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ASSESSMENT OF WILLINGNESS AND ACCEPTABILITY OF CERVICAL CANCER SCREENING AMONG WOMEN LIVING WITH HIV/AIDS IN SELECTED PUBLIC HEALTH INSTITUTION OF ADDIS ABABA ETHIOPIA, JUNE 2014

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This thesis by Netsanet Belete Andargie is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Master of Science in Maternity and reproductive health nursing.

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Acronyms /Abbreviations

AIDS –Acquired Immune Deficiency Syndrome

ART _ Anti-Retroviral Therapy

CC _ Cervical Cancer

CDC _ Center for Disease Control and prevention

FMoH _ Federal Ministry of Health

HBV _ Hepatitis B Virus

HCV _ Hepatitis C Virus

HIV – Human Immune Virus

HPV _ Human Papilloma Virus

HRHPV _ High-Risk genotypes of Human Papillomavirus

IDU _ Injecting Drug Use

NGO – Non Governmental Organization

OR_ Odds Ratio

Pap _ Papanicolaou

STD _ Sexually Transmitted Diseases

UICC _Union for International Cancer Control

USA _ United States of America

USPSTF- United States Preventive Service Task Force

WHO _ World Health Organization

WLH _ women living with HIV/AIDS

Abstract

Background - Cancer is one of the world's major killer diseases. Cervical cancer is a disease in which the cells of the cervix become abnormal and start to grow uncontrollably, forming tumors and it is the first most common cancer in women living in sub-Saharan Africa, but no more than 5% of women in these settings are screened for cervical cancer even once in their lifetimes. Cervical cancer is a preventable disease, however the prognosis of the disease depends on the stage at which the disease is diagnosed and start treated.

Objective – To assess the willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in selected public health institutions of Addis Ababa, Ethiopia from December – June, 2014.

Methodology - An institutional based quantitative cross sectional study design supplemented by qualitative in depth interview was conducted to assess willingness and acceptability of cervical cancer screening among women living with HIV/AIDS. After simple random selection of health institutions, based on patient flow proportional allocation of study units was done to get study units from respective health institutions. Data was collected using structured questionnaires. Multivariate logistic analysis method was employed to determine factors significantly associated with acceptability.

Result-A total of 322 study subjects were included in this study. Of these 110 (34.2%) heard about cervical cancer before, 202 (62.7%) were willing to be screened for cervical cancer, but finally only 80 (24.8%) were accepted the test. This study also identifies the knowledge level of the study participants, and only 81 (25.1%) were considered as knowledgeable. Women who list the first most cause of cervical cancer as viral/HPV were 1.8 times more likely to accept the test than those who list other than this (AOR: 1.8, 95% CI: 1.011, 3.895, P=0.04).

Conclusion and Recommendation-More than half of the study participants don't want to undergo the test, and most reason given was due to long waiting time. So the investigator recommend disease prevention unit of FMoH to integrating this preventive care service in the existing HIV/AIDS treatment guideline and making the screening service available in majority of the public health institutions.

1. INTRODUCTION

1.1 Background

Cancer is one of the world's major killers, being responsible for about 12.6% of all deaths globally in 2004 and killing more people than AIDS, tuberculosis and malaria combined. The most recent estimates of global cancer burden, in 2008, revealed a total of 12.7 million new cancer cases worldwide, with 7.6 million deaths [1].

Cervical cancer is a disease in which the cells of the cervix become abnormal and start to grow uncontrollably, forming tumors. It is considered a disease of early and late middle age [2].Cervical cancer is the first most common cancer in women in sub-Saharan Africa followed by breast cancer. In Ethiopia, the incidence of cervical cancer is high i.e. 35.9 per 100,000 women [3]. In addition greater than 80% of the world's new cases and deaths due to cervical cancer occur in the developing world. No more than 5% of women in these settings are screened for cervical cancer even once in their lifetimes [4, 5].

Cervical cancer is a preventable disease, yet the number of cases globally is expected to almost double by the year 2025 [6]. Infection with high-risk genotypes of human papilloma virus (HRHPV) is the primary cause of invasive cervical cancer; over 70% of all cervical cancers are attributable to infection with HPV-16 and 18 [7].

Cervical cancer is diagnosed commonly using Pap smear. The earlier cervical cancer is diagnosed the more successfully it can be treated. Regular cervical screening can save thousands of live every year. Cervical cancer screening should occur no more than once every three to five years [8].

Since the onset of the HIV epidemic, the United States Centers for Disease Control and Prevention (CDC) has classified cervical cancer, Kaposi sarcoma and non-Hodgkin's lymphoma as AIDS-defining cancers because of their close association with HIV infection [9].

In sub-Saharan Africa, women account for about 60% of people living with human immune - deficiency virus (HIV), and young women aged 15-24 years are as much as eight times more likely than men to be HIV positive (HIV+) [10, 11].

In sub Saharan African countries where cervical cancer is endemic; HIV infection has become one of the leading causes of death in women, making the interactions between the diseases a major public health challenge. The risk of developing cervical cancer and increased aggressiveness of existing cervical cancer has been reported in HIV infected women [12].

1.2. Statement of the problem

Each year about half a million women develop invasive cancer of the uterine cervix, with more than 80% occurring in low income countries, where cervical cancer screening and treatment is much more limited than in the developed world. A majority of the cases presents in late stages when available treatments are ineffective. The scenario is entirely different in high-income countries where cervical cancer has almost been eliminated as a result of efficient cervical cancer prevention program [13]. Another important contributor to the cervical cancer burden in Africa is the high prevalence of HIV, especially in Sub-Saharan Africa (5%). Women with HIV are six times more likely to develop cervical cancer compared to those not infected with HIV, due to HIV-related immune suppression [14, 15].

Cervical cancer screening is not yet standard of care of women attending HIV care clinics in Africa and presents operational challenges that need to be addressed. The frequency of positive visual inspection in HIV-positive women was 9.0%, significantly higher than the 3.9% estimate found in HIV-negative women. This highlights the need to extend cervical cancer screening to all HIV care clinics [12, 17, 18].

