ለጥ ብለዉ ሲተኙ ይከሰት ነበርን?	1. አዎን 2. አልነበረም 88. አላዉቅም	
517	ከደረት/ሳምባ / ዉስጥ የፋጨት ዓይነት ድምፅ ይሰማ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	
518	የደረት ዉጋት ነበረባቸዉ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 521 እለፍ/ፊ
519	የደረት ዉስጥ ሕመም /ዉጋት / ለምን ያህል ጊዜ ቆይቶባቸዉ ነበር?	1. ቀናት _____ 2. ወራት _____ 88. አላዉቅም	
520	የደረት ዉስጥ ሕመም /ዉጋት / የሚጀምረዉ ሳይታሰብ በድንገት ነዉ ወይስ ቀስ በቀስ ነበር? ?	1. ሳይታሰብ በድንገት 2. ቀስ በቀስ 88. አላዉቅም	
521	ተቅማጥ ነበረባቸዉ ?	1. አዎን 2. አልነበረባቸዉም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 525 እለፍ/ፊ
522	ተቅማጡ ለምን ያህል ጊዜ ቆይቶባቸዉ ነበር ?	1. ለ _____ ቀናት 2. ለ _____ ወራት	

		88. አላውቅም	
523	ተቅማጡ የማያቋርጥ ነበር ወይስ እየቆመ እንደገና የሚጀምር ዓይነት ነበር ?	1. የማያቋርጥ 2. እየቆመ እንደገና የሚጀምር 88. አላውቅም	
524	ተቅማጡ ደም የተቀላቀለበት ነበር?	1. አዎን 2. አልነበረም 88. አላውቅም	
525	ሟሽ የቆዳ ላይ ሽፍታ ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላውቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 528 እለፍ
526	ሽፍታዉ ለምን ያህል ጊዜ ቆየ?	1. ቀናት _____ 2. ወራት _____ 88. አላውቅም	
5257	ሽፍታዉ ምን ይመስል ነበር?	1. ውኃ መሳይ 2. መግል 3. ሌላ (ይጠቀስ) _____ 88. አላውቅም	
528	ሟሽ የክብደት መቀነስ ይታይባቸው ነበር?	1. አዎን 2. አልነበረም 88. አላውቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 530 እለፍ
529	መለስዎ አዎን ከሆነ ክብደታቸው ምን ያህል ቀንሶ ነበር? የሚታወቅ ከሆነ በኪሎ ግራም ይጻፍ _____.	1. እጅግ ብዙ ቀንሰዋል 2. በመካከለኛ ደረጃ ቀንሶ ነበር 88. አላውቅም	
530	የእግር እብጠት ነበር ?	1. አዎን 2. አልነበረም 88. አላውቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 532 እለፍ
531	የእግር እብጠት ለምን ያህል ጊዜ ነበር የቆየዉ?	ቀናት _____ ወራት _____ 88. አላውቅም	

532	የሚችሉ ዓይነት ብጫ ሆኖ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
533	የሚችሉ የሰውነት እጥረቶች /ፊርንትቶች/ ያብጡ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
534.	በሚችሉ በማናቸውም የሰውነት አካላት ላይ ዕባጭ ወይም ቁስለት ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላዉቅም (መልሱ አዎን ከሆነ በየትኛው የሰውነት ክፍል እንደሆነ ጠይቅ)_____	
535	የሚችሉ ሆድ አብጦ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 537 እለፍ
536	የሆድ እብጦት /መነፋት / የተከሰተው በድንገት ነዉ ወይስ ቀስ በቀስ ነበር?	1. ሳይታሰብ በድንገት 2. ቀስ በቀስ 88. አላዉቅም	
537	ሚችሉ ምግብ ወይም መጠጥ የመዋጥ ችግር ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 539 እለፍ
538	ሚችሉ ምግብ ወይም መጠጥ የመዋጥ ችግር ከነበረባቸው ለምን ያህል ጊዜ ነበር የቆየባቸው? _____	ቀናት _____ ወራት _____ 88. አላዉቅም	
539	ሚችሉ የራስ ምታት ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላዉቅም	
540	ሚችሉ አንገት መገተር /ያለመንቀሳቀስ / ችግር ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 542 እለፍ/ፊ
541	የአንገት መገተር /ያለመንቀሳቀስ / ችግር ለምን ያህል ጊዜ ቆይቶባቸው ነበር?	ቀናት _____ ወራት _____	

		88. አላዉቅም	
542	ሟች ራስን የመሳት ሁኔታ ነበረባቸዉ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 545 እለፍ /ፊ
543	የአእምሮአቸዉ ሁኔታ እንዴት ነበር?	1. ቅዠት ወይም ማዘባረቅ ሁኔታ ነበረባቸዉ. 2. ሙሉ በሙሉ ራሳቸዉን ስተዉ ነበር 3. ሌላ (ይገለፅ) 88. አላዉቅም	
544	መልሱ ራሳቸዉን ስተዉ ነበር ከሆነ ራሳቸዉን ስተዉ ለምን ያህል ጊዜ ቆዩ? _____	ቀናት _____ ወራት _____ 88. አላዉቅም	
5435	ሟች አፍ የመክፈት ችግር ነበረባቸዉ?	1. አዎን 2. አልነበረም 88. አላዉቅም	
546	ሟች ግማሽ አካላቸዉ ሽባ ሆነዉ /ዝሎ/ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 548 እለፍ /ፊ
547	ሟች ግማሽ አካላቸዉ ሽባ ሆኖ ለምን ያህል ጊዜ ቆዩ?	_____ 88 .አላዉቅም	
548	የሟች እግሮችና እጆች ሙሉ በሙሉ ሽባ ሆነዉ /ዝሎ/ ነበሩ?	1. አዎን 2. አልነበሩም 88. አላዉቅም	
549	የሟች እግሮችና እጆች ሙሉ በሙሉ ሽባ ሆነዉ /ዝሎ/ ለምን ያህል ጊዜ ቆዩ?	_____ 88. አላዉቅም	
550	የሟች ሽንት ምን ይመስል ነበር?	1. ብጫ 2. ቡኒይ ከለር 3. ደም የተቀላቀለበት 88. አላዉቅም	

551	የሚችሉ ሽንት መልክ ተቀይሮ ለምን ያህል ጊዜ ቆየ? _____	_____	
		88. አላዉቅም	
552	ሚችሉ በየቀኑ የሚሸኑት የሽንት መጠን ለውጥ ነበረዉ?	1. አዎን 2. አልነበረዉም 88. አላዉቅም	
553	ሚችሉ ሽንት የመሸናት ችግር ነበረባቸዉ?	1. አዎን 2. አልነበረም 88. አላዉቅም	
554	ሚችሉ በቅርቡ ያደረጉት ማናቸዉም ዓይነት አፕሬሽን /ቀዶ ጥገና ህክምና / ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 601 እለፍ /ፊ
555	አፕሬሽኑ የተደረጉት ከመሞታቸዉ ከስንት ቀናት በፊት ነበር? _____	_____	
		88 .አላዉቅም	
556	አፕሬሽኑ /ቀዶ ጥገናዉ የተደረገላቸዉ በየትኛዉ የሰዉነት አካላቸዉ ላይ ነበር?	1.ሆድ ላይ 2. ጭንቅላት /ራስ ላይ 3. ደረት ላይ 4. ሌላ የሰዉነት አካል (ይገለፅ) 88. አላዉቅም	

ክፍል 6: በመዉለድ የዕድሜክልል ዉስጥ የነበሩት ሴቶችን ብቻ የሚመለከቱ ሕመሞችና ምልክቶቻቸዉ / ሚች ወንድ ከሆነ ወይም ሴትም ሆኖ እድሜዋ ከ 50 በላይ ከነበረ ወደ ጥያቄ ቁጥር 616 ዕለፍ/ፊ

ተ.ቁ..	ጥያቄ	መልሶች	እለፍ
601	በሚችሉ ጡት ላይ እባጭ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 603 እለፍ/ፊ

602	በጡታቸው ላይ ያለው እባጭ ለምን ያህል ጊዜ ቆየባቸው?	88. አላዉቅም	
603	በወር አበባ ጊዜ ከማህፀናቸው ብዙ ደም ይፈስ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
604	ሟች ሲሞቱ ነፍሰ -ጡር ነበሩ?	1. አዎን 2. አልነበሩም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 606 እለፍ/ፊ
605	እርግዝናው ለምን ያህል ጊዜ የቆየ ነው ?	1. ለ _____ ሳምንታት 2. ለ _____ ወራት 88.አላዉቅም	
606	ሟች የሞቱት በምጥ ላይ እያሉ ነው ወይ ?.	1. አዎን 2. አልነበረም 88. አላዉቅም	
607	ሟች ከመሞታቸው ከ45 ቀናት በፊት ልጅ ወልደው ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 613 እለፍ /ፊ
608	በወለዱ በስንት ቀናቸው ነው የሞቱት?	በ _____ ቀናት 88. አላዉቅም ?.	
609	የት ነበር የወለዱት?	1.ሆስፒታል 2.በሌላ ጤና ተቋም 3.ቤት ውስጥ 4.ሌላ (ይጠቀስ)----- 88. አላዉቅም	
610	ምጣቸው ምን ያህል ቆይቶባቸው ነበር?	1. ለአንድ ቀን 2. ለሁለት ቀናት 3. ከሁለት ቀናት በላይ 88. አላዉቅም	

611	ሟች በወሊድ ጊዜ ብዙ ደም ፈስሶባቸው ነበር?	1. አዎን 2. አልነበረም 88. አላወቅም	
612	ደማቸው የፈሰሰው ከወሊድ በፊት ወይስ በኋላ ነበር?	1. ከወሊድ በፊት 2. በወሊድ ላይ እያሉ 3. ከወሊድ በኋላ 88. ይኸው አላወቅም	
613	ከመሞታቸው ቀድሞ ሲል በቅርቡ ወርጃ ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላወቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 616 እለፍ/ፊ
614	በወርጃ ወቂት ነበር የሞቱት ?	1. አዎን 2. አልነበረም 88. አላወቅም	
615	እረግዝናውን ለማስወረድ በማሰብ ሟች መድኃኒት ተጠቅመው ነበር?	1. አዎን 2. አልነበረም 88. አላወቅም	
616	ሟች ያጋጠማቸው ማናኛውም ዓይነት አደጋ ነበር?	1. አዎን 2. አልነበረም 88. አላወቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 619 እለፍ
617	ምን ዓይነት አደጋ አጋጥሟቸው ነበር?	1. ድብደባ 2. የመኪና አደጋ 3. የጦር ሜዳ ቁስለት 4. የእንስሳት ንክሻ 5. ቃጠሎ 6. መርዝ 7. ሌላ /ይጠቀሱ/ 88. አላወቅም	
618	ሟች ከመሞታቸው ከስንት ቀናት በፊት ነበር አደጋ ያጋጠማቸው?	ቀናት : _____	
619	ሟች ራሳቸውን ነፃ ያጠፉት?	1. አዎን 2. አልነበረም 88. አላወቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 701 እለፍ
620	ራሳቸውን እንዴት ነበር ያጠፉት?	1. በመርዝ 2. በቃጠሎ 3. ተስቅሎ 88. አላወቅም	

ክፍል 7 : ሟች ለመጨረሻው ሕመማቸው የተጠቀሙበትን ሕክምናና ጤና አገልግሎትን የሚመለከቱ መረጃዎች

ተ.ቁ..	ጥያቄ	መልሶች	ዕለፍ/ፊ
701	ሟች ለሞት ለዳረጋቸው ህመም የወሰዱት መድኃኒት አለ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 703 እለፍ/ፊ
702	ሟች ለሞት ለዳረጋቸው ሕመም የወሰዱአቸውን መድኃኒቶችን ሊዘረዝሩልን ይችላሉ (በመድኃኒት ማዘዣ ላይ ወይም በተመሳሳይ ሆስፒታል ማስታወሻ ላይ የተፃፈ ነገር ካለ ይገልበጥ)	<hr/> <hr/> <hr/>	
703	ሟች ከመሞቱ በፊት ወደ መደበኛ ጤና ተቋም ለምን ያህል ጊዜ ሄደዉ ነበር?	ወደ ጤና ተቋም የተመለሰበት ጊዜ _____ 88. አላዉቅም	
704	የጤና ባለሙያዉ የሞታቸውን ምክንያት ምን እንደሆነ ተናገሮ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 801 እለፍ/ፊ
705	የጤና ባለሙያዉ ምን ብሎ ነበር ?	<hr/> <hr/>	
ክፍል 8 : አጋላጭ ሁኔታዎች			
801	ሟች አልኮል ይጠጡ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 805 እለፍ/ፊ
802	ሟች ለምን ያህል ጊዜ ነዉ የአልኮል መጠጦችን ይጠጡ የነበሩት?	ዓመታት _____ 88. አላዉቅም	
803	በምን ያህል የጊዜ ልዩነት ውስጥ ነበር ይጠጡ የነበሩት?	1. በየቀኑ 2. ቶሎ ቶሎ (በየሳምንቱ) 3. አልፎ አልፎ 88. አላዉቅም	

804	ሟች አልኮል መጠጦችን መጠጣት አቁመዉ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
805	ሟች ትምባሆ/ስጋራ ወዘተ.. ያጨሱ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 901 እለፍ
806	በምን ዓይነት የጊዜ ልዩነት ነበር ሲያጨሱት ሄነበረዉ?	1.በየቀኑ 2.ቶሎ ቶሎ (በየሳምንቱ) 3.አልፎ አልፎ 88. አላዉቅም	

ክፍል 9: የሚቻል ከሆነ ከሟች የህክምና ማስረጃ ላይ የሚሰበሰቡ መረጃዎች

901	ስለ ሟች አሟሟት ምክንያት የሚገልፅ የሐኪም ማስረጃ አለ?	1. አዎን 2. የለም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ903 እለፍ/ፊ
902	ከተቻለ የሞታቸዉን ምክንያት የሚገልፅ ማስረጃ ለማየት ሞክር፤ከተገኘም ቀኑን ፤ወሩንና ዓመተ ምሕረቱን ኮፒ አድርግ	<hr/> <hr/>	
903	የሞታቸዉን መንስዔ ከተገኘ ከሐኪም ማስረጃ ወረቀት መዝግበህ ያዝ	<hr/> <hr/>	

ክፍል 10 : ከሌሎች ሕክምና ማስረጃዎች ወይም መዛግብት የሚሰበሰቡ መረጃዎች

1001	ሌሎች የህክምና ማስረጃዎችም ካሉ ቢጠቀስ፤	<hr/> <hr/>	
1002	ቀብር ሲፈቀድ የተመዘገበ የሞታቸዉ ምክንያት እንዳለ ቢገለጽ፤	<hr/>	

1003	የአስከረን ምርመራ ውጤት ላይ የተመዘገበ የሞታቸው ምክንያት ካለ ቢገለፅ ፤	_____ _____	
1004	በእናቶችና ሕፃናት ሕክምና ክፍል እንዲሁም በቅድመ -ወሊድ መከታተያ ካርዶች ላይ የተመዘገቡ አግባብነት ያላቸው ሌሎች መረጃዎች ካሉ ቢጠቀሱ		
1005	በሆስፒታል የመድኃኒት ማዘዣዎች ላይ የተፃፉ ሌሎች አግባብነት ያላቸው መረጃዎች ካሉ ይጠቀሱ፤	_____ _____	
1006	በሕክምና ካርዶች ላይ የተፃፉና አግባብነት ያላቸው ሌሎች መረጃዎች ካሉ ቢጠቀስ ፤	_____ _____	
1007	ከሆስፒታል ሲወጡ በተፃፉ የሕክምና ማስረጃዎች ላይ የተፃፉና አግባብነት ያላቸው ሌሎች መረጃዎች ካሉ ቢጠቀስ!	_____ _____	
1008	በላቦራቶሪ ውጤቶች ላይ የተፃፉና አግባብነት ያላቸው ሌሎች መረጃዎች ካሉ ቢጠቀስ ፤	_____	

1009	አግባብነት ያላቸው ሌሎች የሆስፒታል መረጃዎች ወይም ዶክሜንቶች ካሉ ቢጠቀስ ፤	ይገለፅ _____	
1010	ቃለ-መጠይቁ ያበቃበት ሰዓት ይመዝገብ ፤	ሰዓት _____ ደቂቃ _____	

ይህ የቃለ-መጠይቁ ማጠቃለያ ነው፤ ጊዜዎን መስዋዕት በማድረግ ለጥያቄዎቻችን መልስ ስለሰጡንና ስለ ቀና ትብብርዎ እጅግ እናመስግናለን !

Appendix II :

ይህ በአዲስ አበባ ከተማ ባሉት ሁለተኛ ደረጃ ት/ቤቶች ውስጥ በሚገኙት ተማሪዎች መካከል አጋላጭ የታዊ ግንኙነት እና በፈቃደኝነት ላይ የተመሠረተውን የኤች.አይ.ቪ/ኤድስ የምክርና የምርመራ አገልግሎት ተጠቃሚነትን የሚወስኑት ነገሮችን ለመለየት እንዲሁም ከተማሪዎቹ መካከል በተለያዩት ምክንያቶች ወላጆቻቸውን ያጡትን ተማሪዎችን በተመለከተ አግባብነት ያላቸውን መረጃዎች ለማሰባሰብ የተዘጋጀና በተማሪዎች የሚሞላ መጠይቅ ነው፤

2.1 አጠቃላይ መረጃ ፤ ይህ አጠቃላይ መረጃ የሚመለከተው ዕድሜያቸው 15 እና ከዚያ በላይ እንዲሁም የትምህርት ደረጃቸው ከ9ኛ-12ኛ ሆነው በጥናቱ እንዲሳተፉ የተመረጡት ተማሪዎችን ነው፡፡

ውድ ተማሪ፤

ስሜ ታከለ መና ይባላል ፡፡ በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የህብረተሰብ ጤና አጠባበቅ ት/ቤት የፒ.ኤች.ዲ/የሦስተኛ ዲግሪ/ ተማሪ ነኝ ፡፡ በዛሬው ዕለት ወደ እናንተ ት/ቤትየመጣሁት በትምህርት ሰክተር ላይ የኤች.ኤ ቪ/ኤድስ ወረርሽኝ ያደረሰውንና ሊያደርስ የሚችለውን አሉታዊ ተፅዕኖ እንዲሁም ይህንን ተፅዕኖ ለማስወገድ ወይም ለመከላከል መንግሥታዊና መንግሥታዊ ባልሆኑት ድርጅቶች በኩል እየተሠሩ ያሉት የመከላከል ሥራዎች ያስገኙአቸውን ተጨባጭ ውጤቶችን በተመለከተ በተለይም በአዲስ አበባ ከተማ ካሉት ሁለተኛ ደረጃ ት/ቤቶች አግባብነት ያላቸውን ጠቃሚ መረጃዎችን በማሰባሰብ ጥናት ለማካሄድ ሲሆን ለጥናቱ በአጋጣሚ ከተመረጡት ት/ቤቶች መካከል የእናንተ ት/ቤት አንዱ ስለነበረ ነው ፡፡

በዚሁ መሠረት የጥናቱ ተሳታፊ እንዲሆኑ እንደገና ከት/ቤታችሁ ተማሪዎች መካከል ምርጫ ሲደረግ በአጋጣሚ ከተመረጡት ተማሪዎች መካከል አንተ/ቺ ትገኛለህ/ኝያለሽ፡፡

የዚህጥናትዋነኛ ዓላማ የኤች.አይ ቪ/ኤድስወረርሽኝን በተመለከተ ከተማሪዎች ወቅታዊና ጠቃሚመረጃዎችንሰብስቦ ለወደፊት ወረርሽኝ በወጣቱ የሕብረተሰባችን ክፍል ላይ ሊያደርስ የሚችለውን አሉታዊ ተፅዕኖ ለመከላከል የሚያስችል በጥናታዊ መረጃዎች የተደገፈ አግባብነትያለውንትግበራለመንደፍአንድረዳነው፡፡

መጠይቁየተለያዩምስጢራዊናየግልህይወትንየተመለከቱ ጥያቄዎችን ያካተተ ነው፡፡ ይሁን እንጂ የጥናቱን ዓላማ ለማሳካት

አንተ/ቺለጥያቄዎቹየሚትሰጠው/ምትሰጪውትከክለኛናቀናመልስወሳኝሚናአለው፡፡በመጠይቁላይስምምሆነሌሎችየአንተን/ቺ ንማንነትየሚገልፁነገሮች አይፃፉም፡፡የግልምላሽለማንም ሰው ሪፖርትየማይደረግና በጣም በምስጢር የሚያዝ መሆኑን ከወዲሁእንገልጻለን፡፡መጠይቁን የሚትሞላው/የምትሞይው አንተ/ቺ ፈቃደኛ ስለሆንክ/ሽ ብቻነው፡፡መጠይቁን ለመሙላት ፈቃደኛ ከሆንክ/ሽ በኋላም ቢሆን መመለስ ያልፈለከው/ሽዉ ጥያቄ ካለ ያለመመለስ መብትህ/ሽነው፡፡በጥናቱ ላይ ባለመሳተፍ ወይም በማቋረጥ ምንም የሚደርስብህ/ሽ ተፅዕኖ አይኖርም፡፡

ይሁን እንጂ ሁሉም ጥያቄዎች ካልተሞሉ የጥናቱን ዓላማ ሙሉ በሙሉ ለማሳካት አስቸጋሪ ስለሚሆን መጠይቁን በሙሉ እንዲትሞላልን/ይን በትህትና እንጠይቃለን፡፡በተጨማሪም የአንተ/ቺ በዚህ ጥናት ላይ ለመሳተፍ ቀና ትብብር ማሳየት ብሎም ትክክለኛ መልስ መስጠት የኤች.አይ.ቪ/ኤድስ ወረርሽኝ በአገራችን በአጠቃላይ በተለይም በወጣቱ የሕብረተሰባችን ክፍል ላይ የሚያደርሰውን አሉታዊ ተፅዕኖ ለመዋጋት ለሚደረገው ዘመቻ እጅግ ጠቃሚ ሚና

ይኖረዋል :: ስለሆነም እባክህ/ሽን ጥቂት ደቂቃዎችን በመወሰድ ለዚህ መጠይቅ መልስ ቢትሰጥልን/ጭልን ! በመጨረሻም ምናልባት መጠይቁን በተመለከተ ጥያቄ ወይም ቅሬታ ካለህ/ሽ በሚከተለው የግል አድራሻ መጠየቅ ይቻላል::

ታክለ መና ስልክ :- 0911-134934 ኢ-ሜይል :-takelemena@yahoo.com

በጥናቱ መሳተፍ ፍቃደኛነህ/ሽን! . () አዎን 2. () አይደለም

Annex 2.2 :-የስምምነት ማረጋገጫ

እኔ ከታች ፊርማዬን ያኖርኩት የጥናቱን ዓላማ አንብቤ በሚገባ ተረድቻለው::እኔ የምሰጠው መረጃ ለዚህ ጥናት አገልግሎት ብቻ የሚውል መሆኑንና በምስጢር እንደሚጠበቅ እንዲሁም ማንነቴ እንደማይገለጽ ተነግሮኛል::በተጨማሪም በጥናቱ መሳተፍ ወይም ያለመሳተፍ እንዲሁም በማንኛውም ጊዜ ከጥናቱ ተሳታፊነት አቋርጬ የመውጣት መብት እንዳለኝ ተረድቻለው::

በዚሁ መሠረት ይህን መጠይቅ ለመሙላት ፍቃደኛ መሆኔን በፊርማዬ አረጋግጣለሁ:

የጥናቱ ተሳታፊ ፊርማ-----ቀን-----

Annex 2.3.Amharic version Questionnaire

ይህ በአዲስ አበባ ከተማ ባለት ሁለተኛ ደረጃ ት/ቤቶች ውስጥ የሚገኙት ተማሪዎች መካከል አጋላጭ የታወቀ ግንኙነት እና በፈቃደኝነት ላይ የተመሠረተውን የኤች.አይ.ቪ/ኤድስ የምክርና የምርመራ አገልግሎት ተጠቃሚነትን የሚወስኑት ነገሮችን ለመለየት እንዲሁም ከተማሪዎቹ መካከል በተለያዩት ምክንያቶች ሳቢያ ወላጆቻቸውን ያጡት ተማሪዎችን በሚመለከት አግባብነት ያላቸውን መረጃዎች ለማሰባሰብ የተዘጋጀ መጠይቅ ነው፤

ክፍል 1 : የተጠያቂው ግላዊ መለያ -----

01.ክልል_____02.ክፍለ -ከተማ_____

03.የት/ቤቱ ስም _____

04.የት/ቤቱ ዓይነት (ትክክለኛውን መልስ ከሥሩ ያሥምሩ)፤ የመንግሥት፤የሕዝብ : የሚሰየን ፤ የግል

05. የመጠይቁ መለያ / -----/-----/-----

ክፍል 2: አጠቃላይ የግለሰብ መረጃዎች

ተ.ቁ.	ጥያቄ	መልሶች	ይለፍ
201	የተጠያቂው ያታ	1.ወንድ 2.ሴት	
202	ዕድሜ	1.15- 18 ዓመት 2. 19-24 ዓመት 3.25 እና ከዚያ በላይ	
203	ሐይማኖት	1.አርቶዶክስ ክርስቲያን 2.ፕሮቴስታንት ክርስቲያን 3.ካቶልክ ክርስቲያን 4.ሙስሊም 5.ሌላ (ይጠቀስ) _____	
204	ብሔረሰብ	1.አማራ 2.አሮሞ 3.ትግሬ 4.ጉራጌ 5.ሌላ (ይጠቀስ) _____	

		5. ከእናት ወደ ልጅ 6. በአግባቡ ያልጸዱ ስለታም መሳሪያዎችን በጋራ በመጠቀም	
303	ስለ ኤች .አይ .ቪ/ኤድስ ወረርሽኝ የሰማው/ሽወ. ከየት ነበር? (ከአንድ በላይ መልስ ይቻላል)	1. ከጤና ባለሙያዎች 2. ከመገናኛ-በዙጋን 3. ከጓደኛዬ 4. ከመምህራን 5. ሌላ ይጠቀስ)_____	
304	Ö?“T ¾T>SeK< c-< uÄT†¬ ¬eØ >?< >Ã y= K=•`v†¬ Ã«LM”;	1. >-” 2. >Ã«MU 88. >L¬pU 99. SMe ¾KU	
305	uÄT†¬ ¬eØ >?< >Ã y= S•\ K}{ÖÑÖL†¬ QS<T” ¾i[- >?< >Ã y= SÉጎ’>f K=cØ እ”ÄT>«M ታዉቃለህ/ቅያለሽ;	1. >-” 2. >L¬pU 99. SMe ¾KU	
306	¾>?< >Ã y=>?Ée uiታ K=É” Ã«LM”;	1. >- 2. >Ã«MU 88. >L¬pU 99. SMe ¾KU	
307	u>?< >Ã y=>?Ée uiታ ¾}Á² c¬ uQÄ`f ²S’< G<K< Ö?” — ¾J’<f K?KA« c-<” K=u፲M Ã«LM”;	1. >- 2. >Ã«MU 88. >L¬pU 99. SMe ¾KU	
308	ከጋብቻ በፊት ከሚደረግ የግብረ-ሥጋ ግንኙነት መታቀብ ኤች.አይ.ቪን ለመከላከል ለማንም ቢሆን እጅግ ተመራጭ ዘዴ ነዉ፤በዚህ ሐሳብ ትስማማለህ/ምያለሽ?	1. በጣም እስማማለዉ. 2. እስማማለዉ. 3. አልስማማም . 4. በጣም አልስማማም	

309	በኤች.አይ.ቪ/ኤድስ ዘመን በተማሪዎችና መምህራን ላይ የሕመምና ሞት መጠን ጨምሯል :: በዚህ ሐሳብ ትስማማለህ/ምያለሽ?	1.አዎን 2.አልስማማም 99. መልስ የለም	
310	የኤች.አይ.ቪ/ኤድስ ስርጭትን መቆጣጠር ለአገር ልማት እጅግ አስፈላጊ የሆነውን የትምህርት ሰክተር ግብን ለማሳካት ወሳኝ ድርሻ አለው፤:: በዚህ ሐሳብ ትስማማለህ/ምያለሽ?	1.አዎን 2.አልስማማም 99. መልስ የለም	
311	የኤች.አይ.ቪ/ኤድስ በወቅቱ ወይም ሥር ሳይሰድ ተገቢ የሆነ ሕክምና ካለተጀመረለት የተማሪዎችንም ሆነ የመምህራን አጠቃላይ ጤናን ወደ ባለ ደረጃ ላይ ሊያደርስ ይችላል?	1.አዎን 2.አይችልም 99. መልስ የለም	
312	ብዙ የወሰብ /የተቃራኒ ያታ/ ጓደኛ መኖር የአንድ ግልሰብን ለኤች.አይ.ቪ/ኤድስ ቫይረስ ተጋልጭነትን ይጨምራል ?	1. አዎን 2. አይጨምርም 88. አላወቅም 99. መልስ የለም	
313	ሰዎች የግብረ ሥጋ ግንኙነት በሚፈጸሙበት ጊዜ ሁሉ ኮንዶምን ቢጠቀሙ ራሳቸውን ከኤች .አይ.ቪ/ኤድስ ልክላክሉ ይችላሉ?	1. አዎን 2. አይችሉም 88. አላወቅም 99. መልስ የለም	
314	አንድ ሰው በአንድ የወሰብ ጓደኛ ተወስኖ ቢኖር የኤች አይ.ቪ/ኤድስ በሽታ ሊያዘወይቅላል ?	1. አዎን 2. አይችልም 88. አላወቅም 99. መልስ የለም	

ክፍል4:-የግብረ ሥጋ ግንኙነትና ሌሎች ተያያዥ ባህሪያትን የሚመለከቱ ጥያቄዎች

401	በአሁኑ ጊዜ ባል/ሚስት ወይም የተቃራኒ ያታ ጓደኛ አለህ/ሽ? (በአሁኑ ጊዜ ያለህን /ሽን ከሥሩ አስምር/ሪ	1. አዎን 2. የለኝም 99. መልስ ለም	
402	የግብረሰጋግንኙነት /ወሰብ/ፈጽመህ ታወቃለህ ወይም ፈጽመሽታወቅያለሽ? (ያላገቡትን በቻይመለከታል)	1.አዎን 2. የለም	መልሱ-የለምከሆነ

		99. መልስ ለም	ወደጥያቄ406ዕለፍ/ፊ
403	ባለፉት 12 ወራትውስጥየግብረሰጋግንፕፕትፈፅመሃል/ሻል?	1. አዎን 2. አልፈጸምኩም	
404	መልስህ/ሽ ለጥያቄ 317 አዎን ከሆነ ባለፉት 12 ወራት ውስጥ ከስንት ሰዎች ጋር ወሲብ /ግብረ ሥጋ ግንፕፕት / ፈጽመህል/ሻል ?	1. አንድ 2. ሁለት 3. ከሁለት በላይ	
405	ባለፉት 12 ወራት ውስጥ አንተ/ቺ እና መደበኛ የተቃራኒ የታ ጓደኛህ/ሽ ውስብስትፈጽሙ ኮንዶምን ለምን ያህል ጊዜ ተጠቅማችኋል?	1.ሁል ጊዜ 2.ከሞላ ጎደል ሁል ጊዜ 3. አንዳንድ ጊዜ 4. በፍጹም 88. አላወቅም 99. መልስ ለም	
406	ቢራ ወይም ሌላ አልኮል ትጠጣለህ/ጭያለሽ ?	1. አዎን 2. አልጠጣም 2. 99. መልስ የለም	
407	ጫት ትቅማለህ/ምያለሽ ወይም ሲጋራ ታጨሳለህ/ሽያለሽ?	1.አዎን 2. አልቅምም፤ አልጠጣም 99. መልስ የለም	
408	ሲጋራ ታጨሳለህ/ሽያለሽ?	1.አዎን 2. አላጨሰም 99. መልስ የለም	
409	›”É c¬ uÅS< ¬eØ ¾›?c ›Ã y= zÃ[e S •\” K=Á¬p ¾T×K¬ እ”Èf ’¬;	1.እ”Ç=G< ^e” uT ¾f 2.uÖ”“ vKS <Á U` S ^ 3. ”Å vI L© Q;U“ ”ÃU nM%uS HÉ 4. ”Å U;` “ U` S ^ ›ÑMÓKAf uS HÉ 5. K?KA</ ÅÑKê/----- -- 88. ›L¬pU	
410	በፈቃደኝነት LÃ eK}SW[] የ?k ›Ã y= U;`“ U` S ^ ›ÑMÓKAfcU}ህ/ሽታ¬nለህ/ቅያለሽ;	1. ›¬ 2. ›McTGdU 99. SMe ¾KU	መልሱ 2 ከሆነወደ ጥያቄ 417ዕለፍ/ፊ

411	መልስህ/ሽ ለጥያቄ 410 አዎን ከሆነ ከየት ነበር የሰማህዉ/ሽዉ ?	<ol style="list-style-type: none"> 1. ከጤና በለመደዎች 2. ከብዙኃን መገናኛ ዘዴዎች 3. ከጓደኞቼ 4. ከተቃራኒ ጾታ ጓደኛዬ 5. ሌላ (ይገለፅ) 	
412	በፈቃደኝነት LÃ eK} SW[] } >ጾ >Ã y= U፤`“ U`S^ >ÑMÓKlf የት እንደሚሰጥ ታሽለህ/ቅያለሽ;	<ol style="list-style-type: none"> 1.አዎን 2.አላዉቅም 	
413	በፈቃደኝነት LÃ የተSW[] } >ጾ >Ã y= U፤`“ U`S^ >ÑMÓKlf ለማግኘትን የሚቻለዉ በየትኛዉ ተቋም ይመስላሃል/ልሻል ; (ከአንድ በላይ መልስ ይቻላል)	<ol style="list-style-type: none"> 1. በመንግሥት ሆስፒታሎች 2. በጤና አጠባበቅ ጣቢያ 3. በግል ሆስፒታሎች 4. በግል ክሊኒኮች 5. ሌላ (ይጠቀስ) 	
414	uÅUህ/ሽ -eØ ¾>ጾ >Ã y= />Ëe zÃ[e S•\” “ÃU ÁKS•\” KT`p }S`U[ህ/ሽታዉቃለህ/ቅያለሽ;	<ol style="list-style-type: none"> 1. >-” 2. >M}S[S`ÿU <p>99. SMe ¾KU</p>	<p>ULg< >M}S[S`ÿU.</p> <p>ÿJ’ “Å ØÁo 418 Kፍ/ፊ</p>
415	ለጥያቄ 414 መልስህ/ሽ አዎን ከሆነ መቼ ነበር የተመረመርከዉ/ሽዉ;	<ol style="list-style-type: none"> 1. ባለፉት ሦስት ወራት ዉስጥ 2. ባለፉት ስድስት ወራት ዉስጥ 3. . ባለፉት አሥራ ሁለት ወራት ዉስጥ 4. ከሁለት ዓመታት በፊት 	
416	¾>ጾ. >Ã.y= ¾ÅU U`S^ -Ölfን ¾}ቀበልከዉ/ሽዉእ”Èf ’u` ;	<ol style="list-style-type: none"> 1. uÖ”v` k`u? /unM/ 2. ueM፤ 3. uTæØ^© ÅwÇu? 4. u²SÉ “ÃU uጓÅ—ዬ uÿM 5 K፲ /ÃÑKê/----- 	
417	ለ>ጾ >Ã y≠ >Ëe የደም U`S^ ÅÅ[hበት/ግሽበት U፤”Áf U” ’u` ;	<ol style="list-style-type: none"> 1. ራሰን ለማወቅ እንዲሁ 2. ጋብቻ ለመፈጸም 3. ÅU KSKÑe 4. በ ተቃራኒ ጾታ ጓደኛዬግፊት/>’di ’f 5. uÖ” vKSÁ >’di ’f /eKታ²²ልኝ 	

		6. Kᐪ/ ᐱᐸᐸᐸ/-----	
418	እስከ ዛሬ ካልተመረመርክ/ሽ በሚቀጥሉት ሁለት ወራት ውስጥ ለኤች.አይ. ሺ. የደም ምርመራ ለማድረግ ያሸህ/ሽ ፍላጎት ምን ያህል ነው?	1. u×U ᐅLÔf >K~ 2. ᐃVLÔÂᐅ ᐅLÔf >K~ 3. ᐃVLÔÂᐅ ᐅLÔf ¾K~U 4. ᐅLÔf ¾K~U 5. U”U ᐅLÔf ¾K~U 88. አላዉቅም 99. S Me ¾KU	

ዉድ ተጠያቂዎች !

የሚከተሉት ጥያቄዎች በአንድ ወይም በሌላ ምክንያት አንድ ወይም ሁለቱንም ወላጆቻቸው በሞት የተለዩዋቸውን ተማሪዎችን የሚመለከቱ ናቸው ፤ ስለሆነም ሌሎች ተማሪዎች ማለትም ሁለቱም ወላጆቻቸው /አባትና እናት / በሕይወት ያሉአቸው ተማሪዎች ለመጠይቆቹ የሚሰጡትን ምላሽ እዚህ ላይ ያቆማሉ፤ ተማሪዎቹም ውድ ጊዜአቸውን መስዋዕት በማድረግ ለጥያቄዎቹ ምላሽ በመስጠት ቀና ትብብር ስላሳዩን ከልብ እናመስግናለን !

ከፍል 5፤ወላጆቻቸው በተለያዩት ምክንያቶች በሞት የተለዩአቸውን ተማሪዎችን በሚመለከት አስፈላጊውን መረጃ ለመሰብሰብ ታስቦ የተዘጋጀ መጠይቅ፤

ተ.ቁ	ጥያቄ	መልሶች	ይለፍ
501	በኤች. አይ.ሺ/ኤድስ ምክንያት የሞተ የሚታወቀው/ምታወቁ ሰዉ አለ?	1. አዎን 2. የለም	መልሱ 2 ከሆነ ወደ ጥያቄ.505 ዕለፍ/ፊ
502	መልሱ ለጥያቄ 501 አዎን ከሆነ ከሚች ጋር ያላችሁ ዝምድና ምንድነው? _____.	1. አባት 2. እናት 3. ወንድም 4. እህት 5.ጓደኛ 6. ጎረቤት 7. ዘመድ (ይገለጽ) _____	

		88. ምንም ዝምድናየለንም	
503	ሚች ከመሞታቸው ከጥቂት ጊዜያት በፊት አብራችሁ የመኖር ዕድል ነበራችሁ?	1.አዎን 2.አልነበረንም 99. መልስ የለም	
504	ለጥያቄ 503 መልስህ/ሽ አልነበረንም ከሆነ ምክንያትህ/ሽ ምን ነበር ?	1. ሚች ጋር ቤተሰብ ብንሆንም የሚንኖረው በተለያየ ቤት ውስጥ ነበር 2. ሚች የሞቱት ከመወለዴ በፊት ነበር 3. ሚች ሲሞቱ በጣም ልጅ ነበርኩ 4. ሚች የሚኖሩት ከእኛ ቤት ራቅ ብለው ነበር 5. ሌላ ምክንያት (ይጠቀስ) _____	
505	እባክህን/ሽን ከወላጆችህ/ሽ መካከል በህይወት ያሉትን ቢትገልጽ ?	1. አባትና እናቴ ሁለቱም በህይወት አሉ 2. አባቴ ብቻ ነው በሕይወት ያለው 3. እናቴ ብቻ ናት 4. አባቴም እናቴም በሕይወት የሉም 5. 99. መልስ የለም	
506	በአሁኑ ጊዜ የሚትኖረው/ሪው ከማን ጋር ነው ? (በዋናነት በአሁኑ ጊዜ እትንከባከበህ/ሽ የሚገኘው ሰው ነው በመጀመሪያ ደረጃ የተጠቀሰው)	1. ከአባቴ፤እናቴ እና ሌሎች ጋር 2. ከአባቴእና ከሌሎች ጋር 3. ከእናቴ እና ከሌሎች ጋር 4. ከወንድሜ፣ ከእናቴ እና ከሌሎች ጋር 5. ከእህቴ እና ከሌሎች ጋር 6. ከሞግዚቴ እና ከሌሎች ጋር 7. ከአያቶቼ እና ከሌሎች ጋር 8. ከሌላ ጋር ከሆንክ/ሽ እባክህን/ሽን ይጠቀስ)_____	
ክፍል 6 : የተጠየቁትን ተማሪ የቤተሰብ ሁኔታን ለማወቅ የሚረዱ ወይም ከግል ህይወት ጋር የተያያዙ መረጃዎች .			
601	የትኛውን ወላጅህን/ሽን ነው በሞት ያጣሀው/ሽው?	1.አባቴን 2.እናቴን 3.አባቴንም እናቴንም	

602	ሟች ሲሞቱ እድሜያቸው ምን ያህል ነበር?	የሟች ወላጅ/ሽ ዕድሜ----- 88. አላዉቅም	
603	የሟች ሥራ ምን ነበር ?	1. መምህር 2. ነጋዴ 3. ገበሬ 4. ሾፌር 5. የቢሮ ሠራተኛ 6. ወታደር 7. የቤት እመቤት 8. ሌላ (ይጠቀስ) _____	
604	ሟች ያጠናቀቁት የትምህርት ደረጃ?	1. አልተማሩም 2. አንደኛ ደረጃ አጠናቅቀዋል 3. ሁለተኛ ደረጃ አጠናቅቀዋል 4. ሠርተፍኬት / 12 +1 , 10+1 , 10+2 5. .ዲፕሎማ 6. ባችሌር ዲግሪ 7. ማስትሬት ዲግሪና ከዚያ በላይ 88. አላዉቅም	
605	የሟች ሐይማኖት ምን ነበር ?	1. ኦርቶዶክስ ክርስቲያን 2. ፕሮቴስታንት ክርስቲያን 3. ካቶልክ ክርስቲያን 4. መስሊም 5. ሌላ (ይጠቀስ) _____	
606	የሟች የጋብቻሁኔታ? (መልስዎን ያክብቡ)	1. ያላገባ /ች/ 2. ያገባ /ች/ 3. የተለያየ/ች/ 4. የፈታ/ች / 5. ሚስት የሞተችበት/ ባል የሞተባት 6. ሌላ (ይጠቀስ) _____	
607	የሟች ብሔር ? (መልስዎን ያክብቡ)	1. አማራ 2. አሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላ (ይጠቀስ) _____	
608	የት ነበር የሞቱት ?	1. ሆስፒታል	መልስ/ሽ 4፤5 ወይም

		2.ጤና ጣቢያ 3. ክልኒክ 4. ቤት 5.ሌላ (ይጠቀስ) _____ 88. አላዉቅም	88 ከሆነ ወደ ጥያቄ701 እለፉ/ፊ
609	የሞቱት በጤና ተቋም ውስጥ ከሆነ የጤና ድርጅቱ ስም?	የጤና ድርጅቱ ስም? _____ _____	
610	የሞታቸው መንስኤ ምን እንደሆነ ከጤና ባለሙያዎች ተነግሮህ/ሽ ነበር?	1.አዎን 2 . አልተነገረኝም 88. እርግጠኛ አይደለሁም	
611	መልሱ አዎን ከሆነ ስለ ተነገረህ/ሽ የሞት መንስኤ ይበልጥ ጠይቅ/ቂ.	መንስኤ 1. _____ መንስኤ 2 _____ _____	

ክፍል7 :ሟች ከመሞታቸው በፊት ስለነበራቸው የጤና ችግር ወይም ከጤና ጋር ተያያዥ የሆነውን ታሪክ ለማወቅ የሚያግዙ መረጃዎች ፤

ተ.ቁ.	ጥያቄ	መልሶች	ይለፍ
	እባክህ/ሽ ሟች ከመሞታቸው በፊት ከዚህ በታች ከተጠቀሱት ሕመሞች መካከል የነበሩባቸውን በሚመለከት በታማኝነት መልሱን ቢትሰጥ /ጭ !		
701	ሟች ከነዚህ በሽታዎች መካከል በየትኛቹ ተይዘው ነበር (ከአንድ በላይ መልስ መስጠት ይቻላል)፤	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
701.1	የደም ግፊት ሕመም ነበረባቸው?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	መልስህ/ሽ 2 ወይም 88 ከሆነ ወደ ጥያቄ701.11 እለፍ /ፊ
701.2	የስኳር ሕመም ነበረባቸው?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
	የሚጥል በሽታ /አፊለፍሲይ/	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
701.3	የሳንባ ነቀርሳ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	

701.4	ኤች.አይ.ቢ/ኤድስ?	1. አዎን 2. አልነበረባቸውም	ከሆነ ወደ ጥያቄ 801 እለፍ /ፊ
701.5	የጉበት በሽታ?	88. አላዉቅም	
701.6	አስም ?	1. አዎን 2. አልነበረባቸውም	
701.7	የምግብ እጥረት?	88. አላዉቅም	
701.8	ካንሰር?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
701.9	የካንሰር ሕመም ከነበረባቸው በየትኛው የሰውነት አካል ላይ እንደነበር ልነግሩን ይችላሉ?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	
701.10	ሟች በሀኪም በተረጋገጠ በማናቸውም ሌላ ህመም ተይዘው ያዉቃሉ	1. አዎን 2. አልነበረባቸውም	
701.11	የህመሙን /በሽታውን / ዓይነት ልነግሩን ይችላሉ?	88. አላዉቅም	
701.12		አካል 1.----- -----	
701.11		አካል 2.----- -----	
701.12		1. አዎን 2. አልነበረባቸውም 88. አላዉቅም ሕመም 1.----- ህመም 2-----	

ክፍል 8 : ሟች ከመሞታቸው በፊት ወደ መጨረሻ አካባቢ ይታባቸው የነበሩትን የህመም ምልክቶችን ይበልጥ ለመረዳት የሚያግዙ ጥያቄዎች

801	ሟች ከመሞታቸው በፊት የታመሙት ለምን ያህል ጊዜ ነበር ?	_____ ቀናት _____ ወራት _____ ዓመታት	
802	ሟች ተቅማጥ ነበረባቸው?	1. አዎን 2. አልነበረባቸውም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 806 እለፍ/ፊ
803	ተቅማጡ ምን ያህል ቆየባቸው?	_____ ቀናት _____	

		ወራት _____ 88. አላዉቅም	
804	ተቅመቀጡ በተከታታይ ነበር ወይስ ሄድ መጣ የሚል ዓይነት ነበር ?	1. የማያቋርጥ /ተከታታይ/ 2. ሄድ መጣ የሚል 88. አላዉቅም	
805	ተቅማጡ ደም የተቀላቀለበት ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
806	ሟች የቆዳ ላይ ሽፍታ ነበረባቸው?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ809 እለፍ/ፊ
807	ሽፍታዉ ለምን ያህል ጊዜ ነበር የቆየባቸው?	_____ ቀናት _____ ወራት 88. አላዉቅም	
808	ሽፍታዉ ምን ይመስል ነበር?	1.ዉኃ ነገር የቋጠረ 2.መግል በዉስጡ የያዘ 3.ሌላ (ይጠቀስ) _____ 88.አላዉቅም	
809	ሟች የሰውነት ክብደት መቀነስ ይታይባቸው ነበርን?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ812 እለፍ
810	ክብደታቸው ምን ያህል ቀንሶ ነበር? የሚታወቅ ከሆነ በኪሎ ግራም ይጻፍ _____.	1.እጅግ ብዙ ቀንሰዋል 2. በመካከለኛ ደረጃ ቀንሶ ነበር 88. አላዉቅም	
811	ሟች ግማሽ አካላቸው ወይም ሁለቱም እጆቻቸው እና ሁለቱም እግሮቻቸው ሽባ ሆነዉ /ዝሎ/ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ814 እለፍ

813	ለጥያቄ 811 መልሱ አዎን ከሆነ ሚች ግማሽ አካላቸው ወይም ሁለቱም እጆቻቸው እና ሁለቱም እግሮቻቸው ሽባ ሆነው /ዝሎ/ ለምን ያህል ጊዜ ቆዩ ?	_____	88 አላዉቅም	
814	ሚች በቅርቡ ያደረጉት ማናቸውም ዓይነት አፕሬሽን /ቀዶ ጥገና ህክምና / ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 817 እለፍ/ፊ	
815	አፕሬሽኑ የተደረገው ከመሞታቸው ከስንት ቀናት በፊት ነበር? _____	_____	88 አላዉቅም	
816	አፕሬሽኑ /ቀዶ ጥገናው; የተደረገው በየትኛው የሰውነት አካላቸው ላይ ነበር?	1. ሆድ ላይ 2. ጭንቅላት /ራስ ላይ 3. ደረት ላይ 4. ሌላ የሰውነት አካል (ይገለፅ) 88. አላዉቅም		

817	ሚች ያጋጠማቸው ማናቸውም ዓይነት አደጋ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 820 እለፍ/ፊ	
818	ምን ዓይነት አደጋ አጋጥሞታቸው ነበር?	1. ድብደባ 2. የመኪና አደጋ 3. የጦር ሜዳ ቁስለት 4. የእንስሳት ንክሻ 5. ቃጠሎ 6. መርዝ 7. ሌላ /ይጠቀስ/ _____ 88. አላዉቅም		
819	ሚች ከመሞታቸው ከስንት ቀናት በፊት ነበር አደጋ ያጋጠማቸው?	ቀናት : _____		
820	ሚች ራሳቸውን ነው ያጠፉት?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም	

			88 ከሆነ ወደ 822 እለፍ/ፊ
821	መልሱ አዎን ከሆነ ራሳቸውን እንዴት ነበር ያጠፉት?	1.በመርዝ 2. በቃጠሎ 3.ተስቅሎ 88. አላዉቅም	
822	ሟች ለሞት ለዳረጋቸው ህመም የወሰዱት መድኃኒት አለ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ 825 እለፍ/ፊ
823	መልሱ ለጥያቄ 722 አዎን ከሆነ መድኃኒቱን ለምን ያህል ጊዜ ነበር የወሰዱት ?	1. ለቀናት _____ 2. ለሳምንታት _____ 3. ለወራት _____ 4. ለዓመታት _____ 88. አላዉቅም	
824	ሟች ለሞት ለዳረጋቸው ሕመም የወሰዱአቸውን መድኃኒት ለመዘርዘር ትችላለህ/ትችያለሽ ?	_____ _____ _____	
825	የጤና ባለሙያዉ ለሞታቸዉ መንስኤዉ ወይም ምክንያት ምን እንደነበር ተናግሮ ነበር ?	1. አዎን 2. አልተናገረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ901 እለፍ/ፊ
826	የጤና ባለሙያዉ ምን ብሎ ነበር ?	_____ _____	

ክፍል 9 : ኢጋላጭ ምክንያቶች			
901	ሚች አልኮል ይጠጡ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ905 እለፍ/ፊ
902	መልሱ ለጥያቄ 901 አዎን ከሆነ ሚች ለምን ያህል ጊዜ ነዉ አልኮል የጠጡት?	ዓመታት _____ 88. አላዉቅም	
903	በምን ያህል የጊዜ ልዩነት ዉስጥ ይጠጡ ነበር?	1. በየቀኑ ቶሎ ቶሎ(በየሳምንቱ) 2. አልፎ አልፎ 88. አላዉቅም	
904	ሚች አልኮል መጠጥ መጠጣት አቁመዉ ነበር?	1. አዎን 2. አልነበረም 88. አላዉቅም	
905	ሚች ትምባሆ/ስጋራ ወዘተ.. ያጨሱ ነበር ?	1. አዎን 2. አልነበረም 88. አላዉቅም	መልሱ 2 ወይም 88 ከሆነ ወደ1001 እለፍ/ፊ
906	በምን ዓይነት የጊዜ ልዩነት ነበር ሲያጨሱት የነበሩት?	1.በየቀኑ 2.ቶሎ ቶሎ (በየሳምንቱ) 3.አልፎ አልፎ 88. አላዉቅም	

ይህ የቃለ-መጠይቁ ማጠቃለያ ነዉ፤ ጊዜህን/ሽን መስዋዕት በማድረግ ለጥያቄዎቻችን መልስ ስለሰጠህ/ሽና ስለ ቀና ትብብርህ/ሽ እጅግ እናመስግናለን !

Appendix III : Questionnaire on factors associated with HCT and its correlations with sexual behavior among the teachers in AA

Annex 3.1 አጠቃላይ መረጃ ፤ ይህ በአዲስ አበባ ከተማ ውስጥ በሚገኙት የአንደኛ እና ሁለተኛ ደረጃ ት/ቤቶች ውስጥ ያሉት መምህራንን በተመለከተ በፈቃደኝነት ላይ የተመሠረተውን የኤች.አይ.ቪ/ኤድስ የምክርና የምርመራ አገልግሎት ተጠቃሚነትን የሚወስኑት ነገሮችን ለመለየት የተዘጋጀና በመምህራን የሚሞላ መጠይቅ ነው፤

ዉድ መምህር/ት፤

ስሜ ታከለ መና ይባላል ፡፡ በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በህብረተሰብ ጤና አጠባበቅ ት/ቤት የፒ.ኤች.ዲ/የሦስተኛ ዲግሪ/ ተማሪ ነኝ ፡፡ በዛሬዉ ዕለት ወደ እናንተ ት/ቤት የመጣሁት በአዲስ አበባ ከተማ ባሉት የአንደኛ እና ሁለተኛ ደረጃ ት/ቤቶች ውስጥ በሚገኙት መምህራን መካከል በፈቃደኝነት ላይ የተመሠረተውን የኤች.አይ.ቪ/ኤድስ የምክርና የምርመራ አገልግሎት ተጠቃሚነትን የሚወስኑት ነገሮችን በተመለከተ አግባብነት ያላቸውን ጠቃሚ መረጃዎችን በማሰባሰብ ጥናት ለማካሄድ ሲሆን ለጥናቱም በአጋጣሚ ከተመረጡት ት/ቤቶች መካከል የእናንተ ት/ቤት አንዱ ስለነበረ ነዉ ፡፡

በዚሁ መሠረት የጥናቱ ተሳታፊ እንዲሆኑ ከት/ቤታችሁ መምህራን መካከል ምርጫ ሲደረግ በአጋጣሚ ከተመረጡት መምህራን መካከል እርስዎ ይገኛሉ፡፡

የዚህ ጥናት ዓላማ በመምህራን ዘንድ የኤች.አይ. ቪ/ኤድስ የምክርና የምርመራ አገልግሎት አጠቃቀምን እንዲሁም ለመመርመር ያላቸውን እቅድ ወይም ፍላጎት በማጥናት ጠቃሚ መረጃን ለመሰብሰብና ለመወያየት ኤች.አይ.ቪ/ኤድስ በመምህራን ላይ የሚያደርሰውን ተጽዕኖ ለመቀነስ የሚያስችል በተጨማሪም ጥናታዊ መረጃ ላይ የተመሠረተና አግባብነት ያለውን ትግብራለሙን ያሳውቃል፡፡

መጠይቁ የተለያዩ ስጦታዊና የግልህይወት ዎንዮተመለከቱ ጥያቄዎችን ያካተተ ነው፡፡ ይሁን እንጂ የጥናቱን ዓላማ ለማሳካት እርስዎ ለጥያቄዎቹ የሚሰጡልን ትክክለኛና ቀና መልስ ወሳኝ ሚና አለው፡፡ በመጠይቁ ላይ ስምዎ ሆነ ሌላ የእርስዎን ማንነት የሚገልፅ ነገር አይፃፍም፡፡ በተጨማሪም የግል ምላሽ ማንም ሰዉ ሪፖርት የማይደረግና በጣም በምስጢር የሚያዝ መሆኑን ከወዲሁ እንገልጻለን፡፡ መጠይቁን የሚሞሉት እርስዎ ፈቃደኛ ስለሆኑ ብቻ ነው፡፡ መጠይቁን ለመሙላት ፈቃደኛ ከሆኑ በኋላም ቢሆን መመለስ ያልፈለጉት ጥያቄ ካለ ያለመመለስ መብት ዎንዮተመለከቱ፡፡ በጥናቱ ላይ ባለመሳተፍ ወይም በማቋረጥዎ ምንም የሚደርስ ብዎት ጉዳት አይኖርም፡፡

ነገርግን

ሁሉም ጥያቄዎች ካልተሞሉ የጥናቱን ዓላማ ሙሉ በሙሉ ለማሳካት አስቸጋሪ ስለሚሆን መጠይቁን በሙሉ እንዲሞሉልን በማክበር እንጠይቃለን፡፡ ከዚህም ባሻገር የእርስዎ በዚህ ጥናት ላይ ለመሳተፍ ቀና ትብብር ማሳየት እንዲሁም ትክክለኛና ቀና መልስ መስጠት የኤች.አይ.ቪ/ኤድስ ወረርሽኝ በአገራችን በአጠቃላይና በተለይም የአገራችን የነገ ተስፋ በሆነዉ ወጣቱ የሕብረተሰባችን ክፍል ላይ የሚያደርሰዉን አሉታዊ ተጽዕኖ ለመከላከልና ለመቆጣጠር እየተደረገ ላለዉ ዘመቻ እጅግ ጠቃሚ ሚና ይኖረዋል ፡፡ ስለሆነም እባክዎን ጥቂት ደቂቃዎችን በመዉሰድ ይህንን መጠይቅ ቢሞሉልን ! በመጨረሻም ምናልባት የጥናቱን መጠይቅ በተመለከተ ጥያቄ ወይም ቅሬታ ካለዎት በሚከተለዉ የግል አድራሻ መጠየቅ ይቻላል፡፡

ታከለ መና ስልክ :- 0911-134934 ኢ-ሜይል :- takelemena@yahoo.com

በጥናቱ ለመሳተፍ ቃደኛነዎት?

1. () አዎን
2. () አይደለሁም

Annex 3.2 :-የስምምነት ማረጋገጫ፤

እኔ ከዚህ በታችፊርማዬንያኖርኩት መምህር/ት የዚህ ጥናትዓላማ በአዲስ አበባ ከተማ ባሉት የአንደኛ እና ሁለተኛ ደረጃ ት/ቤቶች ውስጥ በሚገኙት መምህራን መካከል በፈቃደኝነት ላይ የተመሠረተውን የኤች.አይ.ቪ/ኤድስ የምክርና የምርመራ አገልግሎት አተገባበሪን የሚወስኑት ነገሮችን በተመለከተ እየተካሄደ ላለው ጥናት የሚረዱ አግባብነት ያላቸውን መረጃዎች ለማሰባሰብ መሆኑን አንብቤ በሚገባ ተረድቻለው። በተጨማሪም እኔ የምሰጠው መረጃ ለዚህ ጥናት አገልግሎት ብቻ የሚውል መሆኑንና በምስጢር እንደሚጠበቅ እንዲሁም ማንነቴ እንደማይገለጽ ተነግሮኛል።ከዚያም ባሻገር በጥናቱለመሳተፍ ወይም ላለመሳተፍ ሙሉ መብት እንዳለኝ እንዲሁም ከፈለኩኝ በማንኛውም ጊዜ ከጥናቱ ተሳታፊነት አቋርጬ ለመውጣት እንደምችል ተረድቻለው።

በዚሁ መሠረት ይህን መጠይቅ ለመሙላት ፍቃደኛ መሆኔንበ ፊሪማዬ ለረጋግጣለሁ፡

ፊርማ ----- ቀን -----

Annex 3.3. Amharic version questionnaire:

ይህ በአዲስ አበባ ከተማ ባሉት የአንደኛ እና ሁለተኛ ደረጃ ት/ቤቶች ውስጥ በሚገኙት መምህራን መካከል በፈቃደኝነት ላይ የተመሠረተውን የኤች.አይ.ቪ/ኤድስ የምክርና የምርመራ አገልግሎት አተገባበሪን የሚወስኑት ነገሮችን ለመለየት የተዘጋጀ መጠይቅ ነው፤

ክፍል 1: የተጠያቂው መለያ

01. _ክልል_____
02. ክፍለ -ከተማ_____
03. የት/ቤቱ ስም _____
04. የት/ቤቱ ዓይነት (ትክክለኛውን መልስ ያስምሩ)፤ የመንግሥት፤የሕዝብ : የሚስዮን ፤ የግል
05. የመጠይቁ መለያ / -----/-----/-----

ክፍል 2: አጠቃላይ የግለሰብ መረጃዎች

ተ.ቁ.	ጥያቄ	መልሶች	እለፉ
201	የተጠያቂው ያታ	1.ወንድ 2.ሴት	
202	ዕድሜዎ	ዕድሜ -----	
203	ሐይማኖትዎ	1. ኦርቶዶክስ ክርስቲያን 2. ፕሮቴስታንት ክርስቲያን 3. ካቶልክ ክርስቲያን 3. ሙስሊም 4. ሌላ (ይጠቀስ) _____	
204	የጋብቻዎ ሁኔታ	1. ያላገባ/ች 2. ባለትዳር 3.ከትዳር አጋር ለጊዜው ተለያይቶ የሚኖር/ምትኖር 4. የፈታ/ች 5. ሚስት/ ባል የሞተችበት/ባት 6. ሌላ (ይጠቀስ) _____	
205	ብሔርዎ	1.አማራ 2.አሮሞ	

		3.ትግሬ 4. ጉራጌ 5.ሌላ (ይጠቀስ) _____	
206	በአሁኑ ጊዜ ያጠናቀቁት ከፍተኛ የትምህርት ደረጃ	1. ሰርቲፍኬት / 12 +1 , 10+1 , 10+2 2. ዲፕሎማ 3. የመጀመሪያ ዲግሪ 4. ሁለተኛ ዲግሪና ከዚያ በላይ	
207	የአሁኑ ሥራዎ	1. የአንደኛ ደረጃ መምህር/ 2. . የሁለተኛ ደረጃ መምህር/9ኛ፤ 10ኛ ክፍል/ 3. የሁለተኛ ደረጃ መምህር/11ኛ፤ 12ኛ ክፍል/ 4. ሌላም ከሆነ ይጠቀስ _____	
208	በመምህርነት ሙያ ለምን ያህል ጊዜ አገልግለዋል?	1. ከ2 ዓመት በታች 2. ከ2-5 ዓመት 3. ከ6-10 ዓመት 4. ከ10 ዓመት በላይ	
209	የወር ገቢዎ/ደመዝዎ በኢት/ብር ምን ያህል ነው?	በወር ብር _____	
210	በአሁኑ ጊዜ የሚያሰትምሩበት ት/ቤት ባለቤትነቱ የማነዉ?	1. የመንግሥት ት/ቤት 2. የሕዝብ ት/ቤት 3. የሚስጦን ት/ቤት 4. የግል ት/ቤት 5. ሌላ (ይጠቀስ)_____	
211	ት/ቤቱ የሚገኝበት ቦታ	1.ከተማ 2. ከተማ ነክ ገጠር	

ክፍል3 : ስለኤች አይ. ቪ/ኤድስ የምክርና የደም ምርመራ አገልግሎት ዕውቀት፤ አመለካከትና አጠቃቀም እንዲሁም የግብረ ሥጋ ግንኙነት ታሪክን የሚመለከቱ ጥያቄዎች ፤

እባክዎን ከዚህ ሚከተሉትን ጥያቄዎች በጥንቃቄ ካነበቡ በኋላ መልስዎትን ያክብቡ!