Some of the causes of cervical cancer are identified to be human Papilloma virus (HPV), many sexual partners or becoming sexually active early, smoking, weakened immune system, certain genetic factors, long-term mental stress, giving birth at a very young age, several pregnancies, long term use of contraceptive pills and other sexually transmitted diseases [16].

Women in developing countries seem to utilize reproductive health services more during pregnancy, for post natal checkup and family planning or when faced with various gynecological problems and awareness of cervical cancer screening was very low among women utilizing health facilities. It could be worse among those not coming to the health facilities [19].

Although cervical cancer is a leading cause of cancer related morbidity and mortality among women in Ethiopia, there is lack of information regarding the perception of the community about the disease. Also in this high risk population, cervical screening coverage as part of HIV care was low. Cervical abnormalities in HIV-positive women are more likely to be severe, aggressive and

resistant to treatment and HIV-positive women have a 5 to 8-fold increased risk of invasive cervical cancer compared with the general population [1, 20].

Literacy challenges may be exacerbated among women living with HIV (WLH) because of the complexity and amount of health information they may encounter. These findings highlight the need to understand contextual factors such as health literacy in health decision making related to cervical cancer screening [23]. So the purpose of this study is to investigate the willingness and acceptability of cervical cancer screening among women living with HIV, since these people were the most susceptible group and in need of this preventive care service.

1.3 Significance of the study

Screening through Papanicolaou test (Pap smear) has been shown to decrease cervical cancer incidence by identification of cervical dysplasia and removal of these precancerous lesions. Further, a variety of treatment options exist depending on stage. Women in developing countries are at greater risk of death from cervical cancer primarily because few have access to the screening and treatment services that have greatly reduced mortality in the industrialized world.

So the findings of this study will help the beneficiaries for early identification and strict follow up of cervical cancer patients and increase awareness about the disease and its preventive actions. Moreover; it will serve other researchers and health policy makers to know more about the extent of the disease in women living with HIV/AIDS and to consider cervical cancer screening as part of HIV/AIDS diagnosis and treatment guideline. Other stakeholders including non-governmental organizations can work against the common identified factors that prevent the women from screening.

2 Literature Review

2.1 Prevalence of Cervical Cancer

Worldwide estimates in 2010 indicate that every year 493,243 women are diagnosed with cervical cancer and 273,505 die from the disease. The prevalence of cervical cancer in the developing world is 59.4 per 100,000 [28].

Each year, approximately 12,000 women are diagnosed with cervical cancer in the USA. WLH bear the largest burden, accounting for 70 % of all cervical cancer cases. The higher incidence of cervical cancer among WLH is related to persistent infection with high-risk (i.e., oncogenic) types of HPV. Despite this evidence-based recommendation, the Centers for Disease Control and Prevention found that 23 % of WLH do not receive annual Pap tests [22].

Ukraine has the highest adult HIV prevalence in Europe, estimated at 1.6% in 2007. Heterosexual transmission has now overtaken injecting drug use (IDU) as the main mode of HIV acquisition, and women account for almost half of those living with HIV in Ukraine which contribute for the acquisition of cervical cancer [20].

In Vietnam, cervical cancer is the most common cause of mortality due to cancer. In the year 2010 and 2011, a survey was conducted in 5 large cities in Vietnam on prevalence of HPV cervical infection and risk factors of HPV cervical infection among married women, the prevalence of HPV cervical infection in those cities ranged from 6.1% to 10.2% and the prevalence of high risk HPV infection was from 5.6% to 9.3%. These prevalence are different among stratified age group (highest among young married women, aged less than 30 and lowest among women aged from 40 to 49 year old and about 37.4% women ever heard about HPV, 31.2% knew about HPV vaccine and 32.1% aware that HPV is a risk factors of cervical cancer. [25].

In Africa there were an estimated 681,000 new cancer cases and 512,000 deaths in 2008. Projections to 2030 show a startling rise, with corresponding figures of 1.27 million cases and 0.97 million deaths resulting from population growth and aging alone. The figures make no

assumptions about incidence rates which may increase due to the further introduction of tobacco and a more westernized lifestyle [29].

Cervical cancer represents one in five of all cancer deaths in African women. The prevalence of HPV infection is higher in sub-Saharan Africa than any other area of the world [29].

About 86% of the cancer cases occur in developing countries, representing 13% of female cancers. Each year approximately, 10,000 women develop cervical cancer, and about 8,000 women die from cervical cancer in Nigeria [19].

Knowledge of cancer among Africans is also limited. For example, the Union for International Cancer Control (UICC) reported that more than a quarter of Africans surveyed believed that cancer had no cure once diagnosed and only 36% referred to cancer as an important health issue. Population-based cancer registries cover only 8% of the African population, while this figure is about 99% for the USA and 40% for Europe. Furthermore, only 1% of the African population is covered by high quality cancer registries. Vaccinating against hepatitis B vaccine (HBV) contribute to lowering the incidence and mortality due to cervical cancer (CC). In 2005, only 39% of the eligible African population was in receipt of HBV vaccine [29].

According to world health organization (WHO) estimates, in Ethiopia 7,600 are diagnosed with cervical cancer and roughly 6,000 women die of the disease each year. Although there is no national cancer registry in Ethiopia, reports from a retrospective review of biopsy results have shown that it is the most prevalent cancer among women. For instance, among 243 cancer cases, cervical cancer accounted for 12.8% of all cancers and 65.9% of female genital tract cancers in Gondar, Northwest Ethiopia. Similar studies in Addis Ababa and Yirgalem Hospital (Southern Ethiopia) have also shown that it accounted for 32% and 25.8% of female malignancies, respectively. A study done in Addis Ababa on women attending hospitals and clinics has also reported the prevalence of invasive cancer to be 15.6/1000 of the studied population [28].

According to the 2009 WHO report, the age-adjusted incidence rate of cervical cancer in Ethiopia is 35.9 per 100,000 patients with 7,619 annual number of new cases and 6,081 deaths every year [33]. Despite this fact, very few women receive screening services in Ethiopia. Knowledge about

cervical cancer was poor though majority of the women had heard about the disease. Specifically, the knowledge of women on risk factors, signs and symptoms was poor [30].