ተ.ቁ.	ጥያቄ	መልሶች	እለፉ
301	<p>ጎ?< ጎÄ y= “ÄU ጎ?Ée eKT>vM uiታ cU}¬ Ä¬nK<;</p>	<p>1. ጎ-” 2. ጎMcTG<U 99. SMe ¾KU</p>	<p>መልስዎ 2 ከሆነ ወደ ጥያቄ 401 ዕለፉ</p>
302	<p>Ö?“T ¾T>SeK< c-< uÄT†¬¬¬eØ ጎ?< ጎÄ y= K=•`v†¬¬ Ä<LM”;</p>	<p>1. ጎ-”2. ጎÄ<MU 88. ጎL¬pU99. SMe ¾KU</p>	
303	<p>u>Ñ^<” “ÄU uY}T<” ¾>?Ée uiታ Sታ¾f YËS[“Ç=I በተማሪዎች ፤በመምህራንና በሌሎች የትምህርት ቤቱ ማህበረሰብ ዘንድ ህመምና ሞት ቀደም ሲል ከነበረዉ ሁኔታ ጋር ስናነፃፀር ጨምሯል፤u²=I Gdw ÄeTTK<;</p>	<p>1. ጎ-”2. ጎMeTTU 99. SMe ¾KU</p>	
304	<p>የኤች.አይ.ቪ/ኤድስ ስርጭትን መቆጣጠር ለአገር ልማት እጅግ አስፈላጊ የሆነዉን የትምህርት ሰክተር ግብን ለማሳካት ወሳኝ ድርሻ አለዉ፤ በዚህ ሐሳብ ይስማማሉ?</p>	<p>1.አዎን 2.አልስማማም 99. መልስ የለም</p>	
305	<p>የኤች.አይ.ቪ/ኤድስ ወረርሽኝ ተገቢ የሆነ ሕክምና በወቅቱ ካለተጀመረለት የተማሪዉንም ሆነ የመምህሩን የጤና ሁኔታን ወደ ባስ ደረጃ ሊያደርስ የሚችል ይመስላሃል/ ሻል?</p>	<p>1.አዎን 2.አይችልም 88.አላዉቅም 99. መልስ የለም</p>	
306	<p>አንድ u>?< ጎÄ y=/>?Ée uሽታ ¾}Ä² c¬ uQÄ`f ²S’< G<K< Ö?”— ¾J’<f K?KA< c-<”</p>	<p>1. ጎ-ን</p>	

	K=u;M የሚችል ይመስልዎታል;	2. >Ã<MU 88. >L¬pU 99. SMe ¾KU	
307	uÄT†¬¬eØ >?< >Ã y= S•\ K}[ÖÑÖL†¬ QS<T’’ ¾i[->?< >Ã y= SÉ’>f K=cØ እ’’ÄT><M Á¬nK<;	1. >-’’2. >L¬pU 99. SMe ¾KU	
308	¾>?< >Ã y=/?Ée uiታ K=É’’ Ã<LM’’;	1. >-? 2. >Ã<MU 88. >L¬pU99. SMe ¾KU	
309	ከተለያዩት ሰዎች ጋር ወስብ መፈጸም የአንድ ግለሰብ ለኤች.አይ.ቪ/ኤድስ ቫይረስ የተጋልጭነት ደረጃን ይጨምራል ?	1. አዎን 2. አይጨምርም 88. አላወቅም 99. መልስ የለም	
310	ሰዎች የግብረ ሥጋ ግንኙነት በሚፈጸሙበት ጊዜ ሁሉ ኮንዶምን በትክክል ቢጠቀሙ ራሳቸውን ከኤች.አይ.ቪ/ኤድስ ልክላከሉ ይችላሉ?	1. አዎን 2. አይችሉም 88. አላወቅም 99. መልስ የለም	
311	ባለፉት 12 ወራት ውስጥ የግብረ ሥጋ ግንኙነት አድርገዋል ያወቃሉ?	1 አዎን 2 አላደረኩም	መልስዎ 2 ከሆነ ወደ ጥያቄ ቁጥር 314 ይለፉ
312	መልስዎ ለጥያቄ 311 አዎን ከሆነ ባለፉት 12 ወራት ወስጥ ከስንት ሰዎች ጋር ወሲብ /ግብረ ሥጋ ግንኙነት / ፈጽመዋል ?	1.አንድ 2.ሁለት 3. ከሁለት በላይ	
313	ባለፉት 12 ወራት ውስጥ እርስዎና መደበኛ የተቃራኒ ይታ ጓደኛዎ ወስብ ስትፈጽሙ ኮንዶምን ለምን ያህል ጊዜ ተጠቅማችኋል?	1. ሁል ጊዜ 2. ከሞላ ጎደል ሁል ጊዜ 3. አንዳንድ ጊዜ 4. በፍጹም 88. አላወቅም 99. መልስ ለም	

314	የኤች.አይ.ቪ መተላለፊያ መንገድ የሆነው የትኛው ነው ;(ከአንድ በላይ መልስ ይቻላል)	1.በትንሻ አማካይነት 2.ጥንቃቄ በጎደለው የግብረ-ሥጋ ግንኙነት አማካኝነት 3.በመጨባበጥ 4. በቫይረሱ በተበከሉት ደምና የደም ተዋፅኦች 5. ከእናት ወደ ልጅ 6. በአግባቡ ያልጸዱ ስለታም መሳሪያዎችን ቢጋራ በመጠቀም 7.አላዉቅም	
315	›”É c¬ uĀS< ¬eØ ¾?< ›Ā y= zĀ[e S•\” K=Á¬p ¾T>K¬ እ”Èf ’¬;	1.እ”Ç=G< ^e” uT¾f 2.uÖ?” vKS<Á U`S^ 3. “Ā vIL© QiU“ “ĀU nM% uSH@É 4. “Ā U፡”“ U`S^ ›ÑMÓKAf uSH@É 5. K?KA</ ĀÑKê/----- ---- 88. ›L¬pU	
316	በፈቃደኝነት LĀ eK}SW[] ›?< ›Ā y=. U፡”“ U`S^ ›ÑMÓKAf cU}¬ Á¬nK<;	1. ›-ን 2. ›McTG<U 99. SMe ¾KU	መልሱ 2 ከሆነወደ ጥያቄ 320 ይለፉ
317	መልስዎ ለጥያቄ 316 አዎን ከሆነ ከየት ነበር የሰሙት ?	1. ከጤና በለሙያዎች 2. ከብዙኃን መገናኛ ዘዴዎች 3. ከጓደኞቼ 4.ከተቃራኒ ጾታ ጓደኛዬ 5. ሌላ (ይገለፅ)_____	
318	በፈቃደኝነትLĀ የ}SW[] የ?< ›Ā y=. U፡”“	1. አዎን 88.አላዉቅም	

	U`S^ >ÑMÓKAf የት እንደሚሰጥ ለጥንቅቅ;		
319	ለጥያቄ 318 መልስዎ አዎን ከሆነ በፈቃደኝነት LÃ የተSW[] የ?< >Ã y= U፡“ U`S^ >ÑMÓKAf ለማግኘት የሚቻለው በየትኛው የጤና ተቋም ይመስልዎታል ; (ከአንድ በላይ መልስ ይቻላል)	1.በመንግሥት ሆስፒታሎች 2. በጤና አጠባበቅ ጣቢያ 3. በግል ሆስፒታሎች 4. በግል ክሊኒኮች 5.ሌላ (ይጠቀስ)_____	
320	uÅU- ¬eØ ¾¿?< >Ã y= />Ée zÃ[e S•\” “ÃU ÁKS•\” KT`p }S`U[¬ ለጥንቅቅ;	1. >-”2. >M}S[S`Y<U 99. SMe ¾KU	መልሱ>M}S[S`Y<U. YJ’ “Å ØÁo 401ይKፉ
321	ለጥያቄ 320 መልስዎ አዎን ከሆነ መቼ ነበር የተመረመሩት?	1. ባለፉት ሦስት ወራት ውስጥ 2. ባለፉት ስድስት ወራት ውስጥ 3. ባለፉት አሥራ ሁለት ወራት ውስጥ 4. ከሁለት ዓመታት በፊት	
322	¾¿?< >Ã.y= ¾ÅU U`S^ ¬Ö?f-ን ¾}ቀበሉትእ”Èf `u`;	1. uÓ”v` k`u? 2. ueM፤ 3. uም>em.^© ÅwÇu? 4. u²SÉ “ÃU uጓÅ—ዩ uY<M 5 K?L /ÃÑKê/-----	
323	¾¿?< >Ã y=/ >?Ée U`S^ÁÅ[Ñ<uf U፡”Áf U” `u`;	1. እንዲሁ ራሴን ለማወቅ 2. ጋብቻ ለመፈጸም 3. ÅU KSKÑe 4. በተቃራኒ ጾታ ጓደኛዬ ግፊት/>’di’f 5. uÖ?“ vKS<Á >’di’f /eKታ²²ልኝ	

		6. K?L/ ÃÑKê/----- ---	
324	የትዳር ጓደኛዎ/የተቃራኒ የታ ጓደኛዎ የኤች.አይ.ቪ ምርመራ አድርገዉ ያዉቃሉ?	1.አዎን 2. አላደረጉም 88. አላዉቅም	
325	የትዳር ጓደኛዎ/የተቃራኒ የታ ጓደኛዎ ያጠናቀቁት የትምህርት ደረጃ?	1.አልተማሩም 2. አንደኛ ደረጃ 3. ሁለተኛ ደረጃ 4. ሠርቲፍኬት (12+1,10+1 or 10+2) 5. ዲፕሎማ 6. ባችሌር ዲግሪ እና ከዚያ በላይ	

ክፍል4:ለኤች አይ፣ቪ /ኤድስ የመጋለጥ ግላዊ እሳቤን የሚመለከቱ መረጃዎች

ተ.ቁ	ጥያቄ	መልሶች	ይለፍ
401	¾?<. >Ã. y= zÃ[e K=Ã²~ Ã<LM wK¬ ÁevK<;	1. >-? 2. >LewU 99. SMe ¾KU	መልስዎ 2 ከሆነ ወደ ጥያቄ 405 ይለፉ
402	KØÁo #401\$ SMe- #>LewU\$ ŸJ’ Uጐ”Áf- U”É” ’¬; (SMe wK¬ ÁS’<uf” G<K<”U Áጐwu<)	1. ¾Ów[-eÖ Ó”-<’f TÉ[Ó eLMĚS`Ÿ< 2. vKu?,” “ÃU ÕÅ—ፑ” eKTU” 3. vM}kkK S`ô eLM}”ÒG< 4. G<MÑ>²? ፍ”ÊU eKUÖkU 88. Uጐ”Á~” >L¬ፑU	

		99. SMe $\frac{3}{4}$ KU	
403	ለጥያቄ 401 መልስዎ አዎን ከሆነ uzÃ[c< ¾SÁ´ °ÉM- U” ÁIM ´¬¬ለዉ ያስባሉ;	1. ´p}— 2. S"ŸK— 3. hõ }— 99. SMe $\frac{3}{4}$ KU	
404	KØÁo #402\$ SMe- S"ŸK— “ÃU Ÿõ }— ŸJ´ U¡”Áf- U”É” ´¬; (SMe wK¬ ÁS´<uf” G<K<”U Á¡wu<)	1. Ÿ>”É uLÃ ¾ew ÕÃ™< eK´u\~ 2. ÁK ¢”ÊU ¾Ów[-eÒ Ó”-<´f eKðçUŸ< 3. K>?< >Ã y= þ²+{ K=J” Ã<LM wÂ ŸUÖ[Ö[¬ c¬ Ò` ¾Ów[-eÒ Ó”-<´f eKð¡UŸ< 4. vM}kkK S[ð eK}”ÒG< 5. ¾+u= ISU }— eKJ”Ÿ< 88. U¡”Á~” >L¬pU 99. SMe $\frac{3}{4}$ KU	
405	ከአሁኑ የትዳር ዳደኛዎ/የተቃራኒ የታ ዳደኛዎ ጋር ወስብ ከመጀመሪያ በፊት ለኤች.አይ.ቪ ሁለታችሁም ተመርምራችሁ ነበር?	1.አዎን 2. አልተመረመርንም 88. አላዉቅም	
406	KØÁo #404\$ SMe- አልተመረመርንም \$ ŸJ´ U¡”Áf- U”É” ´¬; (SMe wK¬ ÁS´<uf” G<K<”U Á¡wu<)	1.እኔ ራሴ ለኤች. አይ.ቪ ምርመራ ስላልሄድኩ 2.የመለያየት አደጋን ስለፈራሁ 3. vKu?,” “ÃU ÕÅ—¿” eKTU” 88. U¡”Á~” >L¬pU 99. SMe $\frac{3}{4}$ KU	
407	¾>?< >Ã y=/ >?Ée U´S^ }Ã`Ô >”É c¬ þ²+y= SJ´<h,þ`k ¾T>Ã`euf SÑKM“ SÉM- Ÿõ }— ´¬:: u²=I udw ÑeTTK<;	1. uxU eTTKG< 2. eTTKG< 3. ðeTTKG< “ÃU ðMeTTU KTKf >M<MU 4. >MeTTU	

		5. ፅፅህ ሃሙስ	
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ማስታወሻ፤ ቀደም ሲል በፈቃድኝነት ላይ የተመሠረተ የኤች. አይ.ቪ የምክርና የምርመራ አገልግሎት ተጠቃሚ ለሆኑት ወይም ተመርምረው ራሳቸውን ላወቁት መምህራን ይህ የቃለ-መጠይቁ ማጠቃለያ ነው፤ ጊዜዎን መስዋዕት በማድረግ ለጥያቄዎቻችን መልስ ስለሰጡንና ስለ ቀና ትብብርዎ እጅግ እናመስግናለን !

በመሆኑም ከዚህ ቀጥሎ ያሉት ጥያቄዎች የሚመለከቱት እስከ ዛሬ ለኤች.አይ.ቪ የምክርና የምርመራ አገልግሎት ተጠቃሚ የመሆን እድል ያላገኙትን ወይም እስከ ዛሬ ያልተመረመሩትን መምህራን ብቻ ነው፤

ክፍል5 : የሚከተሉት ጥያቄዎች በፈቃድኝነት ላይ የተመሠረተ ኤች.አይ.ቪ የደም ምርመራ አገልግሎት ተጠቃሚ መሆን የሚሰጠውን ጥቅም ወይም ፋይዳን በተመለከተ እርስዎ ያለዎት የግል እሳቤና እምነት ላይ ያተኮሩ ናቸው። ስለሆነም ከዚህ በታች ለእያንዳንዱ ጥያቄ ከተሰጡት አማራጮች መካከል እርስዎ የሚስማሙበትን መርጠው ያክብቡ፤

ተ.ቁ	ጥያቄ	መልሶች	ይለፍ
501	በሚቀጥሉትሁለትወራትወስጥ የኤችአይቪ/ኤድስ የደምምርመራባደርግ ይጠቅመኛልብለዉ የሚያስቡበት ምክንያት -----		
501.1	የኤችአይቪቫይረስበደምዎውስጥ ባይገኝለወደፊትየመያዝአጋጣሚን ይቀንስልዎታል፤በዚህ ሀሳብ ይስማማሉ;	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
501.2	የኤችአይቪቫይረስ በደምዎ ውስጥ ቢገኝወደጓደኛዎእንዳያስተላልፉ ለመጠንቀቅ ይረዳዎታል፤በዚህ ሀሳብ ይስማማሉ;	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
501.3	የኤችአይቪቫይረስ በደምዎ ውስጥ ባይገኝ ለወደፊቱ ደስተኛ ኑሮ ለመኖር ይረዳዎታል፤ በዚህ ሀሳብ ይስማማሉ;	1.በጣም እስማማለሁ 2.እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	

501.4	የወደፊት ሕይወት ዎንበዕቅድ ለመምራት ይረዳዎታል ፤ በዚህ ሀሳብ ይስማማሉ;	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
501.5	በእርስዎ እና በባለቤትዎ /በፍቅርጓደኛዎ መካከል የተሻለ መተማመንን ያመጣል፤ በዚህ ሀሳብ ይስማማሉ;	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
501.6	የኤች.አይ.ቪ.ቫይረስ በደምዎ ውስጥ ቢገኝ በወቅቱ የፀረኤች.አይ.ቪ/ኤድስ መድኃኒት እንዲጀምሩ ያስችልዎታል፤ በዚህ ሀሳብ ይስማማሉ;	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
502	አንድ ሰዉ በደሙ ውስጥ የኤች.አይ.ቪ. ቫይረስ መኖሩን ወይም ያለመኖሩን ለማወቅ ቢፈልግ እንዲሁም ቫይረሱ በደም ውስጥ መኖሩ ታዉቆ የፀረ-ኤች.አይ.ቪ መድኃኒት ለመጀመር ቢያስፈልግ የኤች.አይ.ቪ የምክርና ምርመራ አገልግሎት ተጠቃሚ መሆን አማራጭ የሌለዉ ቀዳሚ ተግባር ነዉ፤ በዚህ ሀሳብ ይስማማሉ;	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለዉ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
<p>በሚቀጥሉት ሁለት ወራት ውስጥ የኤች አይ ቪ/ኤድስ የደም ምርመራ ቢያደርጉ ልመጣ የሚችለዉን ጥቅም/ጉዳት እንዴት ያዩታል/ይገመግሙታል;</p>			
503	የኤች.አይ .ቪ ቫይረስ በደምዎ ውስጥ ያለመኖሩን ቢያዉቁ ምን ይመስልዎታል ;	1. በጣም ጥሩ ነው 2. ጥሩ ነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣም መጥፎ ነው	

504	የኤች.አይ.ቪ ቫይረስ በደም ውስጥ መኖሩን ከመረዳት እንዲሁም ቫይረሱ ወደ ትዳር /የወስብ ዳደኛዎ እንዳይተላለፍ ከማድረግ አኳያ ምን ይመስልዎታል ;	1. በጣም ጥሩነው 2. ጥሩነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣምመጥፎነው	
505	የኤች.አይ.ቪ ቫይረስ በደም ውስጥ ያለመኖሩን ከመረዳትና ለወደፊቱ ደስተኛ ኑሮ ከመምራት አንጻር መመርመርን እንዴት ያዩታል ;	1. በጣም ጥሩነው 2. ጥሩነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣምመጥፎነው	
506	የኤች.አይ.ቪ ቫይረስ በደም ውስጥ መኖሩን ወይም ያለመኖሩን ከመረዳትና ለወደፊት ሕይወትዎ ከማቀድ አንጻር መመርመርን እንዴት ያዩታል ;	1. በጣም ጥሩነው 2. ጥሩነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣምመጥፎነው	
507	የኤች.አይ.ቪ ቫይረስ በደም ውስጥ መኖሩን ወይም ያለመኖሩን ከመረዳትእንዲሁም በእርስዎና በትዳር/በወስብ ዳደኛዎ መካከል መተማመንን ከማጠናከር አኳያ መመርመርን እንዴት ያዩታል ;	1. በጣም ጥሩነው 2. ጥሩነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣምመጥፎነው	
508	የኤች.አይ.ቪ ቫይረስ በደም ውስጥ መኖሩ በረጋገጥ የፀረ-ኤች:አይ:ቪ መድኃኒት ወዲያው ለመጀመር ከማስቻል አኳያ መመርመርን እንዴት ያዩታል ;	1. በጣም ጥሩነው 2. ጥሩነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣምመጥፎነው	
509	የኤች.አይ.ቪ ቫይረስ በትዳር/በወስብ ዳደኛዎ ደም ውስጥ መኖሩን ወይም ያለመኖሩን ማወቅ ለእርስዎ ምን ያህል ጥሩ ወይም መጥፎ ይመስልዎታል ;	1. በጣም ጥሩነው 2. ጥሩነው 3. ጥሩም መጥፎም አይደለም 4. መጥፎ ነው 5. በጣምመጥፎነው	

ክፍል 6 .የሚከተሉት ጥያቄዎች ለእርስዎቅርብየሆኑትሰዎችእርስዎ እንዲፈፅሙትየሚጠብቁትንናለእርስዎአበራታች ናቸውተብለውየሚታሰቡሀሳቦችን የያዙ ናቸው:: በዚሁ መሠረት ጥያቄዎችንበጥምናካነበቡበኋላየእርስዎን

የሰምምነት ደረጃ ከተሰጡት አማራጮች መካከል ያከብቡ፤			
601	“ከዚህ በታች የተዘረዘሩት ሰዎች በሚቀጥሉት 2 ወራት ውስጥ እርስዎ የኤች.አይቪ.ቪ. የደም ምርመራ እንደሚያደርጉ ይገምታሉ”		
601.1	ባለቤትዎ/የወሲብ ጓደኛዎ	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለሁ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
601.2	የቅርብ ጓደኛዎ/ኞችዎ	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለሁ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
601.3	የሥራ በልደራባዎችዎ/መምህራን	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለሁ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
601.4	ዘመድዎችዎ	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለሁ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
601.5	ልጆችዎ	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለሁ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	
601.6	የህይወትዎ መሪ/አባት	1. በጣም እስማማለሁ 2. እስማማለሁ 3. እስማማለሁ ወይም አልስማማም ለማለት አልችልም 4. አልስማማም 5. በጭራሽ አልስማማም	

ክፍል 7: ከዚህ የሚከተሉት ጥያቄዎች እርስዎ በፈቃደኝነት ላይ የተመሰረተ የኤች.አይ.ቪ. የደም ምርመራ አገልግሎት ተጠቃሚ እንዲሆኑ ሊያበረታቱ ወይም እንቅፋት ሊሆኑ ይችላሉ የተባሉ ሐሳቦችን የያዙ ናቸው። በመሆኑም ጥያቄዎቹን በጥሞና ካነበቡ በኋላ ስምዎን ከተሰጡት አማራጮች መካከል ያከብቡ።

701. በሚቀጥሉት ሁለት ወራት ውስጥ የኤች.አይ.ቪ. የደም ምርመራ ለማድረግ መወሰኑ አስቸጋር ሊሆንብዎት ይችላል ፤			
701.1	ባለቤትዎ/የወስብጓደኛዎ የእርስዎን መመርመር ባይፈልጉ ለእርስዎ ለመመርመር መወሰኑ አስቸጋሪ ይሆንብዎታል ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
701.2	ቫይረሱ በደምዎ ውስጥ አለ የሚለውን ውጤት መስማት ስለሚፈሩ ለመመርመር መወሰኑ አስቸጋሪ ይሆንብዎታል ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
701.3	በደምዎ ውስጥ ቫይረሱ ምናልባትም ቢገኝ መገለልና መድልዎ ሊገጥመኝ ይችላል ብለዉ ስለሚያስቡ ለመመርመር መወሰኑ አስቸጋሪ ይሆንብዎታል ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
701.4	የምክር አገልግሎት ሰጪው ምስጢራዊ ምናልባት ላይ ጠብቅልኝ ይችላል የሚል ስጋት ስላለዎት ለመመርመር መወሰኑ ልያስቸግሮት ይችላል ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም	

		4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
701.5	ቫይረሱበደምዎውስጥቢገኝለሌላ ሰውለመናገር ስለሚፈሩ ለመመርመር መወሰኑ አስቸጋሪ ልሆኑብዎት ይችላል ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
ምንም እንኳን የሚከተሉት እንቅፋቶች /ተግዳሮቶች ቢኖሩም እርስዎ በሚቀጥሉት ሁለት ወራት ውስጥ ለኤች.አይ.ቪ የደም ምርመራ ለማድረግ ውሳኔ ላይ ይድርሳሉ ብለን ብናስብ እርስዎ እንደሚወስኑ ምን ያህል እርግጠኛ ነዎት; _____			
702.1	ባለቤትዎ/የወስብጓደኛዎ የእርስዎን መመርመርባይፈልጉእንኳን እርስዎ ለመመርመር ይወስናሉ ፤	1.በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
702.2	ቫይረሱበደምዎውስጥአለ የሚለውንውጤትለመስማት ፍርሃት ቢኖርብዎትም እንኳን እርስዎ ለመመርመር ይወስናሉ ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	

702.3	በደምዎ ውስጥ ቫይረሱ ምናልባትም ቢገኝ መገለልናመድልዎ ሊገጥመኝ ይችላል የሚል ሀሳብ በወስጥዎ ቢኖርም እንኳን እርስዎ ለመመርመር ይወስናሉ ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
702.4	የምክር አገልግሎት ሰጪዉ ምስጢሪዎን ምናልባት ላይጠብቅልኝ ይችላል የሚል ስጋት ቢኖርብዎትም እንኳን እርስዎ ለመመርመር ይወስናሉ ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
702.5	ቫይረሱበደምዎውስጥቢገኝለሌላ ሰውለመናገርቢፈሩም እንኳን እርስዎ ለመመርመር ይወስናሉ ፤	1. በጣም እርግጠኛ ነኝ 2. እርግጠኛ ነኝ 3. እርግጠኛ ነኝ ወይም አይደለሁም ለማለት አልችልም 4. እርግጠኛ አይደለሁም 5. በጭራሽ እርግጠኛ አይደለሁም	
<p>ክፍል 8: ከዚህየሚከተሉት ጥያቄዎች በሚቀጥሉትሁለትወራትውስጥየእርስዎን ለኤችአይቪ/ኤድስየደም ምርመራየማድረግፍላጎትዎን ያሳያሉተብለዉ የታሰቡት ናቸዉ::በመሆኑም ጥያቄዎችንበጥሞናካነበቡበኋላ የእርስዎንየስምምነትደረጃየሚያሳየዉን መልስ ከተሰጡት አማራጮች መካከል ያክብቡ ::</p>			

801	በሚቀጥሉት ሁለት ወራት ውስጥ		
801.1	ለመመርመር ምን ያህል ያስባሉ?	1. በጣም አስባለሁ 2. አስባለዉ 3. አስባለዉ ወይም አላስብም ለማለት አልችልም 4. አላስብም 5. በጭራሽ አላስብም	
801.2	የኤች/አይቪ/ኤድስ የምክር እና የደምምርመራ አገልግሎት ያለበት ጤና ተቋም ሄደዉ ለመጠቀም ምን ያህል ያስባሉ ?	1. በጣም አስባለሁ 2. አስባለዉ 3. አስባለዉ ወይም አላስብም ለማለት አልችልም 4. አላስብም 5. በጭራሽ አላስብም	
801.3	ሌላ ሕመምን ለመታከም ወይም ማናቸዉም ዓይነት አገልግሎት ለማግኘት ፈልገዉ ወደ ጤና ተቋም ብሄዱና ባለሙያዉ የኤች/አይቪ/ኤድስ የምክር አገልግሎት እና የደምምርመራ እንዲያደርጉ በጠይቅዎት የአገልግሎቱ ተጠቃሚ ለመሆን ምን ያህል ዝግጁ ነኝ በለዉ ያስባሉ?	1. በጣም ዝግጁ ነኝ ብዬ አስባለሁ 2. ዝግጁ ነኝ ብዬ አስባለሁ 3. ዝግጁ ነኝ ብዬ አስባለሁ ወይም አላስብም ለማለት አልችልም 4. ዝግጁ ነኝ ብዬ አላስብም 5. ዝግጁ ነኝ ብዬ በጭራሽ አላስብም	

ይህ የቃለ-መጠይቁ ማጠቃለያ ነዉ፤ ጊዜዎን መስዋዕት በማድረግ ለጥያቄዎቻችን መልስ ስለሰጡንና ስለ ቀና ትብብርዎ እጅግ እናመሰግናለን

Appendix IV.

Questionnaire on the Effects of School based interventions among students in AA

Annex 4. 1 አጠቃላይ መረጃ :-ይህ አጠቃላይ መረጃ የሚመለከተው ዕድሜያቸው 15 እና ከዚያ በላይ እንዲሁም

የክፍል ደረጃቸው ከ9ኛ እስከ 12ኛ ሆነው በጥናቱ እንዲሳተፉ የተመረጡት ተማሪዎችን ነው፡፡

ይህ በአዲስ አበባ ከተማ ባሉት ሁለተኛ ደረጃ ት/ቤቶች ውስጥ የሚገኙትን ተማሪዎች በተመለከተ የኤች.አይ.ቪ/ኤድስ ስርጭትን ለመከላከል በት/ቤቶች አካባቢ እየተሰሩ ያሉት የመከላከል ሥራዎች ያስገኙትን ውጤት ወይም ከተማሪዎች የታዩ ግንኙነት ጋር በተያያዙት ባህሪያት ላይ ሊመጡ ይችላሉ ተብሎ የሚታሰቡ ለዉጤቱን በተመለከተ አግባብነት ያላቸውን መረጃዎች በማሰባሰብ ጥናት ለማካሄድ የተዘጋጀ ሆኖ በተማሪዎች የሚሞላ መጠይቅ ነው፤

ዉድ ተማሪዎች ፤,

ስሜ ታከለ መና ይባላል ፡፡ በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ በህብረተሰብ ጤና አጠባበቅ ት/ቤት የፒ.ኤች.ዲ/ የሦስተኛ ዲግሪ/ ተማሪ ነኝ ፡፡ በዛሬዉ ዕለት ወደ እናንተ ት/ቤት የመጣሁት በአዲስ አበባ ከተማ ባሉት ሁለተኛ ደረጃ ት/ቤቶች ውስጥ የኤች.አይ.ቪ/ኤድስ ስርጭትን ለመከላከልና ለመቆጣጠር መንግሥታዊና መንግሥታዊ ባልሆኑ ድርጅቶች በኩል ስሠሩ የነበሩትና አሁንም እየተሰሩ ያሉት ልዩ ልዩ ሥራዎች ያስገኙትን ውጤት ወይም በተማሪዎች ባህሪያት ላይ ያመጡትንና ሊያመጡ ይችላሉ ተብሎ የሚታሰቡትን ለዉጤቱን በተመለከተ አግባብነት ያላቸውን መረጃዎች በማሰባሰብ ጥናት ለማካሄድ ነው፡፡ ይህም ጥናት የኤች.አይ.ቪ/ኤድስ ወረርሽኝ በወጣቱ የሕብረተሰባችን ክፍል በአጠቃላይ በተለይ ደግሞ በሁለተኛ ደረጃ ት/ቤት ውስጥ በሚገኙት ተማሪዎች ላይ ያደረሰውንና ሊያደርስ ይችላል ተብሎ የሚገመተውን አሉታዊ ተፅዕኖን ለመከላከልና ለመቆጣጠር እንደሚረዳ እንደዚሁም በተጨማሪ መረጃዎች ላይ የተመሠረተና አግባብነት ያለውን ትግበራለመንደፍ እንደሚያግዝ ይታመናል ፡፡

በዚሁ መሠረት የጥናቱ ተሳታፊ እንዲሆኑ ከት/ቤታችሁ ተማሪዎች መካከል ምርጫ ሲደረግ በአጋጣሚ ከተመረጡት ተማሪዎች መካከል አንተ/ቺ ትገኛለህ/ኝ ያለሽ፡፡

መጠይቁ የተለያዩም ስጦታዊና የግልህይወትን የተመለከቱ ጥያቄዎችን ያካተተ ነው፡፡ የጥናቱን ዓላማ ለማሳካት አንተ/ቺ ለጥያቄዎቹ የሚትሰጠው/የምትሰጠው ይታዘዝህ/ሽና ቀናመልሽ ወሳኝ ሚና አለው፡፡ በመጠይቁ ላይ ስምምሆን ሌሎች የአንተ/ቺን ማንነት የሚገልፅ ገርዲዳዎች፡፡ የግልም ላሽለማንም ሰዉ ሪፖርት የማይደረግና በጣም በምስጢር የሚያዝ መሆኑን ከወዲሁ እንገልጻለን፡፡

መጠይቁን የሚትሞላው/ይዉአንተ/ቺ ፈቃደኛ ስለሆንክ/ሽ ብቻ ነው፡፡ መጠይቁን

ለመሙላት ፈቃደኛ ከሆንክ/ሽ በኋላም ቢሆን መመለስ ያልፈለከው/ሽ ዉጥያቄ ካለ

ያለ መመለስ መብትህ/ሽ ነው፡፡ በጥናቱ ላይ ባለመሳተፍ ወይም በማቋረጥምንም የሚደርስብህ/ሽ ጉዳት አይኖርም፡፡

ይሁን እንጂ ሁሉም ጥያቄዎች ካልተሞሉ የጥናቱን ዓላማ ሙሉ በሙሉ ለማሳካት አስቸጋሪ ስለሚሆን መጠይቁን በሙሉ እንዲትሞላልን/ይንበ ማክበር እንጠይቃለን፡፡ በተጨማሪም የአንተ/ቺ በዚህ ጥናት ላይ ለመሳተፍ ትብብር ማሳየት

ብሎም ትክክለኛና ቀና መልስ መስጠት የኤች.አይ.ቪ/ኤድስ ወረርሽኝ በአገራችን በአጠቃላይና በወጣቱ ላይ በተለይ የሚያደርሰውን አሉታዊ ተጽዕኖ ለመዋጋት እጅግ ጠቃሚ ሚና ይኖረዋል ፡፡ ስለሆነም እባክህ/ሽን ጥቂት ደቂቃዎችን በመውሰድ ለዚህ መጠይቅ መልስ ቢትሰጥልን/ጭልን !በመጨረሻም ምናልባት የጥናቱን መጠይቅ በተመለከተ ጥያቄ ወይም ቅሬታ ካለህ/ሽ በሚከተለው የግል አድራሻ መጠየቅ ይቻላል፡፡

ታክለ መና ስልክ :- 0911-134934 ኢ-ሜይል :-takelemena@yahoo.com

በጥናቱለመሳተፍፍቃደኛህ/ሽ?

1. () አዎን 2. () አይደለሁም

Annex 4.2 :-የሰምምነት ማረጋገጫ

እኔ ከታችፊርማዬንያኖርኩት ተማሪ የዚህ ጥናትዓላማ በአዲስ አበባ ከተማ ባሉት ሁለተኛ ደረጃ ት/ቤቶች ውስጥ በሚገኙት ተማሪዎች መካከል የኤችአይ ቪ/ኤድስስርጭትን ለመከላከልና ለመቆጣጠር እንዲሁም የወረርሽኙን አሉታዊ ተፅዕኖ በተቻለ መጠን ለመቀነስ በአሁኑ ጊዜ እተሠሩ ያሉት ሥራዎች ያመጡትንና ሊያመጡ የሚችሉትን የባህሪ ለውጦችን በተመለከተ ጠቃሚመረጃዎችንሰብስቦለወደፊትበጥናት ላይ የተመሠረተና አግባብነት ያለውን ትግበራለመንደፍእንድረዳ መሆኑን አንብቤበሚገባተረድቻለው፡፡በተጨማሪም እኔየምሰጠውመረጃለዚህ ጥናትአገልግሎትብቻየሚውልመሆኑንናበምስጢርእንደሚጠበቅእንዲሁምማንነቴእንደማይገለጽ ተነግሮኛል፡፡ከዚያም ባሻገር በጥናቱመሳተፍወይም ያለመሳተፍእንዲሁም ከፈለኩኝ በማንኛውምጊዜከጥናቱተሳታፊነት አቋርጬ ለመውጣትሙሉሙበትእንዳለኝተረድቻለው፡፡

በዚሁ መሠረትይህንመጠይቅለመሙላት ፍቃደኛመሆኔንበፊርማዬአረጋግጣለሁ፡፡

ፊርማ -----

ቀን -----

የኤች.አይ.ቪ/ኤድስ ስርጭትን ለመከላከልና ለመቆጣጠር በአሁኑ ጊዜ በት/ቤቶች አካባቢ እየተሰሩ ያሉት ሥራዎች ከተማሪዎች ያታዊ ግንኙነት ጋር በተያያዙት ባሕሪያት ላይ የሚያመጡትን ለጤቦችን ወይም ተፅዕኖዎችን የሚመለከቱ መረጃዎችን ለማሰባሰብ የተዘጋጀ መጠይቅ፤

ክልል _____

ክፍለ -ከተማ _____

01. የት/ቤቱ ስም

02. የት/ቤቱ ዓይነት (ትክክለኛውን መልስ ከሥሩ ያስምሩ)፤ የመንግሥት፤ የሕዝብ : የሚሰየን ፤ የግል

03. የመጠይቁ መለያ / -----/-----/-----

ክፍል 2: አጠቃላይ የግለሰብ መረጃዎች

ተ.ቁ.	ጥያቄ	መልሶች (ከተሰጡት አማራጮች መካከል መልስህን አክብብ)	ይለፍ
201	የተጠያቂው የታ	1. ወንድ 2. ሴት	
202	ዕድሜ	1. ከ15-18 ዓመት 2. ከ19-24 ዓመት 3. 25 እና ከዚያ በላይ	
203	ሀይማኖት	1. ኦርቶዶክስ ክርስቲያን 2. ፕሮቴስታንት ክርስቲያን 3. ካቶልክ ክርስቲያን 4. ሙስሊም 5. ሌላ (ይጠቀስ) _____	
204	ብሔረሰብ	1. አማራ 2. አሮሞ 3. ትግሬ 4. ጉራጌ 5. ሌላ (ይጠቀስ) _____	

205	የክፍል ደረጃ	1. 9ኛ ክፍል 10ኛ ክፍል 2. 11ኛ ክፍል 12ኛ ክፍል	
206	$\frac{3}{4}Ow\%_0 G<'@_ታ$	1. $\acute{A}\acute{A}\tilde{N}v/<$ 2. $\acute{A}\tilde{N}v/<$ 3. የፈታ/ች 4. ሚስት/ባል የሞተባት/ችበት 5. K?L / $\tilde{A}\tilde{N}K\hat{e}$ /.....	

ክፍል3: ስለኤች.አይ.ቪ/ኤድስ ያለዉ ዕዉቀትና አመለካከት፤ ከዚህ በታች ያሉትን ጥያቄዎች በደንብ ካነበብክ/ሽ በኋላ ምርጫህን /ሽን አክብብ ፤

ተ.ቁ.	ጥያቄ	መልሶች (ከተሰጡት አማራጮች መካከል መልስህን/ሽን አክብብ/ቢ)	ይለፍ
301	$\succ?< \succ\tilde{A} \ y=/?\acute{E}e \ eKT>vM \ ui_ታ$ $cU\}ህ/ሽታ-ጠለህ/ቅያለሽ<;$	1. $\succ-''$ 2. $\succ McTG<U$ 99. $SMe \ \frac{3}{4}KU$	መልስዎ 2 ከሆነ ወደ ጥያቄ401 ዕለፍ
302	የኤች.አይ.ቪ መተላለፊያ መንገድ የሆነዉ የትኛዉ ነዉ ;(ከአንድ በላይ መልስ ይቻላል)	1. በትንኝ አማካይነት 2. ጥንቃቄ በጎደለዉ የግብረ-ሥጋ ግንኙነት 3. በመጨባበጥ 4. በቫረሱ በተበከሉት ደምና የደም ተዋፅኦች 5. ከእናት ወደ ልጅ 6. በአግባቡ ያልጸዱ ስለታም መሳሪያዎችን በጋራ በመጠቀም	

		7. አላውቅም	
303	ስለ ኤች.አይ.ቪ/ኤድስ የሰማው/ሽወ. ከየት ነበር? (ከአንድ በላይ መልስ ይቻላል)	1. ከጤና ባለሙያዎች 2. ከመገናኛ-ብዙኃን 3. ከጓደኛዬ 4. ከመምህራን 5. ሌላ (ይጠቀስ)_____	
304	Ö?‘T ¾T>SeK< c-< uÄT†¬ ¬eØ የ>?< >Ã y= K=•`v†¬ Ã<LM”;	1. >-” 2. >Ã<MU 88. >L¬pU 99. SMe ¾KU	
305	uÄT†¬ ¬eØ >?< >Ã y= S•\ K}[ÖÑÖL†¬ QS<T” ¾i[->?< >Ã y= SÉç’>f K=cØ እ”ÄT><M ታ¬nላህ/ሽ ;	1. >-” 2. >L¬pU 99. SMe ¾KU	
306	¾>?< >Ã y=/>?Ée uiታ K=É” Ã<LM”;	1. >-? 2. >Ã<MU 88. >L¬pU 99. SMe ¾KU	
307	u>?< >Ã y=/>?Ée uiታ ¾}Ä² c¬ uQÃ”f ²S’< G<K< Ö?’— ¾J’<f K?KA< c-<” K=u፤M የሚችል ይመስላህል/ሻል?	1. >- 2. >Ã<MU 88. >L¬pU	

		99. SMe ¾KU	
308	ከጋብቻ በፊት ከሚደረግ የግብረ-ሥጋ ግንኙነት መታቀብ ኤች.አይ.ቪን ለመከላከል ለማንም ቢሆን እጅግ ተመራጭ ዘዴ ነዉ፤በዚህ ሀሳብ ትስማማለህ/ምያለሽ?	1.በጣም እስማማለሁ 2. እስማማለዉ 3.አልስማማም . 4. በጣም አልስማማም	
309	ኤች.አይ.ቪ/ኤድስ ወረርሽኝ ከተከሰተ ወዲህ በተማሪዎችና መምህራን መካከል የሚታይ ሕመምና ሞት ጨምሯል ፤ በዚህ ሐሳብ ትስማማለህ/ምያለሽ?	1.አዎን 2.አልስማማም 99. መልስ የለም	
310	የኤች.አይ.ቪ/ኤድስ ስርጭትን መቆጣጠር ለአገር ልማት ወሳኝ የሆነዉን የትምህርት ሰክተር ግብን ለማሳካት ከፍተኛ ድርሻ አለዉ፤ በዚህ ሀሳብ ትስማማለህ/ምያለሽ?	1.አዎን 2.አልስማማም 99. መልስ የለም	
311	የኤች.አይ.ቪ/ኤድስ ወረርሽኝ በወቅቱ ተገቢ ሕክምና ካልተጀመረ የተማሪዎችንም ሆነ የመምህራንን አጠቃላይ ጤናን ወደ ባሰ ደረጃ ላይ ሊያደርስ ይችላልን?	1.አዎን 2.አይችልም 99. መልስ የለም	
312	ብዙ የወስብ/የግብረ -ሥጋ ግንኙነት ጓደኛመኖርየግለሰቡን ለኤች.አይ.ቪ/ኤድስ ቫይረስ የተጋልጭነት አደጋን ይጨምራልን ?	1. አዎን 2. አይጨምርም 88. አላዉቅም 99. መልስ የለም	
313	ሰዎች የግብረ ሥጋ ግንኙነት በሚፈጸሙበት ጊዜ ሁሉ በትክክል ኮንዶምን ቢጠቀሙ ራሳቸዉን ከኤች.አይ.ቪ/ኤድስ ልከላከሉ ይችላሉን?	1. አዎን 2. አይችሉም 88. አላዉቅም 99. መልስ የለም	

314	አንድ ሰው በአንድ የወስብ ዓደኛ ተወስኖ ቢኖር የኤች.አይ.ቪ/ኤድስ በሽታ ሊይዘው ይችላል? ?	1. አዎን 2. አይችልም 88. አላውቅም 99. መልስ የለም	
ክፍል4: የግል የግብረ-ሥጋ ግንኙነት ታሪክ እና ሌሎች ተያያዥ ሰባቶችን የሚመለከቱ ጥያቄዎች			
401	በአሁኑ ጊዜ ባል/ሚስት ወይም የተቃራኒ ጾታ ዓደኛ አለህ/ሽ?	1.አዎን 2. የለኝም 99. መልስ የለም	
402	ወስብ ወይም የግብረ-ሥጋ ግንኙነት አድርገህ/ሽ ታወቃለህ/ቅያለሽ ? / እስከዛሬ ያላገቡትን ብቻ ይመለከታል/	1. አዎን 2. አላደረኩም 99. መልስ የለም	መልሱ 2 ከሆነ ወደ ጥያቄ406 እለፍ/ፊ
403	ለጥያቄ 402 መልሱ አዎን ከሆነ ባለፉት 12 ወራት ውስጥ የግብረ-ሥጋ ግንኙነት አድርጋሃል/ገሻል ?	1 አዎን 2 አላደረኩም	መልሱ 2 ከሆነ ወደ ጥያቄ406 እለፍ/ፊ
404	ለጥያቄ 403 መልሱ አዎን ከሆነ ባለፉት 12 ወራት ውስጥ ከስንት ሰው ጋር የግብረ-ሥጋ ግንኙነት ፈፅማህል/መሻል ?	1. አንድ 2.ሁለት 3.ከሁለት በላይ	
405	ባለፉት 12 ወራት ውስጥ አንተ/አንቺ እና መደበኛ የተቃራኒ ፆታ ዓደኛህ/ሽ ወስብ ስትፈጽሙ ኮንዶምን ለምን ያህል ጊዜ ተጠቅማችኋል?	1.ሁል ጊዜ 2.ከሞላ ጎደል ሁል ጊዜ 3.አንዳንድ ጊዜ 4.በፍጹም 88. አላውቅም	

		99. መልስ ለም	
406	ቢራ ወይም ሌላ አልኮል ትጠጣለህ/ጭያለሽ?	1.አዎን 2. አልጠጣም 99. መልስ የለም	
407	ጫት ትቅማለህ/ምያለሽ?	1. አዎን እቅማለሁ 2. አልቅምም 99. መልስ የለም	
408	ሲጋራ ታጨሳለህ/ሽያለሽ?	1.አዎን አጨሳለሁ 2. አላጨስም 99. መልስ የለም	407
409	›”É c¬ uÄS< ¬eØ ¾›?< ›Ä y= zÄ[e S•\” K=Á¬p ¾T>K¬ ”Èf ’¬;	1.እ”Ç=G< ^e” uT¾f 2. uÖ?” vKS<Á U`S^ 3. “Å vIL© QiU“ “ÄU nM%o uSH@É 4. “Å Uj`“ U`S^ ›ÑMÓKAf uSH@É 5. K?A/ ÄÑKê/----- 88. ›L¬pU	
410	በፈቃደኝነት LÄ eK}SW[] የ>?< ›Ä y=. የUj`“ U`S^ ›ÑMÓKAf cU}ህ/ሽታ¬ጠለህ/ቅያለሽ;	1. >¬? 2. ›McTG<U 99. SMe ¾KU	መልሱ 2 ከሆነወደ ጥያቄ 418 ዕለፍ/ፊ
411	መልስህ/ሽ ለጥያቄ 409 አዎን ከሆነ ከየት ነበር የሰማህዉ/ሽዉ?	1. ከጤና በለሙያዎች 2. ከብዙኃን መገናኛ ዘዴዎች 3. ከጓደኞቼ 4. ከተቃራኒ ጾታ ጓደኛዬ 5. ሌላ (ይገለፅ)_____	
412	በፈቃደኝነት LÄ የ}SW[] የ>?< ›Ä y=. Uj`“ U`S^ ›ÑMÓKAf የት እንደሚሰጥ ታ¬ጠለህ/ቅያለሽ;	1. አዎን 2. አላዉቅም	

413	በፈቃደኝነት ሊሻየትSW[] የ?< >ፌ y=. U፡፡“ U`S^ >ÑMÓKAf ለማግኘት የሚቻለው በየትኛው የጤና ተቋም ይመስለሃል/ልሻል ; (ከአንድ በላይ መልስ ይቻላል)	1. በመንግሥት ሆስፒታሎች 2. በጤና አጠባበቅ ጣቢያዎች 3. በግል ሆስፒታሎች 4. በግል ክሊኒኮች 5. ሌላ (ይጠቀስ)_____	
414	በደምህ/ሽ -eØ ¾?< >ፌ y= />?Ée zፌ[e S•፡” “ፌU ÁKS•፡” KT`p }S`U[v/ሽታ`፡፡፡ለህ/ቅያለሽ;	1. >” 2. >M}S[S`Y<U 99. SMe ¾KU	መልስህ/ሽ 2 ከሆነ ወደ ጥያቄ418 ዕለፍ/ፊ
415	ለጥያቄ 414 መልስህ/ሽ አዎን ከሆነ መቼ ነበር የተመረመርከው/ሽዉ?	1. ባለፉት ሦስት ወራት ውስጥ 2. ባለፉት ስድስት ወራት ውስጥ 3. . ባለፉት አሥራ ሁለት ወራት ውስጥ 4. ከሁለት ዓመታት በፊት	
416	¾?< >ፌ.y=. ¾ፌU U`S^ -Ö?fህ/ሽ ¾}cmህ/ሽእ”Èf `u`;	1. uÓ”v` k`u? 2. ueM፡ 3. uም>em.^© ÅwÇu? 4. u²SÉ “ፌU u፡ፌ—ዩ uY<M 5 K?L /ፌÑKê/-----	
417	¾?< >ፌ y=/ >?Ée U`S^ ÁÁ[huf/ግሽበት U፡፡”Áf U” `u`;	1. እንዲሁ ራስን ለማወቅ 2. ጋብቻን ለመፈጸም 3. ፌU KSKÑe 4. በተቃራኒ ጾታ ጓደኛዬግፊት/>’di’f 5. uÖ?” vKS<Á >’di’f /eKታ²²ልኝ 6. K?L/ ፌÑKê/-----	
418	እስከዛሬ ካለተመረመርከ/ሽ በሚቀጥሉት ሁለት	1. u×U öLÖf >K~	

	<p>ወራት ውስጥ የኤች.አይ ቪ.ምርመራ ለማድረግ ያለህ/ሽ ፍላጎት ምን ያህል ነው?</p>	<p>2. $\ddot{Y}V\ddot{L}\ddot{O}\ddot{A}M\ \ddot{o}L\ddot{O}f\ \succ K^{\sim}$</p> <p>3. $\ddot{Y}V\ddot{L}\ddot{O}\hat{A}M\ \ddot{o}L\hat{O}f\ \frac{3}{4}K^{\sim}U$</p> <p>4. $\ddot{o}L\hat{O}f\ \frac{3}{4}K^{\sim}U$</p> <p>5. $U^{\sim}U\ \ddot{o}L\hat{O}f\ \frac{3}{4}K^{\sim}U$</p> <p>88. አላዉቅም</p> <p>99. $SMe\ \frac{3}{4}KU$</p>	
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ይህ የቃለ-መጠይቁ ማጠቃለያ ነው፤ ጊዜህን/ሽን መስዋዕት በማድረግ ለጥያቄዎቻችን መልስ ስለሰጠህ/ሽና ስለ ቀና ትብብርህ/ሽ እጅግ እናመስግናለን !

DECLARATION FORM

LETTER FOR DECLARATION (Dissertation work)

I, the under signed, declared that this is my original work, has never been presented in this or any other University, and that all the resources and materials used for the dissertation, have been fully acknowledged.

Name: _____

Signature: _____

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Factors associated with HIV counseling and testing and correlations with sexual behavior of teachers in primary and secondary schools in Addis Ababa, Ethiopia

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Background: The HIV/AIDS pandemic is a global crisis that affects the lives of millions of people. Although HIV counseling and testing (HCT) serves as the entry point for HIV prevention, treatment, and care, it remains a low priority in many settings. The aim of this study, therefore, was to assess the factors associated with HCT and their correlation with the sexual behavior of primary and secondary school teachers in Addis Ababa.

Methods: A comparative cross-sectional study was conducted among primary and secondary school teachers in Addis Ababa, Ethiopia. A multistage sampling technique was used to select a representative sample of 1,136 teachers. HCT and sexual health behavior-related data were collected using a self-administered questionnaire. Binary logistic regression was employed to examine the relationships between HCT, sociodemographics, and risky sexual behavior-related variables.

Results: Of the 1,136 eligible study participants, 1,034 (91.0%) teachers completed the self-administered anonymous questionnaire. The proportion of teachers who had ever tested for HIV was 739/1,034 (71.5%; 95% confidence interval [CI] 69.1–74.2). Multivariate logistic regression analyses showed that being male (adjusted odds ratio [AOR] 0.63; 95% CI 0.44–0.90) was associated with a 37% decrease in odds of being ever tested for HIV compared with being female. Married teachers were less likely to have had HIV testing (AOR 0.30; 95% CI 0.19–0.47) compared with unmarried teachers. Being aged ≥ 45 years (AOR 4.05; 95% CI 1.82–9.03), having high HCT-related knowledge (AOR 3.56; 95% CI 1.73–7.32), and having a perceived risk of HIV (AOR 1.43; 95% CI 1.04–1.96) were positively associated with HCT. Moreover, regarding the correlation of HCT with the sexual behavior of teachers, those teachers who never had HCT were more likely to have multiple sexual partners than those who had ever had HCT (AOR 1.85; 95% CI 1.08–3.15). In contrast, teachers who had ever been tested for HIV were less likely to have used condoms consistently than those who had never been tested (AOR 0.55; 95% CI 0.32–0.96).

Conclusion: No significant differences were observed between primary and secondary school teachers regarding factors associated with HCT and its correlation with sexual behavior. Gender, age, marital status, knowledge of HCT, and perceived risk were found to be factors associated with HCT uptake. Correlations between being faithful to a partner, inconsistent use of condoms, and HCT uptake of teachers were also observed. Thus, strengthening the current practice of HCT services in the education sector with due emphasis on the observed factors could play a pivotal role in bringing about positive changes in the sexual behavior of school community.

Keywords: schools, teachers, human immunodeficiency virus, acquired immune deficiency syndrome, counseling and testing, factors, correlations

Introduction

The HIV/AIDS pandemic is a global crisis with consequences that will be felt for decades to come.¹ It is a critical development issue that affects the lives of millions of people.² Ethiopia is among the countries in the world that are most affected with HIV/AIDS, and the disease is one of the top ten causes of death in the country. The estimated number of people who were living with HIV/AIDS in 2013 was 793,700, including 200,300 children, according to the latest Spectrum/Estimation and Projection Package modeling.³ Moreover, there were estimated 45,200 AIDS-related deaths in 2013, and approximately 898,400 orphans in the same year.³⁻⁵ The HIV epidemic in Ethiopia is becoming more concentrated in urban areas and along major transport corridors. The higher prevalence in Addis Ababa and other large towns may be associated with labor migration to large urban areas.⁶

HIV/AIDS continues to be one of the top priorities on the health sector agenda for the Ethiopian government. To this end, the number of facilities providing HIV counseling and testing (HCT), prevention of mother-to-child transmission, and antiretroviral therapy services in the country is increasing annually. Of the total health facilities, 79% are providing HCT services, 57% prevention of mother-to-child transmission, and 24% antiretroviral therapy services.⁷

HCT is defined as the process by which an individual undergoes counseling enabling him or her to make an informed choice about being tested for HIV. It includes two complementary components, ie, client-initiated testing and provider-initiated testing. The former component refers to the well-known voluntary counseling and testing (VCT), while the latter provider initiates counseling and testing, and further includes testing in prevention of mother-to-child transmission and testing in other health care settings.⁸⁻¹¹

In Ethiopia, as a result of wide expansion of health facilities providing HCT services, a significant increase in HCT coverage has been achieved. For instance, more than 10 million people have been tested for HIV in 2014 (27% of HCT coverage among the adult population in 2014).⁷

Although the “ABC” rules are widely promoted as one of the HIV prevention strategies, the practice seems very poor and a lot still needs to be done, particularly among the young population segment, particularly in schools, students, and teachers.

Alarming, even though youth are knowledgeable about AIDS prevention measures, many of them do little to prevent it or to avoid other sexually transmitted diseases.¹² Studies in Ethiopia showed that youth both in school and out of school are indulging in risky sexual behavior. For example, a cross-

sectional study of youth in Ethiopia revealed that among those who had sexual intercourse, 58.5% reported using condoms and 32.6% underwent testing for HIV.¹³ Another cross-sectional study conducted among high school students in Gondar, north-west Ethiopia, showed that the prevalence of HIV and sexually transmitted infections was 1.1% and 10%, respectively. In this study, it was also shown that 17% of students had sex with casual partners and commercial sex workers.¹⁴

According to the Health Impact Evaluation conducted in Ethiopia in 2008, 48%, 50%, and 58% of women aged 15–24 years reported consistent condom use, limited sexual intercourse with one uninfected partner, and abstained from sex, respectively, as a means of preventing HIV infection.¹⁵

Need for strengthening of HCT in the education sector

Today, education sector is the most human intensive public sector in Ethiopia. Cumulatively, the sector has a total of 17,413,176 students, 314,524 teachers, and more than 80,000 non-teaching staff (constituting a total of more than 24% of the country's population).^{16,17} The fact that the sector deals with a large number of personnel (teachers, nonacademic staff, and students who are mainly young) makes it one of the sectors most affected by HIV/AIDS.¹⁸ It is widely argued that school teachers in Sub-Saharan Africa are badly affected by the HIV/AIDS epidemic, and heterosexual intercourse is considered as the major means of transmission of the disease in the region.^{18,19}

As in other Sub-Saharan countries, the education sector in Ethiopia is being severely compromised by the HIV pandemic. A 5% increase in death among teachers in Ethiopia has been noted between 1999 and 2001, some of which can be attributed to AIDS.²⁰ It is commonly suggested that teachers are more likely to engage in high-risk sexual behavior compared with the rest of the adult population. As the majority of teaching professionals in primary and secondary schools are relatively young, they are in the highest HIV prevalence age cohorts.^{21,22} It is also believed that some younger secondary school teachers have more exposure to risky sexual behavior or multiple sexual partners than their primary school counterparts because of potential sexual relationships with their female students. Furthermore, secondary school teachers are relatively well-off, especially when they are posted in rural areas. Hence, they have more chances to be involved in risky sexual practices, such as having multiple sexual partners and/or paid sex from nearby small towns.²²

On the other hand, primary schools have more female teachers when compared with secondary schools. As various studies and reports witnessed the HIV prevalence and HCT uptake are more prevalent among females compared with males mainly due to differences in some of the biological, social, and economic factors.²³ Hence, we can expect variation in the level of exposure to risky sexual behavior as well as in factors associated with HCT among primary and secondary school teachers. A study conducted among teachers in Tanzania on VCT utilization showed that, of 918 primary school teachers who participated in the survey, 80% had never tested their HIV status.²⁴ Another study conducted in the Harari region in Ethiopia on HCT utilization among teachers showed that 46.3% of the study participants were tested for HIV.²⁵ The odds of having tested for HIV increased with being female and being younger than 35 years.²⁵ A study conducted in Kenya among secondary school teachers indicated an HCT utilization rate of 30.5%.²⁶ Younger and less experienced teachers were more likely to utilize HCT services than their older and more experienced counterparts.²⁶

Although HCT service utilization among the general population is increasing from year to year, research in Ethiopia shows that utilization of voluntary HCT is low and its level of utilization varies among different segments of the population.^{27–29}

The national demographic and health survey conducted in Ethiopia in 2011 showed that 66% of women and 82% of men knew where to get an HIV test, but only 36% of women and 38% of men have ever been tested for HIV and received their test results.⁶ Never-married respondents who have ever had sex were more likely to have taken the test and received results (69% of women and 58% of men) than those currently or previously in a union. Overall, about six in every ten Ethiopians (61% of women and 59% of men) have never been tested for HIV.⁶

Nevertheless, knowledge of one's HIV status is vital for individuals to receive HIV-related health care.⁶ Currently, many people with HIV do not know that they are infected. Those who test late often start antiretroviral therapy when they are already significantly immune-compromised. This results in poor health outcomes and continuance of HIV transmission. The value of HCT depends on linking people to services that are acceptable, accessible, and effective.³⁰

According to the Demographic and Health Surveys conducted between 2007 and 2009, a median 33.6% of women and 17.2% of men in 18 low-income and middle-income countries had ever tested for HIV.³¹ In many settings, women have greater access to HCT services due to their more

frequent contact with health services than men.³¹ Gender has been found to be a significant predictor of VCT. Adult men are more likely to report psychological deterrents to utilization of VCT than their female counterparts.⁹

A study conducted in Ghana indicated that the effects of sociodemographic characteristics on acceptance of HIV were not statistically significant.¹⁰ A study conducted in Ethiopia on health professionals showed that subjective norm (what other people in the area think about the others), and attitude (individual's internal feelings) were strongly associated with the intention to go for VCT.¹¹ However, none of the sociodemographic factors showed statistically significant associations with intention to use VCT.¹¹ Another study reported that VCT acceptance was higher among currently married persons, but it was not significantly associated with age, gender, or perception of HIV risk.³²

Many studies have indicated a change in reported sexual behavior following HIV testing.^{33–35} For instance, in Uganda, utilization of HCT was responsible for changes in behavior with regard to condom use with casual partners. Studies of serodiscordant couples in several high prevalence African countries (Kenya, Rwanda, Democratic Republic of Congo, and Zambia) also showed that attending HCT leads to a consistent and significant reduction of risky sexual behavior and prevents transmission of HIV to negative partners.^{36–38} Nevertheless, another study done in rural Uganda reported no significant differences in risky sexual behavior or in incidence of HIV between acceptors and non-acceptors of VCT.³²

However, a meta-analysis of seven studies provided evidence in support of VCT as a moderately effective strategy for reducing risky sexual behavior in developing countries.³⁹ The available evidence also suggests that HCT can have an effect in terms of reducing episodes of unprotected sex and the number of sexual partners.^{40–42} As other studies revealed, although HCT did not have an overall effect on condom use, in most cases people who received HCT reported an increase in condom use compared with those who did not receive HCT.^{42,43} On the other hand, in a study conducted in Kenya, there was an increased likelihood of unprotected sex among women who had never been pregnant following HCT.⁴⁴ Another study in Ethiopia also showed that testing had no significant effect on condom use or abstinence.⁴⁵

Despite the fact that there is good evidence that HCT can be an effective strategy for behavior change in people infected with HIV, HCT remains a low priority in many places, including schools, where the most reproductive and productive segment of any population is found.⁴⁶ Further, as previous researchers have suggested, the uptake of VCT can

be influenced by numerous characteristics, including social factors, fear of stigma, and differing cultural contexts.^{24–32}

In general, the importance of HCT as the entry point for provision of medical care and psychosocial support is undeniable. Apart from providing the opportunity to prolong life, HCT also potentially facilitates prevention of the disease. However, there is some debate about the effects of HCT, and two questions dominate the research field: firstly, the question of whether HCT is helpful as a prevention strategy; secondly, the question of identification of factors that prevent people from seeking HCT. In addition, in light of the rapidly expanding and diversifying field of HCT, it is important to evaluate the potential predictors of HCT service utilization and its significance as an entry point into HIV prevention, care, and treatment.