HPV is a very common sexually transmitted virus but the infection is often gone without any treatment. However, when the infection persists — in 5% to 10% of infected women — there is high risk of developing precancerous lesions of the cervix, which can progress to invasive cervical cancer. High-risk HPV types are detected in 99% of cervical cancers. The prevalence of HPV among HIV-positive women is associated strongly with CD4 counts and HIV viral load (VL) [25, 27].

Generally, each year a number of women were diagnosed with cervical cancer worldwide, this was harder in developing countries. Cervical cancer represents one in five of all cancer deaths in African women where the knowledge about cervical cancer, risk factors and signs and symptoms was poor. Ethiopia with 35.9 cervical cancer patients per 100,000 represents 7,619 annual numbers of new cases and 6,081 deaths every year. Despite this fact, very few women receive screening services.

2.2 Causes of cervical cancer

According to the Joint United Nations Program report some of the causes of cervical cancer are identified to be HPV, many sexual partners or becoming sexually active early, smoking, weakened immune system, certain genetic factors, and long-term mental stress, giving birth at a very young age, several pregnancies, long term use of contraceptive pills and other sexually transmitted infections (STIs) [14].

A study conducted in United States of America on HPV Awareness and Knowledge showed that, 66 % of women reported hearing of HPV; 46 % heard of the HPV test; 36 % heard of the HPV vaccine; and 4 % reported receiving at least one HPV vaccine dose. A significantly smaller proportion of women with low health literacy compared to high health literacy reported ever hearing of HPV (52 vs. 76 %). Fewer women with low health literacy than high health literacy reported ever hearing of the HPV vaccine (28 vs. 68 %). There was no significant difference in HPV test awareness or HPV knowledge between low and high literacy women [23].

A study conducted in Appalachian women showed that, risk factors are a key component of objective risk, and identified 2 types of overlapping risk factors those related to demographics and those related to behaviors. Demographic factors such as having lower socioeconomic status, not being married, being non-white, and not having insurance coverage are also associated with elevated risk. In addition, many of the reported risk factors for cervical cancer are linked to sexual behaviors and likely represent exposure risks to HPV, and HPV fulfills all of the established criteria for cervical cancer causality. These include having an early age of first sexual inter-course, having multiple sexual partners, and having sexual partner(s) with multiple partners. Other sexually transmitted infections, no or infrequent screening for cervical cancer, and tobacco use represent other independent risk factors. In addition perceived barriers to getting a Pap, knowledge of cervical cancer, worry about cervical cancer, age at first intercourse, lifetime sexual partners, personal history of STI, history of abnormal Pap, risky sexual behaviors index, history of abortion, and smoking status were found to be risk factors [26].

About 83% of new cases of cervical cancer and 85% of associated mortality occur in developing countries. Low perception of risks and lack of awareness about cervical cancer screening amongst women and challenges of access to cervical cancer screening for early detection of disease have been reported amongst factors responsible for increasing incidence and mortality due to cervical cancer in developing countries [24].

Cancer of the cervix is the most common cause of cancer death in Africa (10.4% of all cancer deaths) and major risk factors in Africa are chronic infection with HBV, more prevalent in sub-Saharan Africa, and hepatitis C virus (HCV), which is more prevalent in northern Africa. Another important contributor is dietary exposure to aflatoxins, fungal toxins produced under conditions of high humidity and temperature for crop storage. These potent hepato-carcinogens contaminate the dietary staples, maize and peanuts, and combined with chronic HBV infection lead to a particularly high risk of liver cancer. Finally in terms of infections and cancer in Africa, one should note the roles of *Helicobacter pylori* in stomach cancer and *Schist soma haematobium* in bladder cancer, the latter being particularly associated with squamous cell carcinoma in parts of northern Africa [29].

A study conducted in Kenya showed that among those with positive screening result , regarding the parity, (94%) have ≥1 child and about 90.3% were ever married and 7.4% were single [27].

A study conducted in North West Ethiopia showed that, several factors such as educational status, financial capability, location, presence of health care facilities determine the stage at which patients with cancer present to the health facility. However, a common denominator of these factors is the level of awareness and attitude patients have about the diseases. There is an increased chance of presenting early for treatment if patients have awareness about the disease. Regarding risk factors, main symptoms, treatment options and prevention and early detection measures of cervical cancer, about 47.5% of the respondents did not know whether there are risk factors for cervical cancer or not and 2.7% stated that there is no risk factor for cervical cancer, 18.8% of the study participants were unable to mention a risk factor although they said that cervical cancer has a risk factor, 31.0% of them were able to identify at least one risk factor for cervical cancer. STI and early onset of sexual activity were specific risk factors mentioned by 21.0% and 16.4% of the respondents respectively [30].

A study conducted in North West Ethiopia showed that, regarding symptoms of cervical cancer 35.3% and 29.7% of them mentioned offensive and excessive vaginal discharge respectively. However, 39.6% of the respondents did not know any symptom, 63.9% of the respondents knew that cervical cancer can be prevented. Regular medical checkup (screening) was mentioned by 54.8% of the respondents as a helpful prevention measure. Sixty six percent of the respondents also knew that cervical cancer can be treated and 52.8% agreed that cervical cancer can be cured if detected early [30].

Generally, low level of awareness, lack of effective screening programs, overshadowed by other health priorities (such as acquired immune deficiency syndrome, tuberculosis and malaria) and insufficient attention to women's health are the possible factors for the observed higher incidence rate of cervical cancers in the country [30].

2.3 Cervical cancer screening

A study done on 57 countries on coverage of cervical cancer screening showed that crude coverage and effective coverage of cervical cancer screening across all included countries are 68% and 40%, respectively. In the 30 developing countries surveyed, these rates are much lower: 45% and 19%, respectively. There is wide variation in the level of effective coverage across

countries, from over 80% in Austria and Luxembourg to 1% or less in Bangladesh, Ethiopia, and Myanmar. Cervical screening by age group - Crude and effective coverage rates begin to decline for women over 45 years of age in developing countries and over 55 years of age in developed countries. The age group at which the declines in effective coverage are observed corresponds with the age at which incidence rates and mortality from cervical cancer have been shown to rise sharply. The average crude screening rate across the set of countries in the analysis was 68%, only 31% of women in the poorest global wealth declines have ever had a pelvic exam, compared to 91% of women in the richest global wealth declines and for effective screening the poorest women being nearly seven times less likely to have been screened effectively compared to their rich counterparts (9% and 64%, respectively [28].