The purpose of this study was to identify factors associated with HCT and its correlation with sexual behavior in teachers in Addis Ababa, Ethiopia.

Materials and methods

Study design and setting

This was a comparative cross-sectional study conducted in primary and secondary schools from March to June, 2013, in Addis Ababa, the capital city of Ethiopia. According to the national census of 2007, with an annual growth rate of 3.8%, the projected population of Addis Ababa for 2014 was 3,384,569, of which 52.4% were female.⁴⁷ The capital city is administratively divided into ten subcities (known as *kifle ketemas*) and 116 districts (known as *woredas*).⁴⁸ There were 745 primary and 163 secondary schools (both government and non-government) in Addis Ababa. The numbers of teachers for 2012/2013 were 14,893 (44.4% female) in primary schools and 5,651 (17.2% female) in secondary schools.²³

Sampling procedure

In this study, all ten subcities in Addis Ababa and their respective primary schools (grades 1–8) and secondary schools were included. In order to get a representative sample from the students and teachers, multistage and multiphase random sampling techniques with reasonable formulas of assumptions and 15% contingency were used in order to address all the five interrelated specific objectives of a PhD study.

Accordingly, the required number of schools from each of the ten subcities were selected proportionately, using systematic sampling techniques. Thus, 76 primary and 27 secondary schools were selected in phase 1. In phase 2, 30 schools (15 primary and 15 secondary schools) were randomly selected for this specific study. In phase 3, four

secondary schools were purposively selected for addressing a quasi-experimental study design.

Among all public primary and secondary schools in Addis Ababa that satisfied the inclusion criteria, 15 randomly selected primary and 15 randomly selected secondary schools from the different subcities participated in this comparative cross-sectional study, which assessed determinants for HCT and its effects on sexual behavior, using uptake of HCT by teachers as a major outcome variable. The required sample size was calculated using two population proportion formulas with a 5% type I error and 80% power, where n_1 is primary school teachers, n_2 is secondary school teachers, P_1 is the prevalence of HCT uptake by primary school teachers ($=0.20$, taken from a study in Tanzania),^{24,49} P_2 is the prevalence of HCT among secondary school teachers ($=0.31$ taken from a study in Kenya),²⁶ r is the ratio of $n_2:n_1$ ($=1$), and $P=(0.20+0.31)/2$ ($=0.26$). The result was then multiplied by a design effect of 2 ($D=2$) and after that 15% contingency was added for the possible nonresponse rate. Thus, the calculated sample size was $494+74=568$ teachers from each of the comparison schools, giving a total sample size of 1,136.

Moreover, in order to compare factors associated with HCT and its correlations with sexual behaviors among teachers, equal numbers of primary and secondary school teachers were selected for the study. This was done because of not only the differences in levels or subjects being taught (being from primary or secondary schools), but also due to the possible differences in their academic status. Today, in Ethiopia, all the teachers in secondary schools are expected to have at least first degree in their subjects to teach, unlike those in primary schools who might have a certificate or diploma level of academic background.

Selection criteria

All government-owned primary schools with complete first and second cycles (grades 1–8) and secondary schools in Addis Ababa established before 2005 and had at least 40 teaching staff during the 2010/2011 academic year were eligible for the study. Teachers in these schools during the study period who volunteered to participate were included. Teachers who were severely ill were not able to participate.

Data collection and quality control

The study data were collected using a self-administered questionnaire containing several sections dealing with various variables related to sociodemographics and sexual behavior. The questionnaire was prepared in English and then translated into the local official language, Amharic. The questionnaire

was pretested in two primary and two secondary schools that were not selected for the study. The necessary corrections were then made in language and content. The data were collected by 12 diploma graduate nurses under the supervision of two senior health professionals who were also working as instructors in health colleges.

Two days of training was given for the data collectors and supervisors by the principal investigator. The data quality was assured by giving training to data collectors and supervisors, pretesting the questionnaires, and conducting close, immediate, and daily supervision. The collected data were checked for completeness and consistency by the supervisors and the principal investigator every day.

Accordingly, the study participants responded mainly to the following HCT-related and sexual behavior-related variables: sex, age, religion, marital status, work experience, monthly income, HIV/AIDS-related knowledge, HCT-related knowledge, attitude toward “ABC” rules, history of sexual exposure, HCT uptake, and history of condom use and multiple sexual partners in the previous year. Further, the choice of variables included in bivariate analysis was based on theoretical knowledge and statistical significance ($P < 0.05$).

Ethical considerations

Ethical clearance was obtained prior to the study from the institutional review board of the College of Health Sciences at Addis Ababa University. An official letter of cooperation was written from the School of Public Health of Addis Ababa University to the Addis Ababa City Administration Education Bureau. The bureau wrote letters of cooperation to all concerned, including the selected study schools.

Written consent was obtained from individual participants after they had been fully informed about the purpose of the study and the procedure used for data collection. No names or other identifying information were included in the data collection to ensure confidentiality and anonymity. We adhered as far as possible to basic ethical principles, including respect for persons/autonomy, beneficence, and justice, and no ethical issues or challenges arose during data collection.

Data analysis

The data were entered and cleaned using Epi-Info software version 3.5.4 and then transported to Statistical Package for the Social Sciences version 20.0 software for analysis. Various study variables were chosen for statistical analysis. Descriptive statistics such as frequencies and proportions

were used to describe the study population in relation to relevant variables.

The dependent variables, ie, ever had HCT and willingness to go for it in the near future for those never tested, and the independent variables used for statistical analyses of this study were selected based on knowledge of theory and the statistical significance of the findings reported in previous studies.

In addition, in order to assess the correlations of HCT with sexual behavior of the study participants, ever being tested for HCT and some selected sociodemographic and sexual behavior related independent variables such as age, sex, and attitude towards ABC, rules were used with the dependent or outcome variables (the number of sexual partners and using condoms in previous 12 months).

Furthermore, bivariate analyses were conducted among sexual behavior related variables, such as exposure and history of having tested for HIV, and willingness to be tested in the near future as outcome variables. The sexual behavior related outcome variables (number of sexual partners and history of condom use) with some sexual behavior related and sociodemographic factors such as age, sex and attitude towards ABC rules, were also included in the bivariate analyses.

A stepwise multivariate logistic regression model was then used to assess the associations among the outcome variables and the suspected factors. The variables in the multivariate model were chosen based on the statistical significance found during bivariate analyses. Thus, variables found to have P -values less than 0.05 were considered to be statistically significant.

Further, for identifying factors associated with HCT uptake of primary or secondary school teachers, the variable level of school (being a primary or secondary school teacher) was adjusted for some of the selected sociodemographic factors like sex and age. In addition, for examining HCT correlations with reported number of sexual partners and consistent use of condoms, the variable, ever had HCT, was adjusted for some of the selected sociodemographic factors like age and sex too.

Results

Sociodemographic characteristics of study participants

Of the 1,136 eligible teachers, 1,034 (91.0%) completed the self-administered questionnaire (Table 1). Of the 568 teachers from primary schools, 515 (90.7%) completed the questionnaire, as did 519 (91.4%) of the 568 teachers from secondary schools.

Table 1 Sociodemographic characteristics of study participants from primary and secondary schools in Addis Ababa, Ethiopia, March to June 2013

Variable	Overall n=1,041	Primary school		Secondary school		χ^2 test P-values
	n (%)	n	%	n	%	
Sex						
Male	684 (66.2)	280	54.4	404	77.8	0.000
Female	350 (33.8)	235	45.6	115	22.2	
Age, years						
18–24	208 (21.3)	153	31.6	55	11.2	0.000
25–34	552 (56.6)	235	48.6	317	64.4	
35–44	95 (9.7)	39	8.1	56	11.4	
≥45	121 (12.4)	57	11.8	64	13.0	
Religion						
Orthodox	762 (73.7)	405	78.6	357	68.8	0.001
Protestant	165 (16.0)	68	13.2	97	18.7	
Muslim or other	107 (10.3)	42	8.2	65	12.5	
Ethnicity						
Amhara	572 (55.3)	309	60.0	263	50.7	0.008
Oromo	236 (22.8)	97	18.8	139	26.8	
Tigrie	110 (10.6)	55	10.7	55	10.6	
Other	116 (11.2)	54	10.5	62	11.9	
Marital status						
Single	662 (64.0)	332	64.5	330	63.6	0.60
Married	335 (32.4)	162	31.5	173	33.3	
Other	37 (3.6)	21	4.1	16	3.1	
Educational status						
Diploma and below	342 (33.1)	325	63.2	17	3.3	0.000
First degree	642 (62.1)	188	36.6	454	87.5	
Second degree and above	49 (4.7)	1	0.2	48	9.2	
Teaching experience, years						
≤5	111 (10.8)	69	13.5	42	8.1	0.000
6–10	398 (38.7)	205	40.0	193	37.4	
11–20	267 (26.0)	139	27.1	128	24.8	
≥21	252 (24.5)	99	19.3	153	29.7	
Monthly salary/income, birr						
≤1,500	178 (20.6)	147	35.0	31	7.0	0.000
1,501–2,500	516 (59.6)	232	55.2	284	63.7	
2,501–3,500	112 (12.9)	35	8.3	77	17.3	
≥3,501 birr	60 (6.9)	6	1.4	54	12.1	
Ever tested for HIV						
Yes	739 (71.7)	381	74.3	358	69.2	0.07
No	291 (28.3)	132	25.7	159	30.8	
Not ever tested, intention to test						
Yes	134 (46.5)	57	44.2	77	48.4	0.68
No	154 (53.5)	72	55.8	82	51.6	

Females constituted 350 (33.8%) of the total participants, and the majority 760 (73.3%) of teachers were in the most productive and reproductive age group (18–34 years, Table 1). The gender and age compositions of the teachers observed in this study were consistent with the annual reports from the Addis Ababa City Administration Education Bureau and Ministry of Education in Ethiopia.

In addition, 762 (73.7%) of the study participants were Orthodox Christian, 165 (16.0%) were Protestant, and 107 (10.3%) were Muslim, with the remainder following other

religions. Regarding ethnicity, 572 (55.3%) were Amhara, 236 (22.8%) were Oromo, 110 (10.6%) were Tigrie, and 116 (11.2%) were from other ethnic groups. With regard to marital status, 662 (64.0%) were single, 335 (32.4%) were married, and 37 (3.6%) belonged to categories (divorced, widowed, or separated). A total of 342 (33.1%) were certificate or diploma holders, 642 (62.1%) were bachelor's degree holders, and 49 (4.7%) were master's degree holders. Further, 519 (50.2%) had been teaching for more than 10 years and 694 (67.1%) were earning ≤2,500 birr per month (Table 1).

Factors associated with HCT

Among the study participants from primary and secondary schools, the proportion of lifetime undertaking of HCT was 739/1,034 (71.5%, 95% confidence interval [CI] 69.1–74.2). When teachers were classified by school level, the proportions undertaking HCT were 381/513 (74.3%) and 358/517 (69.2%) among primary and secondary school teachers, respectively (Table 1).

Of those teachers never tested for HIV until the survey, 134/288 (46.5%, 95% CI 40.1–52.2) showed interest to go

for testing in the near future. In addition, when teachers who had never had HCT were classified by school level, the proportions of reported willingness to go for HCT were 57/129 (44.2%) and 77/159 (48.4) among primary and secondary school teachers, respectively (Table 1).

Table 2 shows descriptive data for factors associated with HCT uptake among primary and secondary school teachers. The multivariate regression analyses in Table 2 show that male gender was associated with a 37% decrease in being ever tested for HIV compared with female teachers (adjusted

Table 2 Factors independently associated with HCT in primary and secondary school teachers in Addis Ababa, Ethiopia, March to June 2013

Factor	Ever tested for HIV n=1,034				Willing to go for HCT in next 2 months n=293			
	Yes n (%)	No n (%)	COR 95% CI	AOR 95% CI	Yes n (%)	No n (%)	COR 95% CI	AOR 95% CI
Schooling								
Primary	381 (74.3)	132 (25.7)	I	I	57 (44.2)	72 (55.8)	I	I
Secondary	358 (69.2)	159 (30.8)	1.28 (0.98–1.68)	1.09 (0.80–1.50)	77 (48.4)	82 (51.6)	0.84 (0.53–1.34)	0.73 (0.39–1.35)
Sex								
Female	277 (78.5)	76 (21.5)	I	I	41 (56.2)	32 (43.8)	I	I
Male	467 (68.3)	217 (31.7)	0.59 (0.48–0.80)	0.63 (0.44–0.90)	94 (43.3)	123 (56.7)	0.60 (0.35–1.01)	0.44 (0.22–0.90)
Age, years								
18–24	149 (72.0)	58 (28.0)	I	I	27 (46.6)	31 (53.4)	I	I
25–34	411 (74.3)	142 (25.7)	0.89 (0.62–1.27)	0.93 (0.61–1.41)	71 (50.7)	69 (49.3)	0.85 (0.46–1.56)	0.97 (0.44–2.17)
35–44	72 (74.2)	25 (25.8)	0.89 (0.52–1.54)	1.22 (0.57–2.62)	8 (32.0)	17 (68.0)	1.85 (0.69–4.96)	1.1 (0.28–4.31)
≥45	73 (59.8)	49 (40.2)	0.52 (0.29–0.93)	4.05 (1.82–9.03)	22 (45.8)	26 (54.2)	1.03 (0.48–2.22)	0.54 (0.12–2.57)
Religion								
Orthodox	539 (70.8)	222 (29.2)	I	I	108 (49.3)	111 (50.7)	I	I
Protestant	124 (73.8)	44 (26.2)	0.86 (0.59–1.26)	0.86 (0.57–1.31)	20 (45.5)	24 (54.5)	1.17 (0.61–2.24)	1.12 (0.46–2.71)
Muslim or other	81 (75.0)	27 (25.0)	0.81 (0.51–1.29)	0.67 (0.40–1.13)	7 (25.9)	20 (74.1)	2.78 (1.13–6.84)	2.57 (0.81–8.16)
Marital status								
Single	446 (67.4)	216 (32.6)	I	I	102 (47.2)	114 (52.8)	I	I
Married	268 (79.3)	70 (20.7)	0.54 (0.40–0.74)	0.30 (0.19–0.47)	30 (43.8)	37 (55.2)	1.10 (0.64–1.91)	0.82 (0.29–2.29)
Other	30 (81.1)	7 (18.9)	0.48 (0.21–1.11)	0.22 (0.07–0.63)	3 (42.9)	4 (57.1)	1.19 (0.26–5.46)	1.17 (0.13–10.33)
Work experience, years								
≤5	86 (77.5)	25 (22.5)	I	I	7 (28.0)	18 (72.0)	I	I
6–10	282 (71.2)	114 (28.8)	1.39 (0.85–2.28)	1.54 (0.90–2.63)	63 (55.8)	50 (44.2)	0.31 (0.12–0.80)	0.35 (0.11–1.07)
11–20	199 (74.5)	68 (25.5)	1.18 (0.70–1.98)	1.52 (0.84–2.74)	31 (46.3)	36 (53.7)	0.45 (0.17–1.22)	0.55 (0.17–1.86)
≥21	169 (66.8)	84 (33.2)	1.71 (1.02–2.87)	1.68 (0.77–3.67)	33 (39.8)	50 (60.2)	0.59 (0.22–1.57)	1.03 (0.23–4.67)
Knowledge of HIV/AIDS								
Low	4 (66.7)	2 (33.3)	I	I	1 (50.0)	1 (50.0)	I	I
High	740 (71.8)	291 (28.2)	1.27 (0.23–6.98)	0.29 (0.03–3.11)	134 (46.5)	154 (53.7)	0.87 (0.05–14.03)	
Knowledge of HCT								
Low	18 (46.2)	21 (53.8)	I	I	125 (46.6)	143 (53.4)	I	I
High	726 (72.7)	272 (27.3)	3.11 (1.63–5.93)	3.56 (1.73–7.32)	10 (45.5)	12 (54.5)	1.05 (0.44–2.51)	1.36 (0.47–3.96)
Perceived risk of HIV								
No	456 (70.0)	195 (30.0)	I	I	94 (48.5)	100 (51.5)	I	I
Yes	279 (74.6)	95 (25.4)	1.26 (0.94–1.67)	1.43 (1.04–1.96)	40 (43.0)	53 (57.0)	0.80 (0.49–1.32)	1.01 (0.54–1.90)
Fear of stigma, discrimination								
No					47 (57.3)	35 (42.7)	I	I
Yes					73 (44.2)	92 (55.8)	0.59 (0.35–1.0)	0.89 (0.43–1.86)
Fear of confidentiality								
No					40 (67.8)	19 (32.2)	I	I
Yes					84 (43.3)	110 (56.7)	0.36 (0.20–0.67)	0.51 (0.23–1.12)

Abbreviations: AOR, adjusted odds ratio; COR, crude odds ratio; HCT, HIV counseling and testing.

odds ratio [AOR] 0.63, 95% CI 0.44–0.90). Teachers aged 45 years and older were about four times more likely to have had HIV testing compared with their younger counterparts (AOR 4.05; 95% CI 1.82–9.03). Married (AOR 0.30, 95% CI 0.19–0.47) and other, ie, separated, divorced, or widowed (AOR 0.22; 95% CI 0.07–0.63) teachers were less likely to have undergone HIV testing compared with their unmarried counterparts. Moreover, teachers with high HCT-related knowledge and perceived risk of HIV were more likely to have undergone HCT compared with their less aware counterparts (AOR 3.56, 95% CI 1.73–7.32 and AOR 1.43, 95% CI 1.04–1.96, respectively, Table 2).

On the other hand, of the variables entered into the multivariate logistic regression model to determine factors associated with willingness to go for HCT, only being male (AOR 0.44, 95% CI 0.22–0.90) showed statistically

significant or negative associations. However, there was no follow-up done and this was based merely on self-reported intentions of study subjects (Table 2). Although fear of stigma and discrimination (OR 0.59, 95% CI 0.35–1.0) and fear of confidentiality of HIV test results (OR 0.36, 95% CI 0.20–0.67) showed statistically significant but negative associations with interest to go for HCT during bivariate logistic regression analyses, the variables lost their statistical significance during multivariate analyses.

Correlations between HCT and sexual behavior

Table 3 presents the results of multivariate logistic regression analyses of associations between being tested for HIV (adjusted for some selected sociodemographic and HIV/AIDS-related variables as explanatory variables) and risky

Table 3 Correlation between HCT uptake and sexual behavior of primary and secondary school teachers in Addis Ababa, Ethiopia, 2013 (n=739)

Factors	Multiple sexual partners in previous 12 months n (%)			Consistent condom use in previous 12 months n (%)		
	Yes	No	AOR 95% CI	Yes	No	AOR 95% CI
Ever had HCT						
Yes	81 (18.8)	351 (81.3)	1	117 (27.3)	311 (72.7)	0.55 (0.32–0.96)
No	44 (31.2)	97 (68.8)	1.85 (1.08–3.15)	64 (45.4)	77 (54.6)	1
Sex						
Female	18 (9.9)	163 (90.1)	0.42 (0.21–0.84)	27 (15.2)	151 (84.8)	1
Male	108 (27.5)	285 (72.5)	1	154 (39.5)	238 (60.7)	2.33 (1.2–4.39)
Age, years						
18–24	24 (30.4)	55 (69.6)	1	31 (39.2)	48 (60.8)	1
25–34	71 (23.3)	234 (76.7)	0.59 (0.31–1.12)	127 (41.1)	182 (58.9)	0.69 (0.36–1.32)
35–44	10 (15.4)	55 (84.6)	0.47 (0.15–1.46)	8 (12.5)	56 (87.5)	2.01 (0.61–6.57)
≥45	8 (8.6)	85 (91.4)	0.33 (1.0–1.15)	12 (13.5)	77 (86.5)	0.85 (0.26–2.76)
Religion						
Orthodox	96 (22.4)	332 (77.6)	1	149 (34.7)	280 (65.3)	1
Protestant	15 (16.5)	76 (83.5)	1.08 (0.52–2.23)	21 (24.1)	66 (75.9)	1.09 (0.53–2.24)
Muslim or other	15 (27.3)	40 (72.7)	1.64 (0.75–3.58)	11 (20.4)	43 (79.6)	1.83 (0.79–4.24)
Marital status						
Single	90 (35.0)	167 (65.0)	1	149 (57.8)	109 (42.2)	11.02 (5.99–20.27)
Married	30 (10.0)	269 (90.0)	0.34 (0.18–0.63)	27 (9.2)	267 (90.8)	1
Other	6 (33.3)	12 (66.7)	2.0 (0.49–8.27)	5 (27.8)	13 (72.2)	3.53 (0.79–15.76)
Monthly income, birr						
≤1,500	19 (21.6)	69 (78.4)	1	36 (40.9)	52 (59.1)	1
1,501–2,500	72 (26.2)	203 (73.8)	1.43 (0.72–2.87)	101 (36.7)	174 (63.3)	1.17 (0.61–2.26)
2,501–3,500	13 (17.8)	60 (82.2)	1.73 (0.59–5.09)	18 (24.7)	55 (75.3)	0.70 (0.25–1.94)
≥3,501	5 (9.4)	48 (90.6)	1.09 (0.26–4.62)	7 (13.5)	45 (86.5)	1.47 (0.37–5.78)
Attitude toward “ABC” rules						
Positive	120 (21.5)	439 (78.5)	1		376 (67.9)	1
Negative	6 (40.0)	9 (60.0)	1.80 (0.40–8.12)	3 (18.8)	13 (81.3)	3.32 (0.59–18.67)
Schooling						
Primary	58 (22.1)	205 (77.9)	1	79 (30.6)	179 (69.4)	1
Secondary	68 (22.1)	239 (77.9)	0.86 (0.50–1.46)	101 (32.7)	208 (67.3)	1.03 (0.61–1.75)

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; HCT, HIV counseling and testing.

sexual behavior-related outcome variables (multiple sexual partners and consistent use of condom in the previous year). Thus, teachers who had never had HCT were more likely to have multiple sexual partners than those who had had HCT (AOR 1.85, 95% CI 1.08–3.15). However, female gender (AOR 0.42, 95% CI 0.21–0.84), age 45 years or older (AOR 0.33, 95% CI 1.0–1.15), and being married (AOR 0.34, 95% CI 0.18–0.63) decreased the odds of involvement in multiple sexual partnerships by 58%, 67%, and 66%, respectively, when compared with males, younger age groups, and unmarried teachers (Table 3).

Further, regarding using condoms consistently as one of the factors associated with HCT uptake, teachers ever tested for HIV (AOR 0.55, 95% CI 0.32–0.96) were less likely to have used condoms consistently during sexual intercourse compared with those who were never tested. However, male teachers were more likely to use condoms regularly than females (AOR 2.33, 95% CI 1.2–4.39, Table 3). Unmarried teachers were also more likely to have used condoms consistently than married teachers in the previous 12 months (AOR 11.02, 95% CI 5.99–20.27, Table 3).

Discussion

This comparative cross-sectional study was conducted among primary and secondary school teachers. It assessed factors associated with HCT and its correlation with sexual behavior. HCT uptake among teachers in Addis Ababa (71.7%) is significantly high when compared with the national prevalence of HCT in the adult population of Ethiopia.⁶ However, it is not in agreement with previous studies reporting a low prevalence of HCT utilization in many low-income countries, including Ethiopia.^{24–31} The proportion of HCT uptake was slightly higher among female study participants than their male counterparts. This could be explained in terms of women being more likely to contact health services for family planning and/or pregnancy-related issues. It is also consistent with the findings of Demographic and Health Surveys conducted in 18 low-income and middle-income countries.³¹

In this study, being ever tested for HIV was significantly associated with the gender, age, and marital status of teachers. Teachers aged 45 years or older were more likely to have had HIV testing compared with the younger age categories. However, this finding is not in agreement with that of similar studies.^{8,26}

Married, widowed, divorced, and/or separated teachers were less likely to go for HCT than unmarried teachers. This may be explained in terms of their probable current or perceived risk of contracting HIV and fear of the possibility

of being positive. However, our findings were not consistent with the findings of other studies conducted in different countries, including Uganda that had reported that no socio-demographic factor showed statistically significant associations with HCT uptake.^{10,11} Teachers with a high knowledge of HCT were more likely to use HCT services than those with low knowledge of HCT. This finding is in line with many previous reports.^{30,50,51}

Perceived risk of HIV also showed a positive association with being ever tested. This may be explained in terms of the role of better self-awareness among teachers for timely interventions for certain health-related challenges. Moreover, among the never tested teachers, males were less likely to go for HCT in the 2 months following this study. This finding is in agreement with another report.⁹ However, it is not in agreement with the findings of studies reporting no relationship between sociodemographic factors and intention of HCT uptake.^{11,32}

Further, this study examined correlations of HCT with change in the sexual behavior of primary and secondary school teachers, and found a significant association between being never tested for HIV and having multiple sexual partners in the previous 12 months. This finding could be explained by the fact that those who tested negative for HIV may have developed more confidence to perform unprotected sexual intercourse, and also may have decided to practice the rule of being faithful as one of the important methods of HIV prevention. This was also reported in previous studies conducted in Ethiopia and Kenya, where the likelihood of having sexual intercourse increased among those who tested negative and the prevalence of unprotected sex increased among non-pregnant women following HCT.^{44,45}

The low level of condom use by women after collecting HIV-negative test results could be explained in terms of low awareness about the possibility of being infected by the virus in the future and considering being negative as a license for unprotected sex or it might be due to individual's decision to practice the rule of being faithful to a partner and enjoying sex without a condom.⁴⁵

Over 81% of teachers who were ever tested for HIV reported that they had only one sexual partner in the 12 months prior to the survey. This indicates that a very significant number of teachers tested for HIV were faithful to their partners. This finding is in agreement with those of studies conducted in Nigeria and other countries.^{33–39,42} However, it is not in agreement with other studies that reported no or little change in risky sexual behavior following HCT.^{32,44,45} Of the teachers who had ever had HCT, females were more

likely to have limited themselves to only one sexual partner during the year preceding the study.

Further, the findings of this study showed that using condoms consistently during sexual intercourse was less likely among teachers who were ever tested for HIV compared to those who were never tested. However, this result is consistent with those of studies conducted previously in Kenya and Ethiopia that reported an increase in numbers of people having unprotected sex following HCT.^{44,45} Nevertheless, male teachers and unmarried teachers were more likely to use condom consistently after having HCT compared with their respective counterparts. These findings are also consistent with those reported previously.^{36–38,42,43}

The strengths of this study are: using multistage sampling technique that covered all the ten sub-cities and their respective districts in the capital city (Addis Ababa); large sample size of over 1,130 teachers with proportionate allocation of number of study participants to the size of teaching staff in each randomly selected school during the study period; study participants being from both the primary and secondary schools; teachers being more educated comparing with other population segment; and data collectors and supervisors being health professionals with diploma and above educational background.

Limitations of the study

Given that the information for this study was self-reported, with no way of cross-checking for validity, the observed relationships should be evaluated further. Since most of the variables were related to sexual behavior and thus sensitive, some degree of recall and/or social desirability biases are likely to have occurred during self-reporting. Also, considering that the study subjects were teachers with better educational status when compared with the general population, the generalizability of our results may be limited.

Conclusion

This study provides some insight into the determinants and effects of HCT among primary and secondary school teachers. As the findings suggest, a very encouraging number of study participants experienced lifetime HCT. Gender, age, marital status, knowledge of HCT, and perceived risk of HIV were significantly associated with being ever tested for HIV and intention to attend for a test. Further, being tested for HIV was correlated with limiting the number of sexual partners to one. In contrast, the observed high proportion of inconsistent condom use among those teachers who ever had HCT was its unintended outcome. In general, findings related to more positive sexual behavior were observed among the study participants, although no statistically significant

differences were found between teachers in primary and secondary schools regarding factors associated with HCT and its correlation with sexual behavior.

Although teachers are expected to play a key role in the campaign against HIV and to be role models for their students and the community they live in, approximately 30% of them were not tested for HIV until the survey. Therefore, due emphasis should be given to strategies for increasing HCT coverage by government and non-governmental organizations involved in the education sector of the country. Further, strengthening the current practice of HCT intervention in the education sector with due emphasis on its observed factors and correlations could play pivotal role in bringing about positive changes in the sexual behavior of the school community in general and that of teachers in particular. Finally, in order to assess further the effects of HCT, studies that include nationally representative samples and have strong cohort and longitudinal designs are recommended.

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Disclosure

The authors report no conflicts of interest in this work.

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ORIGINAL ARTICLE

THE TREND OF HIV/AIDS RELATED MORTALITY AMONG PRIMARY AND SECONDARY SCHOOL TEACHERS IN ADDIS ABABA, ETHIOPIA: USING A VERBAL AUTOPSY METHOD

Takele Menna¹, Ahmed Ali², Alemayehu Worku²

ABSTRACT

Background: It is widely argued that school teachers in sub-Saharan Africa are being affected and will continue to be affected by the AIDS epidemic. Teachers are considered as a high-risk group with respect to HIV/AIDS, particularly in high prevalence countries, where the epidemic has devastating impact on the teaching profession

Objective: The aim of this study was to examine the trends of mortality among primary and secondary school teachers in Addis Ababa during this era of HIV/AIDS.

Methods: Data on teachers who died from November 2005 to October 2012 retrospectively and a longitudinal data for the new deaths during the year followed prospectively (November 2012 to October 2013) were included in the trend analysis. The data were obtained from family members or care givers of 146 deceased teachers.

Each completed verbal autopsy questionnaire was reviewed by two physicians independently. When assigned causes for deaths of teachers by two physicians were not in agreement, then the cases were given to a third physician/Internist/. Cases with inconsistent causes of deaths by three physicians were labeled as “undetermined”. Extended Mntel-Haenszel Chi-square for linear trend was used to check the significance of the trend by using SPSS version 20 and Open EPI software.

Results: The trend of total and HIV-related mortality among teachers declined from 45 (31%) to 22(15.2%) and 15 (10.3%) to 4(2.7%) during the first two years /Nov.2005-Oct.2007/ and the last two years /Nov.2011- Oct.2013/of the study period, respectively. Similarly, the proportionate mortality ratio between the total and HIV/AIDS related mortality declined from 0.33 to 0.18 during the corresponding period. The decline in the HIV/AIDS related mortality was statistically significant with Mantel Haenszel Chi-square=7.04(P<0.01).

Conclusions: The findings of this study demonstrated a statistically significant decline in total and HIV/AIDS related mortality among teachers in Ethiopia in the last 8 years. However, we suggest nationwide study on the impact of HIV/AIDS in the education sector for more representative data and better interventions.

Keywords: Primary and Secondary, Schools, Teachers, Trend, Mortality, HIV/AIDS, Ethiopia

INTRODUCTION

HIV/AIDS strikes people at the prime of their lives [1]. Every day, 4,900 people die from HIV/AIDS and other 7,100 people are infected with the HIV virus [2]. There were an estimated 2.3 million new HIV infections with 1.6 million AIDS deaths worldwide in the year 2012 [3].

Africa has been hit harder by HIV/AIDS than any other region in the world. Two-thirds of people living with HIV/AIDS and three-quarters of deaths from HIV/AIDS are in sub-Saharan Africa [4]. In developing countries, as reported by WHO, the existing challenges of communicable diseases, such as HIV/AIDS

and Tuberculosis, are worsened by the changes in socioeconomic, behavioral and lifestyle factors among their population [5]. For instance, the findings of a study conducted in Addis Ababa, Ethiopia, showed that non-communicable diseases caused about half of the total adult deaths [6].

HIV/AIDS is the leading cause of death in sub-Saharan Africa and the fourth largest killer worldwide. Among the victims of the pandemic are teachers, health workers, and farmers. The epidemic forced the closure of schools and clinics and threatened food security in the most infected and affected parts of the world [7]. HIV-related deaths are complex to count, since HIV positive individuals are frequently affected by other diseases as a result of being immunologically compromised.

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However, verbal autopsy (VA) has become a widely established approach for characterizing cause of death in settings where individual deaths are not routinely certified as a cause, with a variety of methods being used for both interview and interpretation phases [8]. It is widely argued that school teachers in sub-Saharan Africa are being affected and will continue to be affected by the AIDS epidemic. Teachers are considered a high-risk group with respect to HIV/AIDS, particularly in high prevalence countries, where the epidemic has devastating impact on the teaching profession [9].

According to a report from Tanzania, the country lost 9.1% of its educators due to HIV and AIDS in 2005 [10]. A study conducted in South Africa on the impact of HIV/AIDS on the teaching profession determined that 12.7% of educators were HIV positive and that the prevalence was highest in the age group 25–34 years [11, 12]. The result of a cross-sectional survey on the impact of HIV/AIDS on primary and secondary education in Botswana showed that over 50% of deaths of teachers in 1999 were due to both short and long duration illnesses. Mortality rates are the highest among married and those in the age group 26–40 [13].

Another cross-sectional survey of schools in Namibia reported an increasing occurrence of illness and deaths among younger teaching staff with an average loss of 1.5% teachers in two years [14]. Ethiopia is one of the hardest hit sub-Saharan African countries by the HIV pandemic. As in other Sub-Saharan countries, the education sector is being severely affected by the HIV pandemic. A 5% increase in death amongst teachers in Ethiopia has been noted between 1999–2001 and some of which can be attributed to AIDS [15].

A cross sectional study that was done in Addis Ababa, Ethiopia, disclosed HIV/AIDS related illnesses were the leading causes of death which accounted for 47.9% all deaths among teachers in Addis Ababa [16]. In Zambia, death rates among teachers due to various causes had risen to 3.9 per cent by the late 1990s and it was reported to be 70% higher than in the general population [17]. However, data from a recently completed study of secondary education in Zambia shows that teacher mortality rates due to HIV/AIDS and other causes are in fact much lower than most other occupational groups [18].

A survey that was undertaken in 2003 on primary and secondary school teachers in Malawi showed annual mortality rates of less than 1.0 percent though the trend was upward at the rural secondary schools. Among primary school teachers, mortality rates have

been much higher, but appear to have peaked in 1999 and 2000 [19].

In Botswana the impact of HIV/AIDS epidemic on the overall staff of the Ministry of Education was believed to be very high. Higher morbidity and mortality, especially among experienced and well-qualified teaching staff was a major organizational challenge [13]. Nevertheless, higher mortality rate was observed among married male teachers compared with single male teachers, and the opposite was true among female teachers. In addition, large differences were observed between primary and secondary school teachers mortality rates [13].

In sub-Saharan Africa, cumulative teacher deaths between 2000 and 2015 are projected to be around 120,000, which is one-third of the total number of teachers employed in 2000. Two-thirds of teachers deaths are AIDS-related and the estimated rates of AIDS related mortality are therefore, 3–4 times higher than the actual rate. Similar divergences between projected and actual teacher mortality have been found in other high-prevalence countries in Africa [20].

However, the mortality rates of teachers from all causes did not exceed one percent even in Southern African countries with the highest adult HIV prevalence rates during 2003–2004. Although, the mortality rates among teachers in Malawi and Zambia were around two percent, in some eastern African countries that are believed to be hardest hit by HIV/AIDS, it didn't exceed one percent (Tanzania, Uganda and Kenya) [21].

On the other hand, there are very limited studies on the impact of HIV and AIDS in education sector of sub-Saharan countries in general and their respective teachers mortality and morbidity in particular. Moreover, even at this relatively late stage of the epidemic, our understanding of how HIV/AIDS is affecting the education sector in sub-Saharan Africa is generally poor.

Furthermore, there was a critical research gap in Ethiopia concerning the effects of HIV/AIDS on the education sector in general and on teachers mortality in particular. Even though there are very few researches, they are out-dated and may mislead the intervention strategies of the policy makers and donor agencies. Thus this study attempts to assess the trends of HIV/AIDS related mortality among primary and secondary schools teachers in Addis Ababa.

MATERIALS AND METHODS

The study assessed all deaths among teachers in selected public primary and secondary schools retrospectively from November 2005 to October 2012 and prospectively from November 2012 to October 2013. According to the national census of 2007, the projected population of Addis Ababa for the year 2012 was 3,048,631 and among those, 52.4% were female [22]. The capital city is administratively divided into ten sub-cities (Kifle- Ketemas) and one hundred and sixteen districts /Woredas/ [23]. There were 745 primary and 163 secondary schools (both government and non-government) in Addis Ababa. The number of teachers for the year 2012/2013 were 14,893(44.4 % female) and 5,651(82.8% male) in primary and secondary schools respectively [24].

Among the public schools in Addis Ababa established before 2005 and have forty and more teachers during the study period, 76 primary schools with grades 1-8 were randomly selected and all the 27 secondary schools with grades 9-12 were included in the study. As mortality data on the trend of effects of HIV/AIDS and related behavioural factors on causes of mortality among teachers are lacking in Ethiopia, it was vital to apply a verbal autopsy method to generate the envisaged information.

A verbal autopsy questionnaire was adapted to a local situation from a standardized WHO and international network of field sites with continuous demographic evaluation of populations and their health in developing countries (INDEPTH Network) verbal autopsy questionnaires [25-28]. The questionnaire had several sections with various socio demographic, communicable diseases including HIV/AIDS, non-communicable diseases, maternal causes and other health related behavioral variables. It was primarily prepared in English language and then translated into Amharic language for its actual administration.

Verbal Autopsy data of all deceased teachers from November 2005 to October 2012 retrospectively and from November 2012 to October 2013 prospectively were collected from all the selected primary and secondary schools using the WHO standardized and interviewer-administered adult VA questionnaire. The data were obtained from the family members and/or other care givers of the deceased teachers [27-28]. The questionnaire was pre- tested in four (2 primary and 2 secondary) schools not selected for the actual data collection. Then, the required corrections in language and content were done for better clarity

and more understandability. The data collections were conducted by trained 8 diploma holder nurses under the supervisions of two senior health professionals and the principal investigator. A four-day training was given to all data collectors and supervisors by the principal investigator.

The training for data collectors focused on the objective of the study, content of the questionnaire and skills of interview. The full addresses of the contact person or family members of the deceased teachers were clearly identified from the respective schools by the supervisors and principal investigator before the actual VA data collection. Then, a pair (male and female) of trained interviewers were deployed by tracing the home address of the deceased to collect the required data. Each interview lasted between 35 to 50 minutes. To maintain the quality of the data, close supervisions and weekly meetings were conducted.

Each completed verbal autopsy questionnaire was reviewed by two physicians independently for assigning the likely causes of deaths. When the assigned causes for the deaths of deceased teachers by two physicians were not in agreement, then the cases were given to a third physician/Internist/. The cases with inconsistent assigned causes by three physicians were labeled as “undetermined”. The completed teachers’ VA questionnaires with assigned physician diagnosis were analyzed. After data were entered into Epi-Info software version 3.5.4 for cleaning, it was transported to SPSS software version 20.0 for analysis.

Descriptive statistics such as frequencies and proportions were used to describe the study population in relation to the relevant variables. Cross tabulation of variables were also done. HIV/AIDS proportionate mortality ratio was computed. The trend of deaths due to HIV/AIDS and total death over years was analyzed using Extended Mantel Haenszel Chi-square for linear trend test.

An ethical clearance was obtained prior to the study from the Institutional Review Board of the College of Health Sciences of the Addis Ababa University. Official letter of cooperation was written from the School of Public Health of the Addis Ababa University to the Addis Ababa City Administration Education Bureau, and subsequently the Education Bureau wrote letters to all the concerned bodies, including the target primary and secondary schools. Verbal consents were secured from all respondents after being fully informed about the study objectives and procedures. Furthermore, confidentiality were maintained.

RESULTS

Socio-demographic characteristics of the study population: Among the 150 deceased teachers, those whose addresses were identified and verbal autopsy questionnaires completed were 146 (97.0%). Of the study subjects 103(70.5%) were male. Nearly half of the deceased teachers 70(48.6%) were in their most productive and reproductive ages (20-45 years). One hundred and four (71.7%) and 119(81.5%) were married and Orthodox Christian religion followers, respectively.

Fifty six point two percent of the deceased teachers were Amhara by ethnicity. Regarding educational status of the participants, 109(75.2%) had diploma or certificate in different subjects. In addition, 108 (74.0%) were primary school teachers (**Table 1**).

Forty seven point three percent of the total number of teachers deaths reported during the study period were due to communicable diseases (n=69). The HIV related proportionate mortality ratio was 22.6% with 95% confidence interval of (16.1%, 30.1%). Among assigned communicable diseases, tuberculosis and other lung infections were reported in 27 (18.5%). This shows that HIV/AIDS and tuberculosis with other lung infections were responsible for over 41% of teachers death in Addis Ababa, Ethiopia (**Table 2**).

Table 1: Socio-demographic Characteristics of deceased teachers (N=146) in Addis Ababa, Ethiopia, Nov. 2005-Oct 2013

Variables	Number of deaths	Percent
Sex		
Female	43	29.5
Male	103	70.5
Age		
20-35	18	12.5
36-45	52	36.1
46-55	31	21.5
56 and above	43	29.9
Marital status		
Single	28	19.3
married	104	71.7
Others	13	9.0
Religion		
Orthodox	119	81.5
Protestant	14	9.6
Catholic, Muslim and others	13	8.9
Ethnicity		
Amhara	82	56.2
Oromo	26	17.8
Tigrie	23	15.8
Others	15	10.3
Education		
Certificate	41	28.3
Diploma	68	46.9
First degree	26	17.8
Second degree and above	10	6.8
Type of school		
Primary	108	74.0
Secondary	38	26.0

Table 2: Alcohol and smoking status in Relation to Major causes of deaths among Primary and Secondary School Teachers , Addis Ababa, Ethiopia, Nov.2005- Oct.2013

<i>Causes of death</i>	<i>Number</i> <i>n(%)</i>	<i>Drink Alcohol</i>		<i>Smoke cigarette</i>	
		<i>Yes</i> <i>n(%)</i>	<i>No</i> <i>n(%)</i>	<i>Yes</i> <i>n(%)</i>	<i>No</i> <i>n(%)</i>
Communicable diseases	69(47.3)	47(68.1)	22(31.9)	31(44.9)	38(55.1)
HIV/AIDS related	33(22.6)	18(54.5)	15(45.5)	15(45.5)	18(54.5)
TB and other respiratory infections	27(18.5)	22(81.5)	5(18.5)	13(48.1)	14(51.9)
Non-communicable diseases	77(52.7)	43(55.8)	34(44.2)	22(28.8)	55(71.4)
Chronic Liver Disease/CLD/	16(11.0)	8(50.0)	8(50.0)	5(31.3)	11(84.6)
Hypertension	19(13.0)	12(63.2)	7(36.8)	6(31.8)	13(68.4)
Malignancy or cancer of all types	15(10.3)	6(40.0)	9(60.0)	3(20.0)	12(80.0)
Accidental injuries including road traffic accidents	13(8.9)	8(61.5)	5(38.5)	2(31.9)	11(31.9)
Cardiac and renal diseases	6(4.1)	4(66.7)	2(33.3)	3(50.0)	3(50.0)
Diabetes Mellitus	4(2.7)	0(0.0)	4(100.0)	0(0.0)	4(100.0)
Diarrheal disease	1(0.7)	1(100.0)	0(0.0)	1(100.0)	0(0.0)
Undermined causes	3(2.1)	3(100.0)	0(0.0)	2(66.6)	1(33.3)

Moreover, non-communicable diseases were responsible for 77(55.7%) of deaths among teachers during the study period. The main non-communicable diseases confirmed as causes of teachers' mortality were chronic liver diseases 16(11.0%), hypertension 19 (13%), malignancy or cancer of any type 15(10.3%), accidental injuries including road traffic accidents 13 (8.9%) and all other non-communicable diseases 11 (7.5%) (Table 2).

Alcohol use accounted for 68.1% among those whose causes of deaths were allocated to communicable diseases. Of those 26.1% and 31.9% of deaths were assigned as HIV/AIDS, and TB and other lung infections related. On the other hand, it was reported that 49.9% of teachers, who died due to various communicable diseases had been smoking cigarettes and among the diseases HIV/AIDS and TB with other lung infection share 26.1% and 18.8%, respectively.

The prevalence of alcohol use and cigarettes smoking among deceased teachers due to non-communicable diseases were 55.8% and 28.8%, respectively. The proportions of these health risk behaviors were among the assigned cases of chronic liver diseases (10.4% and 6.5%), hypertension (15.6% and 7.8%), and malignancy of any type (7.8% and 3.9%), respectively (Table 2). The overall mortality among teachers was 27(0.42%) in 2005/06 and 10 (0.14%) in 2012/13 (Table 3). The decline in overall mortality was statistically significant (MH Chi-Square=7.79, $P<0.01$). Furthermore, HIV/AIDS related deaths among teachers were 15(33.3%) during the first two years of the study period /Nov. 2005–Oct.2007/ and 4(18.1%) during the last two years of the study period /Nov.2011-Oct.2013/. The decline in death due to HIV was also statistically significant (MHChi-Square=7.04, $P<0.01$) (Table 3).

Table 3: Total and HIV/AIDS Related Deaths among Primary and Secondary School Teachers in Addis Ababa, Ethiopia; November 2005- October 2013; N=103 public schools

Year	Number of teachers per year	Number of deaths	Percent	Mantel-Haenszel summary OR	Deaths due to HIV/AIDS	Proportionate mortality ratio	Mantel-Haenszel summary OR
Nov.2005-Oct.2006	6,481	27	0.42	1	10	0.37	1
Nov.2006-Oct.2007	6,925	18	0.26	0.624	5	0.28	0.468
Nov.2007-Oct.2008	7,580	20	0.26	0.633	3	0.15	0.257
Nov.2008-Oct.2009	7,254	17	0.23	0.563	2	0.12	0.179
Nov.2009-Oct.2010	7,624	16	0.21	0.504	4	0.25	0.340
Nov.2010-Oct.2011	7,670	26	0.34	0.814	5	0.19	0.422
Nov.2011-Oct.2012	7,323	12	0.16	0.393	2	0.17	0.177
Nov.2012-Oct.2013	7,300	10	0.14	0.392	2	0.2	0.178
Total	58,157	146	0.25	MH Chi-Square=7.97 (P<0.01)	33	0.23	MH Chi-Square=7.04 (P<0.01)

DISCUSSION

This study was conducted on the deceased teachers from public primary and secondary schools in Addis Ababa. As the findings in Table 3 show, there was about a twofold decrease in mortality rates among teachers when the first and the last two years data of the study period were computed.

The major causes of deaths among communicable diseases were HIV/AIDS and TB and other respiratory infections. Hypertension, chronic liver diseases, malignancy and accidental injuries had also significant contributions to teachers' deaths among causes assigned as non-communicable diseases. The findings are in agreement with the World Health Organization's statistics report of 2010 and the results of a verbal autopsy study done in Addis Ababa among general population [5, 6].

The deaths of teachers were more prevalent among those in their most productive and reproductive ages. Those findings are consistent with the results of studies done among teachers in Botswana and Namibia [13,14]. The effect of HIV/AIDS seemed to be more serious among married teachers. This is also consistent with studies conducted previously in another sub Saharan country [13].

The Verbal Autopsy data demonstrated that 22.6% of all deaths among primary and secondary school teachers was related to HIV/AIDS. This is the highest share compared with other reported communicable and non communicable causes of mortality. The leading role of HIV/AIDS for adult mortality was reported from various previous studies and the finding of this study is also in agreement with those [4, 7, 11]. However, this finding is much lower than the results of some other studies conducted in different sub-Saharan African countries including a study conducted in the same setting of Ethiopia before a decade [15-19].

Although the HIV/AIDS proportionate mortality ratio among teachers was high during the first two years of the study period (0.30), it declined by 40% during the last two years of this study period (0.18). This finding is also consistent with other studies that reported significant decline in HIV/AIDS mortality among general adult population and/ or specific occupations like that of teaching [18, 19, 21].

Finally, some health risk behaviors like alcohol drinking were found to be more prevalent among teachers deceased due to various communicable diseases including HIV/AIDS. These findings are in line with the results of other previous studies [5,6]

Conclusion: Despite some limitations related to poor practices on compiling teachers' data in the study setting, this study showed that the trend of HIV/AIDS related mortality is declining in a significant number in Ethiopia.

This could be due to increasing access to life-prolonging anti-retroviral therapies and/or change in risky sexual behavior because of increased knowledge on HIV/AIDS. Moreover, evaluation of causes of death among teachers by verbal autopsy gave a better understanding about the major causes of death.

The study has also shown that alcohol drinking and cigarettes smoking were found to be more prevalent among deceased teachers in Addis Ababa.

Consequently, HIV/AIDS related interventions in the education sector should give due consideration to the strategies of controlling health risk habits besides sexual risky behaviors.

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Determinants of HIV Counselling and Testing among Secondary School Youths in Addis Ababa, Ethiopia

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Abstract

Background: HIV/AIDS is a threat to life. HIV Counselling and testing is a principal entry point in the treatment and prevention of HIV/AIDS. However, studies show low uptake of HCT among key populations such as school youths.

The aim of this study, therefore, was to identify the determinants of HCT among secondary school students in Addis Ababa, Ethiopia.

Methods: A cross-sectional study was conducted among secondary school students in Addis Ababa, Ethiopia. A multistage sampling technique was used to select a representative sample of 2169 students aged 15 and above. Socio-demographic characteristics, HIV/AIDS, HCT and sexual health behaviour related data were collected using self-administered questionnaire. Binary logistic regression was employed to assess the relations among HCT uptake, socio-demographic and risky sexual behaviour related variables.

Results: From 2,169 eligible study participants, 1948 (90.0%) completed the self-administered anonymous questionnaires. The proportion of study participants who had ever tested for HIV was 761/1948 (39.1%), with 95% CI (36.3-41.8%).

A multivariate logistic regression analysis showed that age being >18 (AOR=2.64; 95% CI, 1.46-4.77) and having multiple sexual partners in the previous year (AOR=2.08; 95% CI, 1.21-3.57) were positively associated with being ever tested. In addition, regarding those students who were never tested until the survey, being in grade 11 and 12 (AOR=0.26; 95% CI, 0.13-0.55) was negatively associated and having sex in previous 12 months (AOR=2.54; 95% CI, 1.23-5.31) was positively associated determinants of willingness to go for HIV testing in the near future.

Conclusions: The state of being tested among school youths was low. Of the selected predictors, age, grade level, practicing sexual intercourse and sex with multiple sexual partners in previous year, were found to be factors associated with HCT up-take.

Hence, strengthening the current strategy of HCT intervention in education sector with due emphasis on its associated factors could play pivotal role in the national campaign against the HIV/AIDS epidemic.

Keywords: Secondary school; Students; HIV/AIDS; HIV Counselling; Testing; Determinants

Introduction

HIV/AIDS is a major cause for concern all over the world and a critical developmental issue that affects the lives of millions of people [1,2]. It is a global crisis with consequences that will be felt for decades to come [3].

In low and concentrated epidemic countries, HIV prevalence is highest among key populations [4]. Eighty-two percent of the estimated 2.1 million adolescents aged 10–19 years living with HIV in 2012 were in sub-Saharan Africa, and the majority of those (58%) were females. Comprehensive accurate knowledge about HIV, condom use, HIV testing, and antiretroviral treatment coverage remain low in most countries [4].

Ethiopia is one of the hardest hit sub-Saharan African countries by the HIV pandemic. As in other Sub-Saharan countries, the education sector with high concentration of young people is being severely affected by the HIV epidemic [5].

HIV Counselling and Testing (HCT) previously designated as Voluntary Counselling and Testing, has been identified as one of the most important interventions to address the HIV/AIDS epidemic [6]. HCT is considered as a useful tool for the battle against sexual transmission of the epidemic and it is a principal entry point in the treatment and prevention of HIV/AIDS.

Nevertheless, there is a very high level of HIV stigmatization amongst the youths (90%), preventing them from undertaking HCT [7]. Still, over 30 years after the first HIV antibody tests became available; progress toward universal knowledge of HIV status remains inadequate [8].

A survey conducted in Ethiopia on youth has revealed that among those who started sexual intercourse with their boy/girl friends, only 58.5% used condom and only 32.6% were tested for HIV [9].

A study conducted in Nigeria among the youth showed that ignorance, poverty, inadequate number of VCT centers, stigma and discrimination are major factors responsible for the low patronage of VCT centers [10].

A study conducted in Ghana reported that the effects of socio-demographic characteristics on acceptance of HIV were not statistically significant [11]. However, the findings of a study from rural Zimbabwe declared that age, increasing education, and knowledge of HIV were associated with VCT uptake [12].

In contrast, a study from Kenya among school adolescents showed no relationships between age, school, school level, knowledge of a VCT centre, or past sexual experience with intention to uptake of HIV Counselling and testing [13].

A study has also suggested that the effectiveness and uptake of VCT can be influenced by numerous characteristics, including certain social factors, fear of stigma, and differing cultural contexts [14].

In general, the importance of HIV Counselling and testing as the entry-point for the provision of medical care and psychosocial support cannot be questioned. Apart from providing the opportunity to prolong life, HCT also potentially facilitates prevention of the disease.

However, there have been debates about the determinants and effects of HCT, and two questions dominate the research field: Firstly, there is the question of whether HCT is helpful as a prevention strategy and secondly, the questions of whether it is possible identify factors that prevent people from seeking HCT.

Furthermore, in light of the rapidly expanding and diversifying field of HIV testing and Counselling, it is essential to evaluate the potential factors associated with HCT service utilization, as it is an important entry point into HIV prevention, care and treatment.

Therefore, the purpose of this study was to identify determinants of HCT among secondary school youths in Addis Ababa, Ethiopia, for evidenced based interventions.

Methods

Study design and settings

A secondary school based cross-sectional study was conducted from February to March, 2013 in Addis Ababa, the capital of Ethiopia. According to the national census report of 2007, the projected population of Addis Ababa for the year 2014 was 3,384,569 and among those 52.4% were female [15,16]. The city is administratively divided into ten sub-cities (Kifle-Ketemas) and one hundred and sixteen districts/Woredas [16]. There were 163 secondary schools (both government and non-government schools) in Addis Ababa City Administration. The number of students enrolled in the year 2012/2013 in the secondary schools was 136,636. Of these 53.9% were female [17]. In addition, there were 5,651 (17.2% female) teachers in secondary schools of the city for the same year [17].

Sample size and sampling procedure

The sample size of this study was determined using the formula for single population proportion estimation by taking 33% as a proportion

of school youth that ever had HIV Counselling and testing based on findings of previous studies [18-20], and 3% of absolute precision with 95% confidence interval. Non-response rate in this study was estimated to be 15% and a design effect of 2 was assumed. Hence, an overall sample size of 2,169 students from randomly selected 15 public secondary schools in Addis Ababa participated in the study [17].

The adequacy of the sample to run internal comparison for assessing the association between HCT uptake and potential associated factors among students was checked by calculating sample size using double proportion formula which gave a sample size less than the one mentioned above. The study population was randomly selected using multi-stage cluster sampling method. The number of participant public secondary schools from each sub-city was decided proportionately.

All the schools in each sub-city that satisfy the inclusion criteria were listed alphabetically and separately. Systematic sampling technique was used to select participating schools. Lists of all students in sections of grade 9-12 in each selected school were collected before the survey. The total sample size was distributed to each school proportionately to the size of their student population.

The participant students were those from randomly selected sections who were 15 and above year's old and provided consent.

Data collection and quality control

Data were collected using self-administered questionnaire that had several sections and dealing with various socio demographic and sexual behaviours related variables. The questionnaire was primarily prepared in English and then translated into the local official language, Amharic, for better understanding in its actual administration. The questionnaire was pre tested in two secondary schools that were not selected for the study. Then, the necessary correction was made in language and content for better clarity and more understandability. Data collection was conducted by 12 diploma graduate nurses under the supervision of two senior health professionals who were also working as instructors in different health colleges.

Two days training was given for the data collectors and supervisors by the principal investigator. The data quality was assured by giving training to data collectors and supervisors, and conducting close, immediate and daily supervisions. The collected data were checked for completeness and consistency by supervisors and the principal investigator every day. The final modified questionnaire was used to generate key information from the study participants.

The questionnaire comprises information related to the following variables: socio-demographic characteristics, history of HIV Counselling and testing, intention to be tested in the near future, HIV/AIDS related knowledge, attitudes towards HIV prevention methods "ABC rules", HCT related Knowledge and attitude towards it, history of sexual intercourse, history of condom use and multiple sexual partnership in previous year, habits of using substances like drinking alcohol, chewing khat and smoking cigarettes or not. Furthermore, the choice of variables included in bivariate analysis was based on theoretical knowledge and statistical significance (p -value <0.05).

Data analysis

Data were entered and cleaned using Epi-Info software version 3.5.4 and then transported to SPSS software version 20 for analysis. Socio-

demographic variables like age and sex, education, religion, ethnicity, HIV/AIDS related knowledge, attitude towards “ABC” rules to prevent HIV, history of HCT uptake, substance use and other sexual behaviour related variables were chosen for statistical analyses. Descriptive statistics such as frequencies and proportions were used to describe the study population in relation to relevant variables.

Bivariate analyses between potential determinants of HCT, and being ever tested for HIV and willingness to go for it in the near future as dependent variables were employed. Then, a stepwise multivariate logistic regression model was used to assess the associations among the outcome variables and the suspected predictors for HCT up-take. The variables in multivariate analyses were chosen based on existing theoretical knowledge on the variables and statistical significance found during bivariate analyses. Accordingly, the P-values less than 0.05 were considered as statistically significant.

Ethical considerations

Ethical clearance was obtained prior to the study from the Institutional Review Board of the College of Health Sciences of the Addis Ababa University. Official letter of cooperation was written from the School of Public Health of Addis Ababa University to Addis Ababa City Administration Education Bureau. The Education Bureau wrote letters of cooperation to all concerned including the selected study schools from all the ten sub cities.

Finally, verbal consent of individual participants was obtained after being fully informed about the purpose of the study and procedures of data collection. No name or other identifying information was included in the data collection to ensure confidentiality and anonymity

Results

Socio-demographic characteristics of study participants

Among 2169 eligible study subjects, a total of 1948 (90.0%) secondary school students completed the self-administered questionnaires. Of those study participants 1182(60.7) were female, with a male to female ratio of 1:1.5. The vast majority (80.5%) of the respondents were in the age group of 15-18 years, and only 19.0% and 0.5% were 19-24 and above years old, respectively. About 60% (1163) of the students were from grade 11 and 12 during February and March, 2013, and 1851(95.0%) of them were single. Amhara by ethnicity comprised 874(44.9%) and 1487(76.3%) of the study participants were Orthodox Christian religion followers (Table 1).

Of all the respondents, those found to have high HIV/AIDS related knowledge were 1663 (85.4%) and those who have positive attitude towards HIV prevention methods “ABC rules “ were 1670 (85.7%). Moreover, students who were found to be with high knowledge of HCT during the survey were 1576 (80.9%) (Table 1).

Variable	Total	%
Sex		
Female	1182	61
Male	766	39
Age category		

15-18	1563	80
>18 years	380	20
Education		
Grade 9-10	781	40
Grade 11-12	1163	60
Marital status		
Single	1851	95
Married, divorced ,separated and widowed	77	4
Ethnicity		
Amhara	874	45
Oromo	450	23
Tigrie	232	12
Ghuragie	275	14
Others	114	5.9
Religion		
Orthodox	1487	76
Muslim	230	12
Protestant and others	231	12
Ever tested for HIV		
Yes	761	39
No	1181	61
Showed intention to be tested in the near future		
Yes	820	61
No	361	39
HIV/AIDS related Knowledge		
High	1663	85
Low	285	15
Attitude towards HIV prevention methods or “ABC” rules		
Positive	1670	86
Not positive	278	14
Knowledge of HCT		
High	1576	81
Low	363	19
Have a sexual partner Currently		
No	1456	75
Yes	484	25
Ever had sexual intercourse		

No	1520	78
Yes	417	21
Had sex in previous one year		
No	109	5.6
Yes	284	15
Number of sexual partners in previous 12 months		
One	129	6.6
Two and more	154	7.9
Condom used in previous 12 months		
Consistently	106	5.4
Not consistently	175	9
Drink Alcohol		
No	1500	78
Yes	434	22

Table 1: Socio-demographic background of secondary school students in Addis Ababa, Ethiopia, March-June 2013; N=1948

HCT utilization and sexual behaviour of secondary school youth

The proportion of study participants who responded that they ever had tested for HIV was 761/1942 (39.2%) with 95% CI (36.3%-41.8%).