About 75% of women in industrialized countries have been screened for cervical cancer in the previous five years, compared to less than 5% in developing countries. According to WHO (1986), it has been estimated that only about 5% of women in developing countries has been screened for cervical dysplasia in the past 5 years, compared with 40% to 50% of women in developed countries [27].

A study conducted in Nigeria showed that 56.2% were aware of cervical cancer and only 34.5% respondents were aware of cervical cancer screening. Only 9.4% respondents had ever tested for cervical cancer. The majority of the respondents assessed their risk of developing cervical cancer as low as 68.2%, however 79.8% respondents accepted to take cervical cancer screening. This study showed that the Predictive factors for acceptance of testing: greater percentage of women who accepted to take the test had more than secondary education (women who had more than secondary education were 1.4 times likely to accept to take the test as compared with those who had less than secondary education), no living children (were one and half times more likely to take the test than their counterparts with living children), diagnosed HIV positive within one year (one and half times more likely to take the test than the respondents whose diagnosis were made over 3 years) and were aware of cervical cancer (women who were aware of cervical cancer and cervical cancer testing were 2 times more likely to take the test than those who were not aware of the disease and the screening. There were also reasons for non-acceptance of cervical cancer screening test: The most common reason for refusal was the anticipated high cost of the test which accounts 35.2%. Other reasons were religious denial accounts 14.0%, the need to obtain

partner's approval was about 12.4%, anticipated long waiting time 12.7%, pregnant/recently delivered 10.7%, fear of test outcome 4.2% and 7.5% had no reason. [17].

A study conducted in North West Ethiopia showed that, one major determinant for the prognosis of cervical cancer is the stage at which the patient presents. Most patients in developing countries including Ethiopia present late with advanced stage disease, in which treatment may often involve multiple modalities including surgery, radiotherapy, chemotherapy, and has a markedly diminished chance of success [30].

Hospital based study conducted in Addis Ababa, Ethiopia on patient side costs for cervical cancer screening showed that: Direct cost, mean cost for consultation with a physician, investigations and medicines were estimated to be Birr 33.2 ($2.29), Birr 401.0 ($27.65) and Birr 568.7 ($39.22) respectively. From the total direct cost, the cost of medicine represents the largest share (48.4%), followed by investigations cost (34.1%). Direct cost for non-medical reasons takes the lowest share (14.7%) of the total cost, and indirect cost: On average, each of the cervical cancer cases had the illness for about nine months before first coming to the Hospital. But great variation was seen among the cases regarding the number of ill days with minimum of five days up to eight years (mean (SD) = 269.4 (317.4) days). The median duration of illness was 180 days. The time for single trip to reach health services varies from minimum of twelve minutes to maximum of ninety six hours (with mean (SD) and median of 5.7 and 3 hours respectively **[**2].

According to USPSTF /united states preventive service task force/ Cervical cancer screening with Pap tests should begin at age 21, regardless of sexual history. Previous guidelines called for screening to begin within three years of a female becoming sexually active. Pap testing should not be done more often than every three years, a big change from the traditional "annual Pap" regimen many women and doctors traditionally used. -HPV testing should not be done in women under age 30 other than as follow-up to unclear Pap test results. HPV testing is appropriate in conjunction with a Pap, in women age 30 and over. Such co-testing should only occur once every five years. Cervical cancer screening can end for most women at age 65, provided she has had at least three consecutive, normal Pap tests (or two normal HPV tests) within the last 10 years [34].

A study conducted in Mozambique on acceptability of cervical cancer screening showed that having heard about cervical cancer screening (OR: 6.82, 95% CI: 1.26–36.9, P = 0.03) and

knowing the screening was available (OR: 9.98, 95% CI: 1.96–50.8, P = 0.006) were significantly associated with willingness to be screened. Women with more children were less likely to accept screening (OR 0.80, 95% CI: 0.63–1.01, P = 0.056), and finally majority (84%, 95% CI: 77–91%) of women were willing to undergo cervical cancer screening. Similarly a study conducted in Nigeria showed that, 96.5% of women offered screening for cervical cancer accepted testing [35, 36].

A study finding from Mozambique showed that VIA tests were performed in 296 women (11%). Of those who tested positive, 194 received cryo-therapy (66% of VIA+), and 3 (1%) were referred for full evaluation [36].

As a generalization on cervical cancer screening, should be undertaken after the age of 21 and every three years interval; about 2/3of women in industrialized countries have been screened for cervical cancer in the previous five years as compared to less than 5% in developing countries. There were Predictive factors for acceptance of testing and reasons for non-acceptance of cervical cancer screening test. One major determinant for the prognosis of cervical cancer is the stage at which the patient presents. Most patients in developing countries including Ethiopia present late with advanced stage disease where available treatments are in effective.

2.4 Cervical cancer Versus HIV

A study done in USA on Assessment of the Influence of Health Literacy on HIV-Positive Women's Cervical Cancer Prevention Knowledge and Behaviors indicates that all women reported ever hearing of the Pap test. 36% reported having at least two Pap tests during the first year after HIV diagnosis. A larger proportion of women with low health literacy compared to high health literacy reported having at least two Pap test during their first year (49 vs. 30 %). About 81 % reported having a Pap test less than 1 year ago. Fewer women with low health literacy comparatively reported having a Pap test less than 1 year ago (75 vs. 86 %). There was no significant difference in cervical cancer knowledge between women with low and high health literacy [23].

A study done in USA on risk factors of Cervical cancer in HIV infected women showed that the majority of participants (44%) were in WHO stage III and 29.2% in WHO stage IV. Concerning

the baseline CD4 count, 97.5% ART clients and 2.5% pre-ART cases were below 200/mm3 while 71.9% ART and 28.1% of Pre-ART cases were above 200/mm3. About 91.8% Pre-ART and 8.2% ART of the study cases were below 200 in their current CD4 count and 82.9% ART and 17.1% Pre-ART cases were ≥200 in their current CD4. The median and mean baseline CD4 cell counts were 228.0/mm3 and 251/mm3 (range 1–1547.0/mm3). The median and mean current CD4 cell counts were 438.0/mm3 and 458/mm3 (range 5–1547.0/mm3). About 84.3% women with HIV infection were on antiretroviral therapy (ART). About 92.6% of the HIV-infected women were in follow-up period of ≥1 year. About 85.4% of the participants did not have any history of abortion and14.6% had history of abortion at least once in life time. The prevalence of precancerous lesions (CIN I, CIN II, CIN III, and ICC) was 26.7% [27].

A study conducted in USA showed that several factors may impede a woman's ability to receive cervical cancer screening routinely. Research suggests that inadequate health literacy may be a contributing factor. Approximately, 25–30 % of people living with HIV have inadequate health literacy. Inadequacies in health literacy have been linked to lower levels of cancer awareness, knowledge, screening utilization, and follow-up care [23].

A study done in African women showed that the availability of anti-retroviral drugs for HIV-infected patients will help reduce the cancer-related burden for this infection [29].

A study conducted in North West Ethiopia showed that from those HIV+ women on ART who offered VIA screening 96.5% of them accepted screening. The mean age at first sexual contact was 18.8 (SD 3.5) years. Clinical records showed that 35.8% of the women screened had baseline CD4 counts <200 cells/µl, 23.2% had counts between 200-350 cells/µl, and 2.7% had CD4 count >350 cells/µl. HIV clinical staging at baseline was recorded for only 66.7%, of women screened, of which 29.3% were in WHO stage I, 17.9% women were at stage II, 18.7% women stage III, and 0.74% of them had stage IV disease. Of them screened for STI using symptom checklist 24.8% had a STI syndrome. Of these, 4.0% had genital ulcer syndrome, 15.1% had lower abdominal pain syndrome and 80.9% had vaginal discharge syndrome [30].

Generally cervical cancer is recognized as AIDS defining illness and the aggressiveness and seriousness of the diseases becomes profound in peoples living with HIV/AIDS. The majority of women with cervical cancer were those with the advanced stage of AIDS disease. Hence the

purpose of this study is to investigate the willingness and acceptability of cervical cancer screening among women living with HIV, since these people were the most susceptible group and in need of this preventive care service.

Conceptual Frame work, Willingness and acceptability of cervical cancer screening

This is the conceptual frame work developed specifically for this study by the principal investigator through reviewing related literatures in which this study tried to assess. The frame work tries to figure out associated factors that prevent females from utilizing cervical cancer screening service. And believed to support the study entitled as ~~–~~willingness and acceptability of cervical cancer screening among women living with HIV/AIDS"

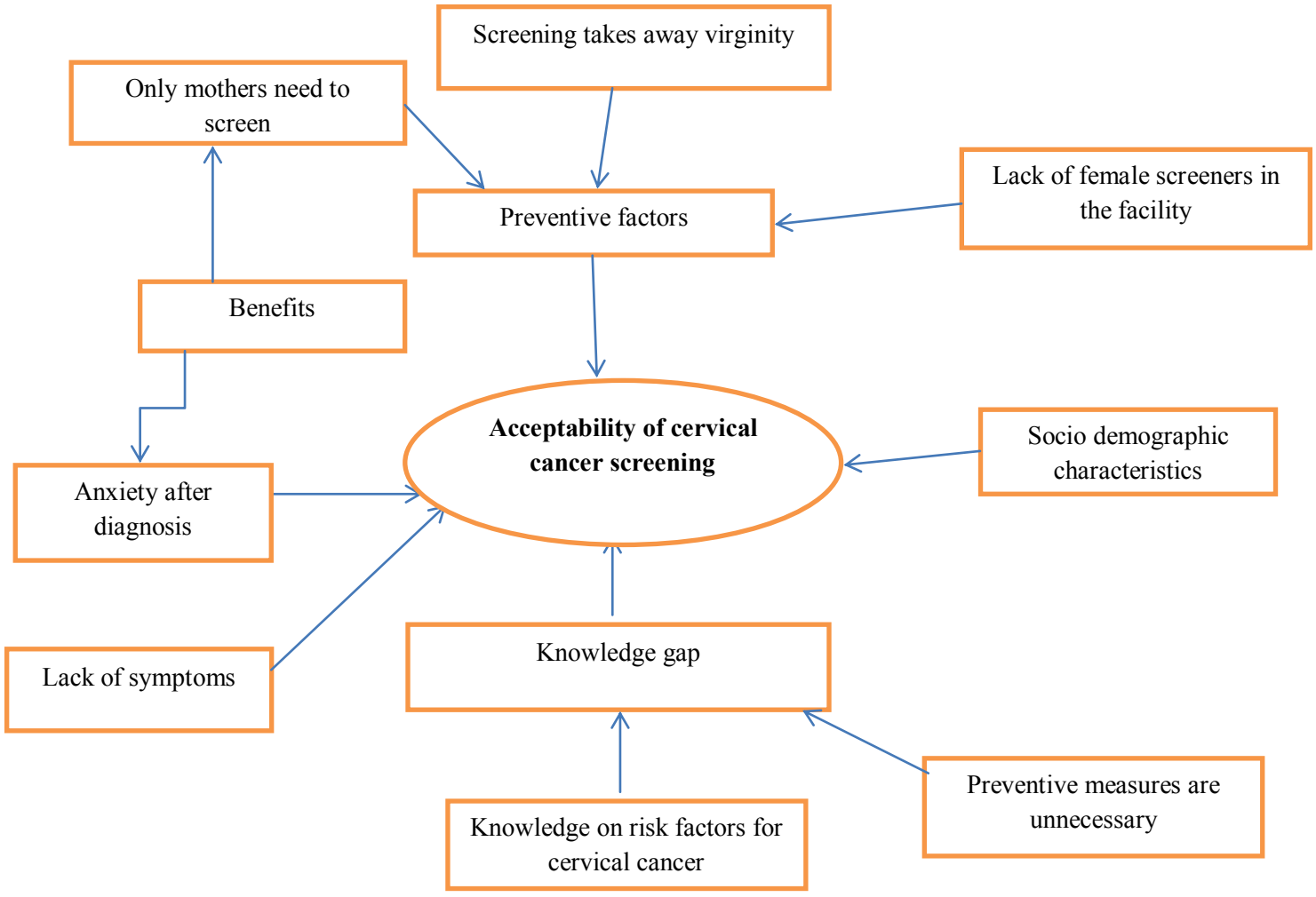

Fig. 1-Conceptual frame work for willingness and acceptability of cervical cancer screening among women living with HIV/AIDS