Among those who were not tested so far, 820 (69.4%) with 95%CI, (67.1.6%-71.9%) reported their willingness to go for HIV Counselling and testing in the near future or within two months after the survey period (Table 1).

However, 484 (24.8%) of the study participants reported that they had sexual partner(s) during the study period. In addition, among the students participated in the study, 417 (21.4%) said that they have already started sexual intercourse and among them 284 (14.6%) students reported ever having sexual intercourse in previous year of the survey. Of those students who had sexual intercourse in preceding 12 months, 154(7.9%) students reported that they had two or more sexual partners and only 106 (5.4%) students reported that they had used condom consistently during sexual intercourses (Table 1).

In addition, among all the study participants, 434 (22.3%), 106 (5.4%) and only 64(3.3%) reported that they have habits of drinking alcohol, chewing Khat and smoking cigarettes, respectively (Table 1)

Furthermore, a multivariate logistic regression analysis was also done to assess the independently associated factors of ever being tested for HIV among the target students. Consequently age being greater than 18 years (AOR=2.64; CI, 1.46-4.77 and being faithful to a sexual partner in previous year (AOR=2.08; 95% CI, 1.21-3.57) were significantly associated with ever being tested for HIV among students (Table 2).

On the other hand, of the predicted and selected factors sex, level of education, knowledge of HIV/AIDS, knowledge of HCT, attitude towards HIV prevention methods, ever having sexual intercourse and habit of drinking alcohol lost their statistical significance during multivariate analyses (Table 2).

	Ever had tested for HIV			
	Yes (%)	No (%)	Crude OR; 95%CI	AOR; 95% CI
Sex				
Female	468(39.2)	710(60.3)	1	1
Male	293(38.4)	471(61.6)	1.06(0.88-1.28)	1.27(0.74-2.24)
Age				
15-18 years	555(35.6)	1003(64.4)	1	1
>18 years	203(53.6)	176(46.4)	2.08 (1.66-2.62)	2.64(1.46-4.77)
Level of Education				
Grade 9-10	259(33.3)	519(66.7)	1	1
Grade 11-12	501(43.2)	659(56.8)	1.52(1.26-1.84)	0. 80(0.45-1.44)
Religion				
Orthodox	589(39.7)	893(60.3)	1	1
Muslim	62(27.1)	167(72.9)	1.78(1.30-2.42)	2.90(1.07-7.90)
Protestant and others	110(47.6)	121(52.4)	0.73(0.55-1.0)	0.65(0.29-1.43)
Knowledge of HIV/AIDS				
High	666 (40.2)	991(59.8)	1	1

Low	95 (33.3)	190(66.7)	1.34 (1.03-1.75)	1.08 (0.48-2.40)
Attitude towards HIV Prevention methods				
Positive	669 (40.2)	996 (59.8)	1	1
Negative	92 (33.2)	185 (66.8)	1.35 (1.03-1.77)	0.88(0.41-1.86)
Knowledge of HCT				
High	656(41.7)	916(58.3)	1	1
Low	101(28.0)	260(72.0)	1.84(1.44-2.37)	1.51(0.792.89)
Have a sexual partner currently				
No	512(35.3)	938(64.7)		1
Yes	246(50.8)	238(49.2)	1.89(1.54-2.33)	1.08(0.63-1.86)
Ever had sexual intercourse				
No	558 (36.8)	957 (63.2)	1	1
Yes	201 (48.3)	215 (51.7)	1.60(1.29-2.0)	Ref
Number of sexual partners in previous 12 months				
One	77 (59.7)	52 (40.3)	1	1
Two and more	67 (43.8)	86 (56.2)	1.90 (1.18-3.06)	2.08 (1.21-3.57)
Condom used in previous 12 months				
Consistently	56 (52.8)	50 (47.2)	1	1
Not consistently	88 (50.6)	86 (49.4)	1.1(0.68-1.78)	1.22 (0.69-2.13)
Drink alcohol				
No	561 (37.5)	934 (62.5)	1	1
Yes	196 (45.3)	237 (54.7)	1.38 (1.11-1.71)	1.17 (0.64-2.14)
Chew Khat				
No	707(38.8)	1116(61.2)	1	1
Yes	50(47.2)	56(52.8)	1.41(0.95-2.09)	1.21(0.54-2.51)

Table 2: HCT utilization and selected associated factors among secondary school students in Addis Ababa; March-June 2013.

Concerning those students who were not tested for HIV until the survey, bivariate logistic regression analyses were also done in order to identify factors that are associated with students' intention to go for HCT in the next two months after the study. As a result, gender being female (OR=2.03; 95% CI, 1.58-2.61), education being in grade 11 or 12/preparatory school/ (OR=1.52; 95% CI, 1.18-1.96), positive attitude towards "ABC" rules (OR=1.46; 95% CI, 1.05-2.02), history of sexual intercourse in previous 12 months (OR=1.94; 95% CI, 1.03-3.64) and habit of drinking alcohol (OR=1.40; 95% CI, 1.04-1.89) showed statistically significant associations with intention to go for HCT in the near future, while the others didn't show (Table 3).

As the multivariate logistic regression analysis done regarding those who were not tested the odds of being age greater than 18 years (AOR=2.87; 95%CI, 1.19-6.93), level of education (AOR=0.26; 95% CI, 0.13-0.55) and history of sexual intercourse in previous 12 months (AOR=2.54; 95%CI, 1.22-5.31) have shown statistically significant

associations with willingness to go for HCT up-take in two months time (Table 3).

But gender, attitude towards "ABC" rules as HIV prevention methods, and habit of drinking alcohol didn't show statistically significant associations with intention of secondary school youths to go for HCT during multivariate logistic regression analyses (Table 3).

Discussion

This school based cross sectional study has assessed the determinants of HCT among secondary school students in the capital of Ethiopia. As the finding of this study show, the extent of secondary school students who had ever tested for HIV is 39.1%. It is slightly higher than the prevalence of HCT up-take reported during the national demographic and health survey that was conducted in 2011 in Ethiopia and also reported HCT prevalence among young people from

various sub-Saharan countries [9,21-24]. However, the finding of this study is lower than that of a study conducted previously in one of the colleges in Ethiopia on the prevalence of HCT among students [25]. In

addition, as over 60% of the secondary school youth didn't go for HIV Counselling and testing, it is an indication for a lot to intervene is remaining.

	Showed willingness to go for HCT within two months after the survey			
	Yes (%)	No (%)	Crude OR; 95%CI	AOR; 95% CI
Sex				
Female	530(75.4)	173(24.6)	1	1
Male	277(60.0)	185(40.0)	2.03(1.58-2.61)	0.54(0.28-1.06)
Age				
15-18 years	686(69.4)	302(30.6)	1	1
>18 years	120(68.6)	55(31.4)	1.03 (0.73-1.46)	2.87(1.19-6.93)
Level of Education				
Grade 9-10	379(74.2)	132(25.8)	1	1
Grade 11-12	427(65.6)	224(34.4)	1.52(1.18-1.96)	0.26(0.13-0.55)
Attitude towards “ABC” rules				
Positive	693(70.6)	288(29.4)	1	1
Negative	114(62.0)	70(38.0)	1.46 (1.05-2.02)	1.26(0.50-3.19)
Had sex in previous 12 months				
No	32(55.2)	26(44.8)	1	1
Yes	97(70.3)	42(29.7)	1.94(1.03-3.64)	2.54(1.23-5.31)
Drink Alcohol				
No	652(70.9)	268(29.1)	1	
Yes	149(63.4)	86(36.6)	1.40(1.04-1.89)	0.93(0.47-1.85)

Table 3: Intension to go for HCT and selected associated factors among secondary school students, Addis Ababa, March-June, 2013; n=1181

The main factors associated with HCT uptake among secondary school students, as the findings of this study revealed are age, educational status, involvement in sexual intercourse and being faithful to a sexual partner in previous 12 months.

Students with ages greater than 18 years were found to have HCT up-take about three times more likely than the younger ones. This could be explained in terms of the probabilities of being more exposed to HIV/AIDS and HCT related information from various sources, be it in school or out of school. The finding is in agreement with the findings of a study conducted in Zimbabwe that reported associations of age, education and knowledge with voluntary HIV Counselling and testing [12]. However, it is not in line with the findings of studies that reported socio-demographic factors like age and education were not found to have associations with HIV Counselling and testing [11,13,24].

As depicted in Table 3, although the level of education or being in grade 11 and 12, having high knowledge of HIV/AIDS, high knowledge of HCT, having the sexual partner during the survey and habit of drinking alcohol showed significant associations with HCT up-take among secondary school youths during bivariate logistic

regressions analyses, they lost their significances during multivariate logistic regression analysis. But these findings were not consistent with the findings obtained from various countries that reported significant associations of the variables with HCT [7,12,13,25-28].

The other observed determinant in this study is being faithful to a sexual partner during the previous 12 months of the survey. Students who had sexual relationship with only one partner in previous year were about two times more likely to be tested for HIV compared to their counter parts. This could be due to the reason that students who were faithful to their partners may think that they are at lower risk to be infected with HIV, develop less fear and more self-confidence to go for HIV testing and know self-more comparing to those who were exposed to multiple sexual partners. On other hand, being faithful to a partner could be the effect of HCT besides being a factor for it. Studies have witnessed changes in sexual behaviours and reduction of the number of sexual partners following HCT utilization [29,30].

Furthermore, regarding those students who were not tested until the survey (60.9%), factors associated with their intention to go for HCT within two months after the survey was assessed. Accordingly, as it was discussed above while dealing with factors associated with ever

tested students in the age category of above 18 years were found about three times more likely to seek for HIV Counselling and testing service comparing with their counter group (age 15-18 years) [12].

Education status of the students being preparatory school/grade 11 and 12/was found to be one of the important determinants to show willingness to be tested. Those students from grade 11 and 12 were less likely to show interest to be tested within two months' time after the survey period comparing with students from grade 9 and 10. This finding is in agreement with the finding of a study conducted in Uganda in which younger age was found to be associated with increased likelihood of willingness to be tested [28]. But it is in disagreement with the study done in Zimbabwe in which increased age, education and knowledge of HIV were positively associated with VCT up-take and that of a study from Kenya which reported no association between HCT up-take and school level among school adolescents [12,13].

According to the findings of this study, being sexually active during the previous 12 months is also found to be one of the important factors associated with showing willingness to go for HIV Counselling and testing among secondary school students. This could be explained in terms of perceived risk of HIV among those who had sexual exposure in previous year. Students who had practiced sexual intercourse in previous year were more likely to express their interest to be tested in the near future. This is also in line with the findings of a study conducted in Ethiopia among college students in which being sexually active and having sex with their partners are among determinants of showing willingness to go for HIV Counselling and testing [25]. Nevertheless, it is not in line with the findings of a study conducted in Uganda in which self-perception of HIV risk didn't have statistically significant association with VCT [20].

Furthermore, sex being female and habits of drinking alcohol were positively associated with willingness to go for HCT up-take during bivariate analyses. But they lost their statistical significance during multivariate analysis. These could also be explained in terms of better probability that females residing in urban areas have to visit health service delivery institutions for reasons associated with early pregnancy and /or contraceptives [31]. In addition, the habit of drinking alcohol and its association with showing willingness to go for HCT could be explained in terms of the increased probability of exposure to risky sexual behaviour and perceived risk of HIV [27,28].

Limitations

The information on sexual behaviour and HIV Counselling and testing status gathered for this study were based on the self-reports of the study participants and there were no opportunities to cross check their opinions from other sources. Consequently, there could be potential recall and social desirability biases. Hence, the observed associations could be assessed further.

Moreover, as the study participants were only from secondary schools, there might be a challenge to implement the expected interventions based on the findings of this study to the primary school and college students in various settings.

Conclusions

HIV Counselling and testing is a critical entry to HIV prevention, care and treatment programs. Nevertheless, as findings of various

studies show its up-take is very low among young people particularly in Sub-Saharan African countries.

This study endeavoured to present some insights in to the determinants of HIV Counselling and testing among secondary school youths. As revealed in the findings of this study the state of being tested among students so far is low. Among the selected predictors age, grade level, having sexual intercourse and number of sexual partners in previous year are associated with ever having HCT as well as intention to go for it in the near future.

Therefore, strengthening the current strategy of HCT intervention in education sector with due emphasis on its associated factors could play pivotal role in the national campaign against HIV/AIDS epidemic

Competing Interests

The authors declare that they have no competing interests.

Author's Contributions

All the three authors, TM, AA and AW, participated at different stages of the development of the proposal and implementation of the study. All authors have read and approved the final manuscript.

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RESEARCH ARTICLE

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Prevalence of “HIV/AIDS related” parental death and its association with sexual behavior of secondary school youth in Addis Ababa, Ethiopia: a cross sectional study

Takele Menna*, Ahmed Ali and Alemayehu Worku

Abstract

Background: Human immunodeficiency virus infection is a global crisis that represents a serious health threat, particularly among younger people. Various studies show that both orphan and non-orphan adolescents and youths experience vulnerability to HIV. Nevertheless, the findings hitherto are mixed and inconclusive. The aim of this study, therefore, was to assess the prevalence of parental death and its association with multiple sexual partners among secondary school students for evidence based interventions.

Methods: A cross-sectional study was conducted among secondary school youth in Addis Ababa, Ethiopia. A multistage sampling technique was used to select a representative sample of 2,169 school youths. Sexual health behavior related data were collected using self-administered questionnaire. Binary logistic regression was employed to examine the relation between parental death and multiple sexual partners.

Results: Among the 2,169 eligible study participants 1948 (90%) completed the self-administered questionnaires. Of those 1,182(60.7%) were females. The overall prevalence of parental death was 347(17.8%) with 95% CI (16.2%, 19.6%). The HIV/AIDS proportionate mortality ratio was 28% (97/347).

A multivariate logistic regression analysis showed that high HIV/AIDS related knowledge (AOR = 0.39; 95% CI, 0.18-0.84), positive attitude towards HIV prevention methods (AOR = 0.48; 95% CI, 0.23-0.97), being tested for HIV (AOR = 0.52; 95% CI, 0.31-0.87) and chewing Khat (AOR = 2.59; 95% CI, 1.28-5.26) were significantly associated with having multiple sexual partners among secondary school youths.

Conclusions: Significant proportion of secondary school youths had lost at least one parent due to various causes. High knowledge of HIV/AIDS, positive attitude towards ‘ABC’ rules for HIV prevention, being tested for HIV and chewing khat are more likely to be factors associated with multiple sexual partnership among secondary school students in Addis Ababa.

Therefore, the school based interventions against the HIV/AIDS epidemic should be strengthened with particular emphasis on the effects of HIV/AIDS related knowledge, attitude towards preventive measures, mechanisms for improving HIV Counseling and Testing coverage and the associated prevailing risk factors.

Keywords: Secondary school, Youth, Orphan, Non-orphan, Multiple sexual partners, HIV/AIDS

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Background

Human immunodeficiency virus (HIV) infection is a global crisis that represents a serious health threat, particularly among younger people [1]. Ethiopia is among the countries most affected by the HIV epidemic. With an estimated adult prevalence of 1.5%, it has a large number of people living with HIV (approximately 800,000) and about 1 million AIDS orphans [2]. In countries with high HIV prevalence and the resultant high adult mortality rate there will be higher incidence and prevalence of orphans [3].

While AIDS-related deaths are fortunately declining due to biomedical interventions supported through social protection mechanisms, a study on the Global Burden of Diseases, Injuries, and Risk Factors showed that in 2010 AIDS remained to be the fifth-leading cause of disease-related deaths, with an estimated 1.5 million AIDS-related deaths [3].

HIV/AIDS directly impacts on the lives of approximately 20 million children worldwide and an estimated 16.6 million children have lost one or both parents due to the disease [4,5].

The negative effects of the AIDS epidemic are felt most severely in some of the world's poorest countries in sub-Saharan Africa. One of its effects has been an increase in the number of orphaned children [6-8].

It is estimated that for each woman who dies of AIDS in Africa, two children will be orphaned [9]. The epidemic in Africa puts children at risk physically, emotionally and economically. These challenges may further predispose these children at heightened risk of prolonged mental and behavioral problems [10].

A study demonstrated that AIDS-orphans have more depression, peer problems, and behavior problems than other groups, but no difference in anxiety [11]. Other study conducted in Kenya reported, although orphans are at higher risk for psychosocial problems that may affect their self-efficacy for safer sex practices more than non-orphans, no difference in HIV risk indicators were identified [12].

Nevertheless, various studies conducted in Sub-Saharan African countries have shown that orphaned children experience particular vulnerability to contract HIV [13,14].

A Meta-analysis of six studies ($n = 19,140$) comparing HIV-positive sero status in orphaned versus non-orphaned youths indicated that there is significantly greater HIV prevalence in orphaned participants compared with non-orphans [7].

The results of other four studies showed that orphans were significantly more likely to have experienced sexual debut than non-orphans (Cote d'Ivoire, Lesotho, Mozambique and Tanzania) [15].

The importance of concurrent sexual partnerships in the transmission of HIV has been highlighted in a study. A number of social drivers of concurrency, including

factors which may be relevant to orphan hood, such as the need for partners in order to reduce fears of rejection or of being alone and concurrent partners as an economic strategy or necessity were reported from a qualitative data [16].

Various studies have identified multiple sexual partnerships by both men and women, particularly overlapping or concurrent partnerships, to lie at the root of the HIV/AIDS epidemic in sub-Saharan Africa [17].

A study from South Africa showed that parental death among female participants was significantly associated with HIV-positive status, ever having had oral sex, ever having had vaginal sex and having more than 1 sex partner during the past year [18].

Another study demonstrated that female adolescent orphans in urban Zimbabwe were at higher risk of HIV and HSV-2 infection than non-orphans because of their higher likelihood of having had multiple sexual partners, having used condoms more inconsistently, and having experienced forced sex [13].

As the National Surveys of four African countries revealed, in overall, 12 percent of boys and about 5 percent of girls reported that they had two or more sexual partners during the year before the survey. On the other hand, a higher proportion of older adolescents who were sexually active in the 12 months before the survey reported to have had two or more partners in Malawi [19].

In addition, as evidences suggest a substantial proportion of young people continue to engage in risky sexual behaviors. For instance, according to the Health Impact Evaluation done in Ethiopia in 2008, 48%, 50% and 58% of women aged 15-24 reported consistent condom use, limiting sexual intercourse with one uninfected partner and abstaining from sex, respectively [20].

Many young people rule out the option of abstinence as an AIDS prevention methods. But a study showed that for many giving up sexual intercourse to prevent AIDS would be "impossible" [20]. Although young people believe that condoms effectively prevent STDs, only small proportions of college students have adopted measures such as condom use [21].

A systematic review of school based interventions to prevent STI/HIV in sub-Saharan Africa showed that behavior change was least likely to occur and changes in favor of abstinence and condom use were very much influenced by pre-intervention sexual history [22].

Evidences from various studies showed that there are some associations between using substances like alcohol, tobacco and Khat and risky sexual behaviors [13,23].

As studies from sub-Saharan Africa show, there is a link between alcohol drinking and a risk for concurrent sexual partnership [24,25]. In Kenya, orphaned children, especially maternal orphans, reported more alcohol use and risky sex [26].

Khat is a strong stimulant that causes mild to moderate psychological dependence, although not as strong as that of alcohol and tobacco. Some of the possible effects of chewing Khat comprise increased levels of energy, increased self-esteem, euphoria, increased libido, excitement and tendency to social interaction [27,28].

Khat use was positively associated with being male, alcohol use, not having comprehensive knowledge on HIV and viewing sexual films. Khat is widely consumed among the youths of Ethiopia as shown by several prevalence studies [27,29].

Young orphans may be at elevated risk of HIV including involvement in sexual activities with multiple partners, because of being more likely to lack adult guidance than their peers. The evidence on whether this is the case lacks clarity or shows mixed results [15]. Thus, there are still critical gaps to be bridged regarding the required efforts for better support of children affected by HIV/AIDS.

Furthermore, young people in various countries continue to engage in high risk sexual behaviors despite the presence of robust HIV prevention strategies aimed at reducing risky sexual behaviors [30]. High-risk behaviors, such as having multiple sexual partners, alcohol and substance use, unplanned pregnancies and unprotected sexual activities of children and adolescents are major concerns for many countries of the world [30-34].

Therefore, the objective of this study was to contribute to interventions serving orphans by exploring the prevalence of parental death and its association with multiple sexual partners of school youth aged 15 and above years in a major urban setting in Ethiopia.

Methods

Study setting

A secondary school based cross-sectional study was conducted from February to March, 2013 in Addis Ababa, the capital of Ethiopia. According to the national census report of 2007, the projected population of Addis Ababa for the year 2012 was 3,048,631 and among those 52.4% were females [35,36]. The City is administratively divided into ten sub-cities (Kifle- Ketemas) and one –hundred and sixteen districts/Woredas [36]. There were 163 secondary schools (both government and non-government schools) in Addis Ababa City Administration. The number of students enrolled in the year 2012/2013 in the secondary schools was 136,636 (53.9% females) [37]. In addition, there were 14, 893 (44.4% female) teachers in primary schools and 5,651 (17.2% female) teachers in secondary schools of the City for the same year [37].

Sample size and sampling procedure

As this study is part of a large scale study with different objectives that comprise assessing the trend of HIV/

AIDS related mortality among teachers, examining the proportion of students who lost one or both parents due to HIV/AIDS related causes, determinants of risky sexual practice and HCT uptake among students and teachers and exploring the effects of peer education intervention on sexual behavior of students. The sample size of this study was determined using the formula for single population proportion estimation by taking 33% as a proportion of school youth involved in risky sexual behavior based on findings of previous studies [38-40], and 3% of absolute precision with 95% confidence interval. Non-response rate in this study was estimated to be 15% and a design effect of 2 was assumed. Hence, an overall sample size of 2,169 students from randomly selected 15 public secondary schools in Addis Ababa participated in the study [37].

The adequacy of the sample to run internal comparison for assessing the association between parental death and multiple sexual partner among students was checked by calculating sample size using double proportion formula which gave a sample size less than the one mentioned above. The study population was randomly selected using multi-stage cluster sampling method. There are 10 sub-cities in Addis Ababa City Administration, Ethiopia. The number of participant public secondary schools from each sub- city was decided proportionately.

All the schools in each sub-city that satisfy the inclusion criteria were listed alphabetically and separately. Systematic sampling technique was used to select participating schools. Lists of all students in sections of grade 9-12 in each selected school were collected before the survey. The total sample size was distributed to each school proportionately to the size of their student population.

The participant students were those from randomly selected sections who were 15 and above years old and provided consent.

Data collection and quality control

Data were collected using self administered questionnaire that had several sections dealing with various socio demographic and sexual behaviors related variables. The questionnaire was primarily prepared in English and then translated in to the local official language, Amharic for better understanding in its actual administration. The questionnaire was pre tested in two secondary schools that were not selected for the study. Then, the necessary correction was made in language and content for better clarity and more understandability. Data collection was conducted by 12 diploma graduate nurses under the supervision of two senior health professionals who were also working as instructors in different health colleges.

Two days training was given for the data collectors and supervisors by the principal investigator. The data quality was assured by giving training to data collectors and supervisors as well as conducting close, immediate and daily supervisions. The collected data were checked for completeness and consistency by supervisors and the principal investigator every day.

The final modified questionnaire was used to generate key information from the study participants.

Accordingly, the participant students were responded to the following sexual behavior related variables: whether they faced parental death due to any cause, parental death related to HIV/AIDS or not, sex, age, HIV/AIDS related knowledge assessing questions, attitude towards "ABC" rules as HIV prevention methods assessing questions, history of sexual exposure and HCT uptake, history of condom use and multiple sexual partners in previous year, whether they had habits of using substances like drinking alcohol, chewing khat and smoking cigarettes or not.

Furthermore, the choice of variables included in bivariate analysis was based on theoretical knowledge and statistical significance (p -value < 0.05).

Ethical clearance was obtained prior to the study from the Institutional Review Board of the College of Health Sciences of the Addis Ababa University. Official letter of cooperation was written from the School of Public Health of Addis Ababa University to Addis Ababa City Administration Education Bureau. The Education Bureau wrote letters of cooperation to all concerned including the selected study schools from all the ten sub cities.

Finally, verbal consent of individual participants was obtained after being fully informed the purpose of the study and procedures of data collection. No name or other identifying information were included in the data collection to ensure confidentiality and anonymity.

Data analysis

Data were entered and cleaned using Epi-Info software version 3.5.4 and then transported to SPSS software version 20 for analysis. Age, sex, orphan-hood due to any cause and due to HIV/AIDS related causes, HIV/AIDS related knowledge, attitude towards "ABC" rules to prevent HIV, prevalence of HCT uptake, substance use and other sexual behavior related variables were chosen for statistical analyses. Descriptive statistics such as frequencies and proportions were used to describe the study population in relation to relevant variables. Bivariate analysis between orphan-hood as a main exposure and history of having multiple sexual partners/one of UNAIDS indicators of risky sexual behaviors/as dependent variable was employed.

Then, a stepwise multivariate logistic regression model was used to assess the associations between the outcome

and orphan hood as well as other predictors for multiple sexual partners. The variables in multivariate analysis were chosen based on existing theoretical knowledge on the variables and statistical significance found during bivariate analyses.

Results

Among 2169 eligible study subjects 1948 school youth (90%) completed the self administered questionnaires. Of those study participants 1,182(60.7%) were female. The vast majority (80.5%) of the respondents were in the age group of 15-18 years, and only 19.0% and 0.5% were 19-24 and above years respectively. Ninety-five percent of the students were single. However, 484 (25%) responded that they had sexual partners during February and March, 2013 and among them 417 (21.5%) ever practiced sexual intercourse. Of the students who had history of sexual intercourse in preceding year of the survey 154 (54.4%) and 175(62.3%) had two or more sexual partners and history of inconsistent condom use, respectively. The age and sex distributions of non-respondents 221 (10.2%) were believed to be similar to that of the respondents because of being in similar schools and grade levels. Besides, this fact was observed from the annual report prepared by the Federal Ministry of Education of Ethiopia for the year 2012/13 and data collected from each participant school through desk review during preliminary assessments [37].

Prevalence of parental death

The prevalence of any parental death among the study subjects was 347 (17.8%) with 95% CI (16.2%, 19.6%), (Table 1). Among those 211(60.8%), 70 (20.2%) and 66 (19.0%) reported that their fathers, mothers and both parents respectively died due to various causes. Moreover, the HIV/AIDS proportionate mortality ratio was 28% (97/347).

In order to assess the associations between having multiple sexual partners and various associated factors like orphan hood, bivariate logistic regression analysis was done (Table 2). Among the variables selected as multiple sexual partner predictors, having high knowledgeable on HIV/AIDS related topics (OR = 0.45; 95% CI, 0.22-0.93), showing positive attitude towards "ABC" rules for HIV prevention (OR = 0.48; CI, 0.25-0.95), being ever tested for HIV (OR = 0.53; 95% CI, 0.33-0.85), and chewing Khat (OR = 1.80; 95% CI, 1.0-3.26), showed positive associations. However, being female (OR = 1.22; 95% CI, 0.76-1.96) age greater than 18 (OR = 0.79; 95% CI, 0.48-1.31), orphan due to any cause (OR = 1.06; 95% CI, 0.62-1.82) and HIV/AIDS related orphan hood (OR = 0.90; 95% CI, 0.40-2.05) did not show statistically significant associations (Table 2).

Furthermore, a multivariate logistic regression was done to assess the independent associated factors of having

Table 1 Distribution of socio-demographic back ground by parental death among school youth in Addis Ababa Ethiopia (N = 1948), 2012/13

Variables	Both parents are alive n = 1601 (%)	At least one of the parents deceased n = 347 (%)	Father deceased n = 211 (%)	Mother deceased n = 70 (%)	Both parents deceased n = 66 (%)
Sex					
Male	635(39.7)	131(37.8)	80(37.9)	21(30.0)	30(45.5)
Female	966(60.3)	216(62.2)	131(62.1)	49(70.0)	36(54.5)
Age category					
15-18	1301(81.5)	263(75.8)	160(75.8)	56(80.0)	47(71.2)
>18 years	295(18.5)	84(24.2)	51(24.2)	14(20.0)	19(28.8)
Education					
Over all	1599(82.2)	346(17.8)	211(10.9)	69(3.6)	66(3.4)
Grade 9-10	641(40.1)	140(40.6)	87(41.2)	25(36.2)	30(45.5)
Grade 11-12	958(59.9)	205(59.4)	124(58.8)	44(63.8)	36(54.5)
Percentage of over all parental death		347 (17.8)	211 (60.8)	70 (20.2)	66 (19.0)
Proportion of HIV/AIDS related orphans		97(4.99)	51(52.6)	19 (19.6)	27(27.8)
Ever had sex					
No	1271(79.8)	249(72.4)	154(74.0)	48(68.6)	47(71.2)
Yes	322(20.2)	95(27.6)	54(26.0)	22(31.4)	19(28.8)
Had sex in previous year					
No	90(29.8)	19(20.9)	11(21.2)	7(36.8)	1(5.3)
Yes	212(70.2)	72(79.1)	41(78.8)	12(63.2)	18(94.7)
No. of sexual partners in previous year					
One	97(46.0)	32(44.4)	19(46.3)	3(25)	9(50.0)
Two or More	114(54.0)	40(55.6)	22(53.7)	9(75.0)	9(50.0)
Condom used					
Consistently	83(39.7)	23(31.9)	11(26.8)	3(25.0)	8(44.4)
Inconsistently	126(60.3)	49(68.1)	30(73.2)	9(75.0)	10(55.6)

multiple sexual partners in previous year of the survey among secondary school students. High HIV/AIDS related knowledge (AOR = 0.39; CI, 0.18-0.84), positive attitude towards HIV prevention methods (AOR = 0.48; 95% CI, 0.23-0.97), ever being tested for HIV (AOR = 0.52; 95% CI 0.31-0.87) and chewing Khat (AOR = 2.59; 95% CI, 1.28-5.26) were significantly associated with having multiple sexual partners among secondary school youths during multivariate logistic analysis (Table 2).

Discussion

This study was conducted among secondary school students in Addis Ababa. The high proportions of age category from 15-18 and female population in the sample were in agreement with the characteristics of current student population in secondary schools in Ethiopia [37].

The findings of this study showed that the prevalence of sexual initiation among secondary school youths is 21.5%. This finding is almost similar to that of the previous

studies conducted among high school adolescents in the country [30,33]. An individual's level of risk for contracting HIV was assessed through one of the UNAIDS proposed core indicators or having multiple sexual partners in previous 12 months.

The proportions of having multiple sexual partners among the study participants in general and those who ever had sexual intercourse in preceding 12 months of the survey were 7.9% and 54.4%, respectively. In addition, one of the important findings of this study is the prevalence of inconsistent condom use among sexually active school youth in preceding year is 62.3%. These findings are in harmony with the findings of studies conducted previously in Ethiopia and other African countries [13,19,20].