3. Objectives

3.1 General Objective

- The general objective of this study is to assess the willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in selected public health institutions of Addis Ababa, Ethiopia, June, 2014

3.2 Specific objectives

1. To assess the knowledge level of cervical cancer among women living with HIV/AIDS
2. To assess the factors associated with willingness and acceptability of cervical cancer screening in women living with HIV/AIDS
3. To assess the acceptability of cervical cancer screening test in women living with HIV/AIDS

4. Methods and Materials

4.1 Study Design

An institutional based cross sectional study design was conducted to assess willingness and acceptability of cervical cancer screening among women living with HIV/AIDS.

4.2 Study area and period

The study was conducted in Addis Ababa, the capital city of Ethiopia, starting from December, 2013 – June, 2014. Addis Ababa is the capital city of Ethiopia and is located at an altitude of 2326 KM above sea level, at 9.02° N 38.44° E. According to the 2007 Census it has a projected population of 2,738,248. Males comprise 47.6% while females 52.4% (34). There are 45 hospitals, 72 health centers, and 43 health posts owned by ministry of health (MOH) in the city (31, 32). There are about 210,306 people living with HIV/AIDS (PLWHA) in Addis Ababa of which 124,609 are women and 85,780 are men [single point estimate, 2007] (33).

4.3 Source population

The source populations for this study were all women living with HIV/AIDS in Addis Ababa, Ethiopia.

4.4 Study Population

The study populations for this study were all women living with HIV/AIDS and who are on HIV care (Pre-ART and ART patients) in public health institutions of Addis Ababa, Ethiopia.

4.5 Inclusion and exclusion criteria

4.5.1 Inclusion

- All women living with HIV/AIDS and who are on HIV care (Pre ART and on ART follow up) on dates of data collection were included.
- All women living with HIV/AIDS who are on HIV care for more than six months

4.5.2 Exclusion

- Women living with HIV/AIDS who are on HIV care but seriously ill due to the disease pathology at the dates of data collection.
- Women living with HIV/AIDS and on ART follow up but transferred to another facility
- Women living with HIV/AIDS and under the age of 21 and above the age of 65.

4.6 Sample size determination and sampling procedure

4.6.1 Sample size determination

The sample size is calculated by using a single population proportion formula:-

p = the proportion of cervical cancer screening in women living with HIV/AIDS- 27.0%

Zα\2 = the critical value at 95% confidence interval = 1.96

d = precision (margin of error) = 5%

Non response rate = 10%

n = the required sample size

$$n_i = \frac{Z^2_{\alpha/2}(p(1-p))}{d^2}$$

$= (1.96)^2 * 0.27\ (1-0.27)/(0.05)^2$

= 303

By adding 10% non response rate the total sample size was **333**.

4.7 Sampling method and procedure

4.7.1 Sampling procedure for quantitative study

Those public health institutions which are owned by Addis Ababa regional health bureau were included (referral hospitals and health centers which provide ART service). To include minority responses stratified sampling method was used to get institutions which participate in the study, and based on the type of health institution, the group or stratification was as Referral Hospitals and health centers. Then simple random selection method was used to get those public health institutions that participate in the actual study.

After identifying these public health institutions, monthly patient flow for six consecutive months was taken from each selected health institutions to get the average number of patients per month. Then based on the case load proportional allocation of study units was done. Then each institution takes its number to get the actual number of participants, by using systematic random

sampling method in which every K^{th} women presented for medical consultation were interviewed and the corresponding medical record was reviewed.

4.7.2 Sampling procedure for the qualitative study

By listing those who are not participated in the quantitative study purposive sampling method was used to select patients who participate for the in-depth interview. And a minimum of two women living with HIV/AIDS from each referral hospital and a minimum of one woman from each health centers was selected for the in-depth interview.