As the results of this study reveal, nearly one- fifth (17.8%) of the study subjects experienced death of at least one parent. Most of the orphaned students had lost their fathers (10.9%). This finding is also in line with the findings of the research that had analyzed the Demographic

Table 2 Sexual behavior and associated factors among Secondary school students in Addis Ababa, Ethiopia (N = 417), 2012/13

Variable	No of sexual partners in previous year		Un adjusted OR (95% CI)	AOR (95% CI)
	Two or more n(%)	Only one n(%)		
Sex				
Male	75(47.8)	82(52.2)	1.0	1.0
Female	54(42.9)	72(57.1)	1.22(0.76-1.96)	1.44(0.86-2.40)
Age in completed years				
15-18	84(44.2)	106(55.8)	1.0	1.0
>18	45(50.0)	45(50.0)	0.79(0.48-1.31)	0.76(0.44-1.32)
Lost at least one parent due to any cause				
No	97(46.0)	114(54.0)	1.0	1.0
Yes	32(44.4)	40(55.6)	1.06(0.62-1.82)	1.18(0.59-2.36)
Lost at least one parent due to HIV/AIDS related cause				
No	117(45.3)	141(54.7)	1.0	1.0
Yes	12(48.0)	13(52.0)	0.90(0.40-2.05)	0.81(0.28-2.35)
Level of HIV/AIDS related knowledge				
Low	22(62.9)	13(37.1)	1.0	1.0
High	107(43.1)	141(56.9)	0.45(0.22-0.93)	0.39(0.18-0.84)
Attitude towards 'ABC' rules of HIV prevention				
Negative	25(61.0)	16(39.0)	1.0	1.0
Positive	104(43.0)	138(57.0)	0.48(0.25-0.95)	0.48 (0.23-0.97)
HCT up-take				
No	77(53.5)	67(46.5)	1.0	1.0
Yes	52(37.7)	86(62.3)	0.53(0.33-0.85)	0.52(0.31-0.87)
Drink alcohol				
No	75(55.1)	61(44.9)	1.0	1.0
Yes	79(53.7)	68(46.3)	0.95(0.59-1.51)	0.66(0.38-1.15)
Chew khat				
No	113(51.4)	107(48.6)	1.0	1.0
Yes	40(65.6)	21(34.4)	1.80(1.0-3.26)	2.59(1.28-5.26)

and health surveys and related household surveys of ten African countries (Benin, Chad, Congo (Brazza-ville), Côte d'Ivoire, Lesotho, Malawi, Mozambique, Tanzania, Uganda and Zimbabwe) [41].

Although the magnitude of the prevalence of orphanhood is very significant, our finding is slightly lower than those reported previously from Zimbabwe in 2008 [13]. However, among the students who lost one or both parents due to various causes, 28% reported that they lost their parents due to HIV/AIDS.

The study also showed that the proportion of students who had multiple sexual partners in previous year didn't have statistically significant variation in age and sex. Nonetheless, these findings are not consistent with the findings from National surveys of four African countries that showed differences in sex and age groups regarding exposure to multiple sexual partners, and other studies

done in South Africa and Burkina Faso that indicated variations in sexual behavior among different sex and age groups [18,19,42].

The hypothesis on risky sexual behavior that states, students who lost at least one parent due to any cause, including HIV/AIDS are more exposed to HIV because of the likelihood that the orphaned youths could face more economic challenges and/or lack parental guidance was not supported by our findings. This is also in agreement with the study done in a neighboring country, Kenya [12]. But our findings are not in line with findings of the previous studies conducted in some other countries [5,13,15]. This could be explained in terms of the difference in economic statuses of surveyed countries and effectiveness of intervention programs to care and support orphaned children and adolescents.

The most significant findings of this study are having high knowledge on HIV/AIDS, positive attitude towards the common preventive methods “ABC” rules and being tested for HIV had shown an intended positive associations with having multiple sexual partners among school youths during both bivariate and multivariate analyses. However, these observations are not in accordance with findings from different countries that reported “both in school and out of school youth are experiencing risky sexual behavior and do little to prevent HIV and other STIs despite their high knowledge on HIV/AIDS and positive attitude towards its prevention methods” [20,22]. On the other hand, in many instances, low knowledge of HIV transmission methods and negative attitude to preventive measures like using condoms are associated with sexual behavior among adolescents who are most at risk [42].

Furthermore, having multiple sexual partners among school youth was not associated with parental loss due to HIV/AIDS or any other cause during both bivariate and multivariate analyses. But being tested for HIV and Chewing Khat were significantly associated with multiple sexual partnerships among secondary school youths.

As the primary aim of HCT is preventive, the finding of this study is in agreement with the findings of studies conducted in many other African countries that revealed the significant effects of HCT on reducing the magnitude of risky sexual practice [43-45]. On the other hand, our findings are not in line with the findings of a study that revealed individuals who tested negative were more likely to report multiple sexual partnership and intercourse with non-primary sexual partners [46].

The observed association between having multiple sexual partners and chewing Khat could be because of the effects of stimulant substance found in Khat that may impair the ability of the mind for right judgment by temporally decreasing the level of fear against any risk factor including HIV. In addition, comparing with their peers those youths who are actively involved in chewing Khat are more likely to drink alcohol and smoke cigarettes which could increase the probability of indulging into risky sex. Similar associations were also observed in the findings of various studies conducted in different countries [13,23,27-29,43].

Nevertheless, as the information for this study were obtained from self reports of the study participants and there were no opportunities to cross check the opinion from other sources, the observed associations could be assessed further.

Furthermore, as the study design was cross sectional, although it is strong to establish associations, the probability of identifying the true effect of orphan hood on having multiple sexual partners is weak. In addition, since the study participants were only from secondary schools, there might be a challenge to implement the

expected interventions based on the findings of this study to the primary school and college students in various settings.

However, the random selection of study participants, large sample size, and data collectors and supervisors being health professionals with diploma and above educational background can be taken as the significant strengths of this study.

Conclusions

In general, about one- fifth of school youths in Addis Ababa experienced parental death. High knowledge of HIV/AIDS, positive attitude towards “ABC” rules for HIV prevention, being tested for HIV and chewing khat are more likely to be factors associated with multiple sexual partnerships of both orphaned and non-orphaned secondary school students in Addis Ababa.

The education sector and its stake- holders should strengthen the current intervention strategies against the HIV/AIDS epidemic by giving due consideration to the intended outcomes of the above associated factors of sexual behaviors among school youths through mini media, HIV/AIDS clubs, peer education, school community conversation and the like.

Finally, nationally representative research on the same problem and its outcome for better and multi dimensional interventions against the fatal epidemic of HIV/AIDS can also have paramount importance.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All the three authors, TM, AA and AW, participated at different stages of the development of the proposal and implementation of the study. All authors have read and approved the final manuscript.

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**Effects of Peer Education Intervention on HIV/AIDS related Sexual Behaviors of
Secondary School Students in Addis Ababa, Ethiopia: a Quasi-Experimental Study**

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27

28 **Abstract**

29 **Background:** Worldwide, about 50% of all new cases of HIV occur in youth between
30 age 15 and 24years. Studies in various sub-Saharan African countries show that both out
31 of school and in school adolescents and youth are engaged in risky sexual behaviors.

32 School-based health education has been a cornerstone of youth-focused HIV prevention
33 efforts since the early 1990s. In addition, peer-based interventions have become a
34 common method to effect important health-related behavior changes and address the
35 HIV/AIDS pandemic. Thus, the aim of this study was to evaluate efficacy of peer
36 education on changing HIV related risky sexual behaviors among school youth in Addis
37 Ababa, Ethiopia.

38 **Methods:** A quasi experimental study with peer education intervention was conducted in
39 purposively selected four secondary schools (two secondary schools for the intervention
40 and other two for the control group) in Addis Ababa, Ethiopia. Five hundred sixty
41 students from randomly selected sections of grade 11 were assessed through anonymous
42 questionnaires conducted in pre- and post-intervention periods. Pertinent data on socio-
43 demographic and sexual behavior related factors were collected. The statistical packages
44 used for data entry and analysis were epi-info version 3.5.4 and SPSS version 20.0
45 respectively. Chi-square test and multivariable logistic regressions were used for testing
46 association between peer education intervention and sexual behaviors of students. In
47 addition to testing association between dependent and independent variables, multi-
48 variable analysis was employed to control for the effects of confounding variables.

Results: When the pre and post intervention data of each group were compared, comprehensive Knowledge of HIV (P-Values =0.004) and willingness to go for HIV counseling and testing (P-value= 0.01) showed significant differences among intervention group students during post intervention period. Moreover, students in the intervention group were more likely to use condoms during post intervention period compared to students of the control group [AOR=4.73 (95% CI (1.40-16.0)).

Conclusion:

Despite short follow up period, students in the intervention group demonstrated positive changes in HIV related comprehensive knowledge and showed better interest to go for HIV testing in the near future. Furthermore, positive changes on risky sexual behaviors were reported from the intervention group. Implementing secondary school targeted peer education by allocating appropriate amounts of resources (money, man power, materials and time) could play significant role to prevent and control HIV/AIDS among school youth.

Keywords: Peer education, Quasi-experimental study, Secondary school, Youth, Sexual behavior, HIV/AIDS Prevention, Ethiopia

71 **Background**

72 A systematic review conducted on studies from various sub-Saharan African countries
73 shows that both out of school and in school adolescents and youth experience risky
74 sexual behaviors (1).

75

76 The level of comprehensive knowledge on HIV/AIDS among young people in Sub
77 Saharan Africa remains low (36% for young men and (28%) for young women) (2).
78 Even though youth are knowledgeable about AIDS prevention measures, many of them
79 do little to prevent it or other sexually transmitted diseases (1).

80

81 A study done in Ethiopia on youth revealed that among those who started sexual
82 intercourse with their boy/girl friends, only 58.5% used condom and only 32.6 % were
83 tested for HIV (3).

84

85 According to the Health Impact Evaluation conducted in Ethiopia in 2008, among women
86 aged 15-24 years, those who reported consistent condom use were 48%, limited sexual
87 intercourse with one uninfected partner were 50% and abstained from sex as means of
88 preventing HIV infection were 58% (4).

89

School-based HIV/AIDS health education may be an effective way to prevent the spread of HIV among adolescents and youth (5, 6). It has been a cornerstone of youth-focused HIV prevention efforts since the early 1990s (5).

In order to maintain healthy sexual behaviors, change of risky sexual behaviors, and modify norms, peer-led HIV intervention that involve members of a specific at-risk group are thought to be more effective (7). Compared to professional health care providers, using peer educators is less expensive (7, 8). In addition, peer-based interventions have become a common method to effect important health-related behavior changes and it is one of the most widely used strategies to address the HIV/AIDS pandemic (6, 9).

Peer education is a strategy in which individuals from a target group provide information, training, or resources to their peers. The groups can be determined by social or demographic characteristics (e.g., age, education, type of work) or by risk-taking behavior (10). It has been a popular method of health education for HIV prevention since 1980s, perhaps because of the positive interaction it brings between peers (11, 12). Generally, peer education is a low cost and widely used intervention for HIV prevention especially among young population.

A systematic review and meta-analysis of peer education interventions demonstrated that peer education interventions were significantly associated with increased HIV

knowledge, reduced equipment sharing among injection drug users and increased condom use (6). But it had a non-significant effect on biological outcomes like STI (6).

A study showed that participants of school-based intervention group reported higher levels of HIV related knowledge, better condom use and more positive attitudes towards condoms at follow-up than participants in control schools (13).

The findings of a study on peer education indicated that peer education increases the knowledge of HIV/AIDS prevention methods among secondary school students (14). Nevertheless, the findings of a systematic review have reported the limited effectiveness of peer education intervention in increasing knowledge, changing attitudes and reducing risky sexual behavior (1). Moreover, the results of another systematic review on school based intervention programs suggested that knowledge and attitudes are easiest to change, where as behaviors are much more challenging (15).

A Meta-analysis indicated that peer education programs in developing countries are moderately effective in improving behavioral outcomes, but showed no significant impact on biological outcomes (16). Although there are evidences for peer education intervention to bring positive changes in risky sexual behavior, the findings are not consistent among various study groups.

In general, the goal of peer education is to develop knowledge, attitudes, beliefs, and skills needed to engage in healthy behaviors (17). However, despite the fact that peer

education intervention is implemented as one of the HIV prevention and control strategies among school youth in Ethiopia including the study area, the Addis Ababa City Administration, there was no study done on its effects among various population groups in the country.

Therefore, the main purpose of this quasi-experimental study was to evaluate if peer education is an effective method of HIV prevention in high school settings. The initial hypothesis was whether the use of the specific behavioral intervention in secondary schools to prevent and control HIV/AIDS epidemic could change the knowledge, attitudes and practices of school youth in urban Ethiopia.

2. Materials and Methods

Study setting and design

Secondary school based quasi-experimental study was conducted from March to June, 2013 in Addis Ababa, the Capital City of Ethiopia. According to the national census of 2007, the projected population of Addis Ababa for the year 2012 was 3,048,631 and among those, 52.4% were female (18, 19). The Capital City is administratively divided into ten sub-cities (Kifle- Ketemas) and one –hundred and sixteen districts /Woredas (20). There were 745 Primary and 163 Secondary schools (both government and non-government) in Addis Ababa. The number of students enrolled in the year 2012/2013 were 503,877(54.9% female) and 136,636(46.1% male) in primary and secondary schools respectively (21).

Sampling procedure

Intervention and control groups assigned purposively. Students included in both the intervention and control groups were from grade 11 of purposely selected four secondary schools at different Sub-cities in the study area. This study was aimed at addressing one of the five different, but y interrelated specific objectives of a PhD project, with a wider scope.

Multi-stage and multiphase sampling techniques were done. In phase I: 103 public schools (76 randomly selected primary schools and all 27 secondary schools) were participated in order to address specific objective I, i.e., among 220 public schools which satisfied the inclusion and exclusion criteria about 50 % were selected based on available resources). Then in phase II, 30 public schools (15 primary and the other 15 secondary) were selected using systematic sampling techniques, in order to address

specific objectives II, III&IV. Finally, in Phase III, four secondary schools (two for the intervention and the other two for control groups) among the above 27 public secondary schools were selected purposely in order to address specific objective V, i.e., the current study which is the effects of peer education intervention on HIV related sexual behaviors among secondary school youth. The detail of the methodology is described elsewhere.

This quasi-experimental study aimed at peer education intervention, and used consistent condom utilization among students as a major outcome variable. In addition, to get an adequate sample size for both the intervention and control groups, two population proportion sample size calculation formula, with 5% type I error and 80 % power was used. Accordingly, n_1 has represented students selected for the intervention group and n_2 represented students selected for the control group. Moreover, for the prevalence of condom use among intervention group during post intervention period (P_1), 0.88 was taken from a similar study conducted in Nigeria (22). For the prevalence of condom use among the comparison or control group during post intervention (P_2), 0.52 was taken from the same study (22). Thus, r or ratio of $n_2, n_1 = 1$ and $P = 0.88 + 0.52 \div 2 = 0.7$. Finally, 15 % contingency was added for possible refusal to participate in the study and also to maximize the sample size as much as possible for better validity. As a result, the calculated sample size was $244 + 36 = 280$ students from two secondary schools for the intervention group and another 280 students for the control group from other two purposively selected secondary schools.

Moreover, as the required number of students from each purposely selected four schools was 140, among 15- 20 sections of Grade 11 in each school, 3-4 sections were randomly selected proportionately to their student population, and then 30-40 students who satisfied the inclusion criteria and also were volunteer to participate were involved in this study from each section.

Data collection and quality control

Data were collected from the intervention and control group students using self-administered and similar questionnaire during both pre and post intervention periods. The questionnaire had several sections with various socio-demographic and sexual behaviors related variables. The questionnaire was initially prepared in English language and translated to Amharic and then back to English to maintain its consistencies in meanings and senses, by two individuals with expert knowledge in both Amharic and English languages. The questionnaire was pre- tested in two secondary schools which were not selected for the actual data collection. Then, the required corrections in language and content were done for better clarity and more understandability. The pre and post intervention data collections were facilitated by six diploma holder nurses under the supervisions of two senior health professionals (a health officer and a BSC Nurse with long work experience and were also instructors at different private Health colleges in Addis Ababa, Ethiopia and the principal investigator.

The peer education facilitators were students nominated by their peers based on their observed active class participations and good communications with students in the

229 respective classrooms. They were also volunteers to participate in the peer education
230 training. Two days of training was given for 30 students (15 proportionally combined
231 male and female students or peer education facilitators from each intervention targeted
232 secondary school). The training was given by the principal investigator and an expert
233 from the Addis Ababa City Administration HIV/AIDS Prevention and Control Office.
234 Furthermore, supplementary and relevant reference materials were brought from the
235 HIV/AIDS Prevention and Control Office of the City Administration and distributed to
236 the peer education facilitators after the training.

237
238 During the training, various topics related to the structure and functions of human
239 reproductive organs, HIV/AIDS, prevention methods of HIV and risky sexual behaviors
240 among in school youth, etc were covered. The education facilitators educated their peers
241 then after. The number of sessions conducted by each group were two times a week
242 either after the regular school hours or using free periods as deemed necessary.. Each
243 session lasted for at least 40 minutes.

244
245 Throughout the intervention period, supportive supervisions were done by the principal
246 investigator in collaboration with the respective directors and/or deputy directors of the
247 two secondary schools selected for intervention group in order to monitor the
248 effectiveness of the peer education program. The post intervention data were collected
249 three months after the pre-intervention survey (from March to June, 2013).

Ethical Considerations

An ethical clearance was secured prior to the study from the Institutional Review Board of the College of Health Sciences of the Addis Ababa University. Official letter of cooperation was written from the School of Public Health of the Addis Ababa University to the Addis Ababa City Administration Education Bureau, and then similar letters were written from the Education Bureau to all concerned bodies.

Verbal consents from all participants were obtained after being fully informed about the objectives and procedures of the study. Confidentiality and anonymity were maintained. No name or other identifying information was included in the data collection instruments.

The post intervention period data were collected after three months of the base line survey.

Data Analysis

The data collected from both the intervention and control group students during pre and post intervention periods were entered first into Epi-Info software version 3.5.4 for cleaning and then exported to SPSS software version 20.0 for analysis. Descriptive statistics, such as frequencies and proportions were used to describe the study population in relation to the relevant variables. Cross tabulation of variables were also done. Dependent variables measured were comprehensive knowledge of HIV/AIDS, ever initiated sexual intercourse, ever being tested for HIV, number of sexual partners,

frequency of condom use and willingness to go for HIV counseling and testing within 2 months after the survey.

The independent variables were study allocations (being in intervention or control group) and some socio-demographic variables. In order to evaluate the association between peer education and HIV/AIDS related sexual behaviors and assess for any group difference, Chi-square test was used. Furthermore, multivariable logistic regression analyses were also done in order to assess the relations among various HIV related behavioral outcome variables and characteristics of the study participants being either in peer education intervention or control group by controlling for some socio-demographic confounders like sex, age, religion and ethnicity (Table3). The outcome variables selected were knowledge of HIV/AIDS, consistent use of condom in the previous 12 months, i.e., in the year preceding the survey and willingness to go for HIV Counseling and Testing(HCT). During chi-square tests, p-values less than 0.05 were considered as statistically significant. Furthermore, in multivariable binary logistic regression analysis, the value of an adjusted odds ratio (AOR) along with the corresponding 95% confidence interval was used to assess the strength of the association.

Measures of the study

The variables used for multivariate analysis of this study were selected based on their statistical significances during bivariate analyses and on their theoretical background. Moreover, some variables like comprehensive knowledge of HIV/AIDS were measured

using Likert scale. Ten HIV/AIDS related knowledge questions like, heard or not about the disease HIV/AIDS, identifying major routes of HIV transmission, identifying main methods of HIV prevention, whether a healthy looking person can be infected with HIV or not, whether AIDS can be cured or not, etc were included in the questionnaire. During the analysis stage, if a study subject responded for more than five questions correctly, she or he was considered as having comprehensive HIV/AIDS related knowledge. In addition, consistent use of condom was measured based on the study subjects responses to the question asked on the history of using condom during every act of penetrative sexual intercourse in previous 12 months of this survey. If the study subject responded as s/he used condom always in previous 12 months, it was taken as consistent use of condom to prevent the risk of HIV.

Results:

All 280 eligible study subjects of the intervention group completed the self administered anonymous questionnaires during both the pre-intervention and post intervention periods (Table 1). Nevertheless, among the control group students, those who completed the questionnaire were 280 (100%) during the pre intervention period and 260 (92.9%) during the post intervention period. In addition, when the averages of pre and post intervention data of each group were analyzed, 84.3% of the intervention group and 81.6% of the control group students were in the age group of 15-18 years (Table 1).

As the averages of pre and post intervention data showed, females constituted 62.0% of the intervention group and 61.8% of the control group students. In addition, 95.9% of the

study participants of the intervention and 95.0% of the control group were single. Among the intervention group students, 71.8% were Orthodox Christian Religion followers and 32.7% were Amhara by ethnicity. Whereas, among those students in the control group, Orthodox Christian followers constituted 78.8% and those Amhara by ethnicity were 38.9% (Table 1).

Table 2 depicts the comparison between base line and end line findings of both the intervention and control groups in relation to selected sexual behavior indicators. The proportions of study participants in the intervention group with comprehensive HIV/AIDS related knowledge were 72.0% during pre intervention and 82.0% during post intervention periods (P-value =0.004). Among the participants of the intervention group, 44.7% during pre intervention and 59.6% during post intervention periods responded as they have willingness to go for HIV counseling and testing within two months after the survey (P-value 0.01). Thus, HIV/AIDS related comprehensive knowledge and willingness to go for HCT within two months after the survey have showed statistically significant associations with peer education intervention (Table 2).

In addition, among the study subjects in the intervention group, as the post intervention findings indicated, 22.3% had ever initiated sex (P-value 0.72), 49.1 % ever tested for HIV (P-value 0.53), 47.7% reported that they had only one sexual partner (P-values 0.21) and 53.5% reported consistent use of condom (P-values 0.24) during the year preceded the survey (Table 2).

Furthermore, the post intervention period findings of the control group didn't show statistically significant changes between the base line and end line findings regarding HIV/AIDS related risk behaviors among secondary school students of the group. For instance, of the students of the control group, those with high knowledge of HIV/AIDS were 78.0% (P-value 0.97), ever initiated sex were 20.8% (P-value 0.24), ever being tested for HIV were 48.3% (P-value 0.52), had only one sexual partner in previous year were 43.2% (P-values 0.78), used condoms consistently in the year preceding the post intervention survey were 48.6% (P-value 0.09), and showed willingness to go for HCT service within two months after the study period were 54.5% (P-value 0.05) (Table 2).

In the multivariable binary logistic regression analysis being in peer education intervention group [AOR=4.73 (95% CI: 1.40-16.0)] and Oromo by ethnicity [AOR=0.45 (95% CI: 0.23-0.89)], have shown statistically significant associations with some risky sexual behavior related factors. However, comparing with the students of the control group, the intervention did not show statistically significant effect in improvising HIV related knowledge [AOR=1.20 (95% CI: 0.77-1.87)] and in improving the proportion of students willing to go for HCT in the near future [AOR=1.23 (95% CI: 0.75-2.02)] during the multivariable logistic regression analysis (Table 3).

Discussions

According to this study, the level of comprehensive knowledge on the major routes of HIV transmission and ways of prevention amongst both the study group and control group have already reached to an encouraging level during the pre-intervention period.

This finding is higher than the recent Global report by UNAIDS on comprehensive HIV/AIDS knowledge among young people in sub-Saharan countries (2).

As the finding of the chi-square tests that compared the changes between the base line and end line data of both the study and control groups showed, the HIV/AIDS related knowledge of the intervention group increased significantly during the post intervention period (Table 2). This could be explained by the assumption that peer educators are the trustworthy sources of information on HIV/AIDS for the school youth. This finding is in line with similar studies conducted on the effects of peer education in various countries (5, 6, 10-12).

Although the number of students with high HIV/AIDS related knowledge increased during the post intervention period, it lost statistical significance during multivariable logistic analysis. Moreover, despite increased knowledge during post intervention period among intervention group students, risky sexual behaviors like limiting number of sexual partners only to one in the year preceding the study didn't show statistically significant association to peer education intervention. But the findings are in agreement with some other studies conducted previously (1, 15, 16), while they are in disagreement with findings of other studies (6, 7, 13). These observations may be explained by the

assumption that the school adolescents and youths perhaps were not fully convinced with the information given by their peers on HIV related risky sexual behaviors.

Furthermore, although most of the findings of the current study did not show statistically significant differences between the intervention and control groups, peer education intervention seemed to empower students to adopt less risky sexual behaviors. These differences could be explained in terms of the current theoretical knowledge on HIV/AIDS and $P\text{-values} < 0.05$. In addition, the observed slight differences between the students in the intervention and control groups are in line with findings documented previously in various studies conducted on the effects of peer education interventions (6, 15).

In spite of positive improvements in minimizing some of the HIV related risky sexual behaviors among students involved in the study, almost equal number of the intervention and control groups did not undertake HIV counseling and testing following post intervention.

Nevertheless, significantly more students in the intervention group showed their willingness to go for HIV counseling and testing within two months after the study compared to controls. Our findings are consistent with findings of previous studies from various developing countries (3, 6, 9, 16, 17).

Nevertheless, results from the multivariable logistic regression analysis didn't show statistically significant differences between the intervention and control groups regarding

willingness to go for HCT in the near future, during the post intervention period (Table 3).

The shorter follow-up period for peer education intervention, owing to the very nature of school programs and scarcity of required resources, like free time and money, and lack of motivation among some of the peer educators and study participants due to our inability to respond positively for their request to be paid for their transportation and refreshments can be considered as the limitations of this study. In addition, information on HIV/AIDS that the students might have got from other sources like, mass media and web sites could have also an influence on the findings of this study.

Conclusion

This study endeavored to provide some insights on the effects of peer education intervention on HIV/AIDS related sexual behaviors among secondary school youth.

Regardless of the very short follow-up period for the effect evaluation, due to the very features of the school environment and the critical financial constraints, over all, more positive sexual behavior related changes were noted among the intervention group students.

Thus, implementing peer education program in secondary schools by allocating reasonable resources could play significant role to bring about positive changes in the sexual behaviors of school youth and prevent them from the deadly epidemic, HIV/AIDS.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All the three authors, TM, AA and AW, participated at different stages of the development of the proposal and implementation of the study. All authors have read and approved the final manuscript.

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Annexes:

Table 1: Socio-demographic Characteristics of the study participants from secondary schools in Addis Ababa, Ethiopia, March-June 2013

Variables	Control group		Intervention group	
	Pre intervention n(%)	Post intervention n(%)	Pre intervention n(%)	Post intervention n(%)
Age group (in completed years)				
15-18	234(83.6)	223(79.6)	240(85.7)	232(82.9)
>18	46(16.4)	36(12.9)	40(14.3)	48(17.1)
Sex				
Male	99(35.4)	95(33.9)	108(38.6)	105(37.5)
Female	181(64.6)	165(58.9)	172(61.4)	175(62.5)
Marital status				
Single	266(95)	247(95)	271(96.8)	266(95)
Married and others	14(5)	11(4)	7(2.5)	13(4.6)
Religion				
Orthodox	214(76.4)	211(81.2)	199(71.1)	203(72.5)
Protestant	32(11.4)	25(9.6)	17(6.1)	22(7.9)
Catholic	-	-	1(0.4)	1(0.4)
Muslim	30(10.7)	19(7.3)	61(21.8)	52(18.6)
Others	4(1.4)	5(1.9)	2(0.7)	2(0.7)
Ethnicity				
Amhara	114(40.7)	104(37.1)	95(33.3)	98(32)
Oromo	65(23.2)	71(25.4)	48(17.1)	46(16.4)
Tigrie	43(15.4)	42(15)	32(11.4)	36(12.9)
Ghuragie	40(14.3)	30(10.7)	79(28.2)	76(27.1)
Others	18(6.4)	13(4.6)	26(7.3)	24(8.6)

Table 2: The sexual behaviors of students in the intervention and control groups during pre and post intervention period among secondary school students in Addis Ababa, Ethiopia, March-June 2013

Indicators	Control group			Intervention Group		
	Base line (N=280)	End line (N=260)		Base line (N=280)	End line (N=280)	
	n(%)	n(%)	P-Value	n(%)	n(%)	P-Value
High Knowledge of HIV/AIDS	218(77.9)	202(78.0)	0.97	201(72.0)	230(82.1)	0.004
Ever had initiated sexual intercourse	47(16.8)	54(20.8)	0.24	59(21.1)	62(22.3)	0.72
Ever tested for HIV	127(45.5)	125(48.3)	0.52	130(46.4)	136(49.1)	0.53
Limiting sexual partner only to one in the last 12 months	14(40.0)	16(43.2)	0.78	16(34.8)	21(47.7)	0.21
Consistent use of Condom in the last 12 months	19(54.3)	10(31.2)	0.06	18(40.9)	23(53.5)	0.24
Willingness to HCT within 2 months after the survey	65(42.8)	73(54.5)	0.05	63(44.7)	84(59.6)	0.01

Table 3: The effects of Peer education on sexual behavior of Secondary school students in the study group during post intervention period; Addis Ababa, Ethiopia, 2013

		Knowledge of HIV/AIDS			Consistent Condom use in the previous 12 months			Willingness to go for HCT		
		High	Low	AOR 95% CI	Alwa ys	No t al wa ys	AOR 95% CI	Wil ling	Not Willin g	AOR 95% CI
Factors										
Group	Intervention	230	50	1.20(0.77-1.87)	23	18	4.73(1.40-16.0)	84	57	1.23(0.75-2.02)
	Control	202	57	1	10	22	1	73	61	1
Sex	Male	168	31	1.57(0.98-2.50)	15	25	2.63(0.84-8.23)	66	45	1.12(0.67-1.82)
	Female	264	76	1	18	15	1	91	73	1
Age	15-18	363	91	0.91(0.50-1.69)	20	29	2.09(0.66-6.60)	138	108	0.70(0.31-1.59)
	>18	69	15	1	13	11	1	19	10	1
Religion	Orthodox	329	84	0.71(0.33-1.53)	27	34	3.51(0.48-25.51)	116	82	1.0(0.50-2.0)
	Protestant,	42	13	0.68(0.26-1.77)	1	4	5.64(0.30-104.70)	12	16	0.53(0.20-1.45)
	Catholic and others									
Ethnic Group	Muslim	61	10	1	5	2	1	29	20	1
	Amhara	164	38	0.76(0.40-1.45)	17	14	1.12(0.30-4.24)	54	45	0.72(0.37-1.39)
	Oromo	85	32	0.45(0.23-0.89)	1	10	0.07(0.01-0.88)	33	22	1.0(0.46-2.15)
	Ghuragie	84	21	0.59(0.28-1.23)	5	7	3.37(0.55-20.85)	31	27	0.69(0.32-1.46)
	Tigrie and others	99	16	1	10	9	1.	39	24	1