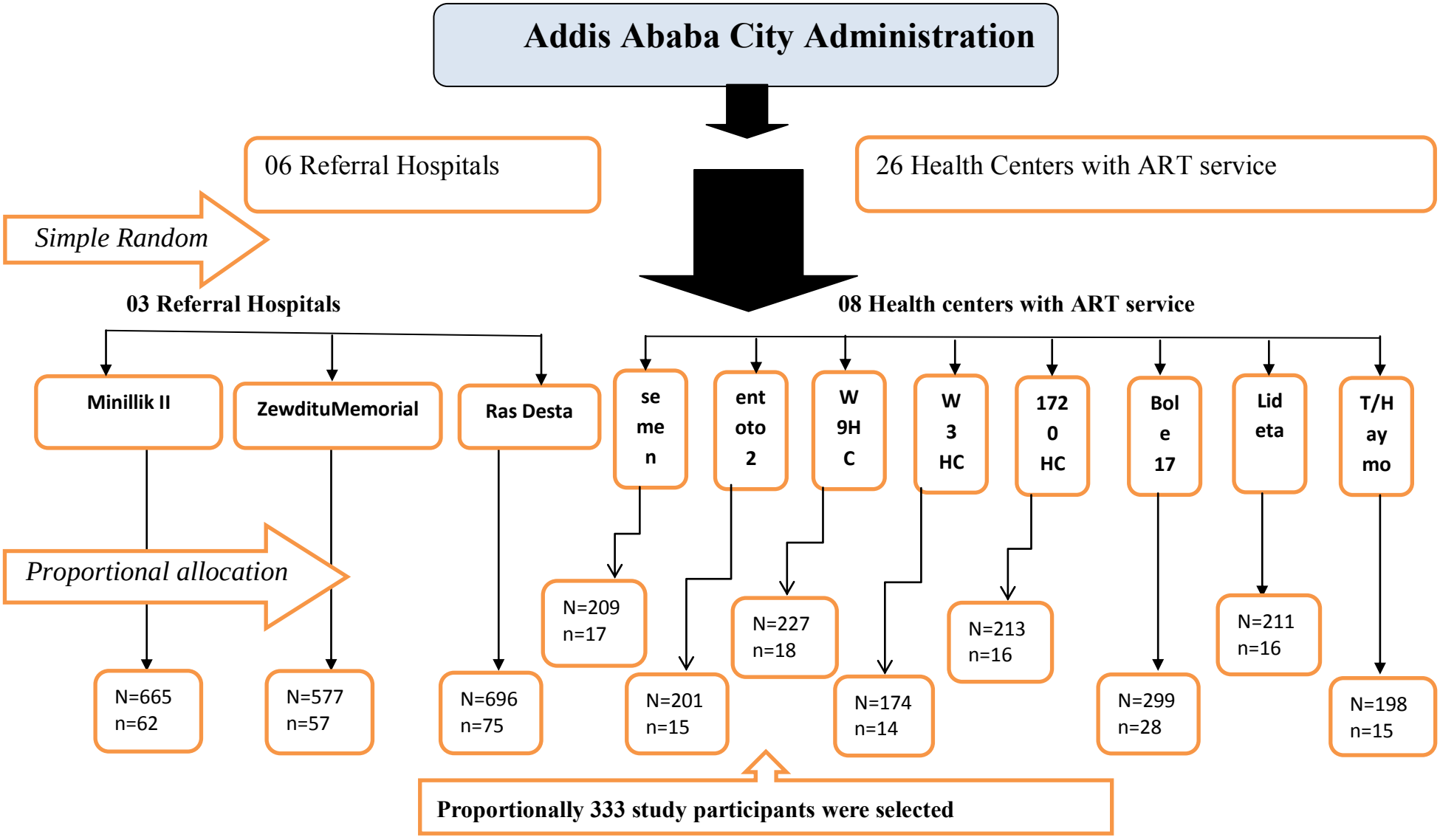

Figure. 2 Schematic representation of sampling procedure, Addis Ababa, Ethiopia, June, 2014

4.8 Variables in the study

4.8.1 Dependent variables

- Willingness and acceptability for cervical cancer screening

4.8.2 Independent variable

- Socio-demographic characteristics such as Age, Religion, Educational status, Marital status, No. of living children, regular source of income, abortion history

- Knowledge on risk factors/cause for cervical cancer
- Knowledge of cervical cancer symptoms
- Awareness of cervical cancer and availability of screening/testing
- Only mothers need to screen
- Duration of HIV disease

4.9 Operational definition

- **Willingness to be screened for cervical cancer** - Refers to women who answered Yes to the question ~~–D~~o you want to be screened for cervical cancer ~~–in~~ the study questionnaire.
- **Acceptance to be screened for cervical cancer**- Refers to women who answered yes to the question ~~–D~~o you want to be screened for cervical cancer ~~–a~~nd in addition registered their name with the counselor/professional to be screened in the near future.
- **Awareness of cervical cancer and testing** - Refers to an affirmative answer to two questions; 1. Have you heard of cervical cancer? 2. Are you aware of the test used to screen for cervical cancer? And in addition explained in their own language what they know about cervical cancer and testing.
- **Duration of HIV disease** - Respondents will be asked to state the number of years elapsed since they were diagnosed as HIV positive.
- **Knowledge about cervical cancer**- a women considered as knowledgeable if she answers 7 questions out of 13 Knowledge assessment questions (considering two responses for multiple answer questions).

4.10 Data collection tools and techniques

4.10.1 Data collection for quantitative study

Data was collected from selected health facilities consecutively starting from April, 2014 up to May, 2014 using a structured questionnaire and from patient record (WHO staging and CD4 count).

A structured questionnaire containing closed ended questions specifically designed for the study was used for data collection. The questionnaire was prepared by reviewing literatures used in this study and related studies done in other countries and try to assess socio-demographic factors, knowledge, screening and the relation between cervical cancer and HIV on study participants.

Face to face interview was held privately after verbal consent is obtained from each patient using Amharic translated structured questionnaire. The medical record of participating patients was reviewed. The data was collected for 30 days under close supervision and facilitation by the principal investigator.

4.10.2 Data collection for qualitative study

A semi-structured interview guide containing questions to explore willingness and acceptability of cervical cancer screening and associated factors was designed in English and translated to Amharic version and this was used by data collectors to conduct in-depth interview.

Data quality Management

The questionnaire used to collect data was prepared by the principal investigator in English version and translated in to Amharic version and back to English version. Brief discussion with the data collectors about the process of data collection was undertaken before the process of data collection. Close supervision was there during data collection and questioners were double checked daily for consistency and completeness by data collectors and principal investigators. Questionnaires were pretested to minimize ambiguity of words and for the applicability to the local context and also for comprehensibility, appropriateness of language, sensitivity of questions and average duration of administration. The feedback received after this process was used to modify and finalize the study questionnaire.

The pretesting was held on women living with HIV and who are on ART follow up, and was held on Yekatit 12 Referral Hospital, who belongs to unselected health facilities. The questionnaires were pretested in 5% (16) individuals. Finally the completeness of the questionnaires was checked before entering data into computer software program and before analysis and interpretation.

Data analysis

Data analysis for quantitative study

Data entering, coding and clearing for the quantitative data was performed using Epi-info version 3.5 and the analysis was done using SPSS version 18. Frequency and cross tabulation was used to check for missed value and variables. Mistakes were identified and corrected after revising the original questionnaires. Logistic regression was also used for the analysis. It also contains descriptive Statistics (frequency and percentage).P- Value of <0.05 and 95% confidence level were used as a difference of statistical significance. Finally the study finding was presented using diagrams, tables and figures.

Data analysis for qualitative study

For qualitative data, in-depth interview was translated to English version by arranging the points according to forwarded questions. Then framework analysis method was employed to grasp the detail information regarding willingness and acceptability of cervical cancer screening and associated factors.

4.11 Ethical Clearance

Data collectors were obtain permission from Addis Ababa University, collage of health science, department of nursing and midwifery before the process of data collection. Letter from the Research Ethics Committee was submitted to Addis Ababa regional health bureau. Then the purpose of the study was briefly explained for the respondents and oral informed consent was maintained. During data collection the study participants were well informed that the information collected was kept anonymous and confidential

4.12 Dissemination of the Study

The findings of this study will be submitted to Addis Ababa University department of Nursing and Midwifery as a partial fulfillment of masters of Science in maternity and reproductive health nursing. The result will also useful for the implementation of cervical cancer screening program especially in women living with HIV/AIDS and the federal ministry of health (FMoH), Addis Ababa regional health bureau and different non-government organizations will be involved in providing basic background information about the disease. The non-governmental organizations (NGO's) will also help disseminate the findings through their head quarter offices. Finally the manuscript will be submitted to scientific journals for possible publication.

5. Result

5.1 Result of Quantitative Study

A total of 322 study participants were included in this study with a response rate of 96.7%. The dominant ethnicity and religion were Amhara 173(53.7%) and orthodox Christianity followers 231(71.7%) respectively. Seventy (21.7%) didn't attained formal education. Mean age of the study participants was 35.65 (SD ±10.17). One hundred sixty five (51.2%) of the participants didn't have regular source of income. Of them who have regular source of income 120 (76.4%) were categorized under less than or equal to 1500 ETB per month. Hundred fifty three (47.5%) had experience pregnancy 1-2 times, of them 120 (51.1%) had abortion history at least once in their life time. And around half of the participants 158 (49.1%) were diagnosed as having HIV before 6-10 Years ago.

Table 1 Distribution of respondents by their Socio-Demographic Characteristics, Addis Ababa, Ethiopia, June 2014

S No.	Variables	Frequency	Percentage (%)
1	**Age in years**		
	< 29 Years	91	28.3
	30-39 Years	139	43.2
	40-49 Years	51	15.8
	50-59 Years	29	9
	> 60 Years	12	3.7
		322	100%
2	**Level of education**		
	Read and write	70	21.7
	Primary Education (1-8)	108	33.5
	Secondary Education (9-12)	92	28.6
	Higher education (above 12)	52	16.1
		322	100%
3	**Religion**		
	Orthodox Christian	231	71.1
	Muslim	43	13.4
	Protestant	39	12.1
	Catholic	8	2.5
	Others	1	0.3
		322	100%
4	**Ethnicity**		
	Amahara	173	53.7

	Oromo	75	23.3
	Tigrie	31	9.6
	Guragie	36	11.2
	Others	7	2.2
		322	100%
5	**Occupation**		
	Government Employee	56	17.4
	Private Employee	103	32
	Merchant	46	14.3
	Student	23	7.1
	Retires	82	25.5
	Others	12	3.7
		322	100%
6	**Marital status**		
	Married	101	31.4
	Single	109	33.9
	Separated	27	8.4
	Divorced	28	8.6
	Widowed	57	17.7
		322	100%
7	**Regular source of income**		
	Yes	157	48.8
	No	165	51.2
		322	100%
8	**Average monthly income**		
	<= 1500	120	76.4
	>1500	33	21
	preferred not to say	4	2.6
		322	100%
9	**Gravidity**		
	Didn't experience pregnancy	88	27.3
	1-2 Pregnancies	153	47.5
	3-4 Pregnancies	62	19.3
	5 and greater pregnancies	19	5.9
		322	100%
10	**Parity**		
	Didn't experience Delivery	19	8.1
	1-2 Delivery	151	64.2
	3-4 Delivery	50	21.2
	5 and greater Delivery	15	6.38
		322	100%

11	**Number of children**		
	No living Child	32	18.6
	1-2 Children	149	63.4
	3-4 Children	44	18.7
	5 and greater Children	10	4.2
		322	100%
12	**Abortion history**		
	Yes	120	51.1
	No	115	48.9
		322	100%
13	**Year of HIV diagnosis**		
	0-5 Years	141	43.8
	6-10 Years	138	49.1
	11-15 Years	19	5.9
	16-20 Years	4	1.2
		322	100%

Knowledge about cervical cancer

Of the whole participants 110 (34.2%) know something about cervical cancer. And their major sources were identified as health professionals 59 (53.6%), media 64 (58.2%), reading books 13 (11.8%), and friends 11(10.0%) and the least was from family 3 (2.7%). Knowledge level is also assessed in this study and only 81 (25.1%) were found to be knowledgeable.

On risk factor identification of those who know about the disease 92 (83.6%) believed that as there is a risk factor for cervical cancer, and the risk factors identified were having many sexual partners 58 (52.7%), sexually transmitted infections (STI) 52 (47.3%), early sexual initiation 20 (18.2%) and family history accounts 3 (2.7%). About 6 (5.5%) believe as there is risk factor for cervical cancer but they didn't able to mention the risk factors.

Having many sexual partners 59 (53.6%) was identified as leading cause of cervical cancer and long term use of contraceptive pills 6 (5.5%) was the least mentioned cause of cervical cancer.

Table 2 Causes of cervical cancer, WLH, Addis Ababa, Ethiopia, June 2014

	Response	Frequency	Percentage (%)
Cause of cervical cancer	Viruses/HPV	30	27.3
	Many sexual partners	59	53.6
	Early sexual initiation	34	30.9
	Smoking	7	6.4
	Weakened immunity	26	23.6
	Genetics	7	6.4
	Long term stress	5	4.5
	Early age delivery	14	12.7
	Several pregnancies	14	12.7
	Long term use of contraceptive pills	6	5.5
	I don't know	11	10
	Others	1	0.9

Among those who know about cervical cancer only 34 (31.0%) were identified the first most cause of cervical cancer as HPV/Virus, and the greater proportion of the participants which was about 71 (64.5%) didn't know it.

Of those who know about the disease 73 (66.4%) believe that there are symptoms following the disease which may be identified by the patient. The following were mentioned by the study participant's as a symptom for cervical cancer: offensive vaginal discharge, excessive vaginal discharge, minimal vaginal bleeding on sexual contact 51 (69.9%), 22 (30.1%), and 18 (24.7%) were respectively. Of them 20 (27.4%) know as there is symptom but they were not able to mention at least a single symptoms.

Of those who know about symptoms of cervical cancer huge amount and prolonged menstrual periods and bloody urine and stool were mentioned by 35 (47.9%) and 33 (45.6%) of participants respectively.

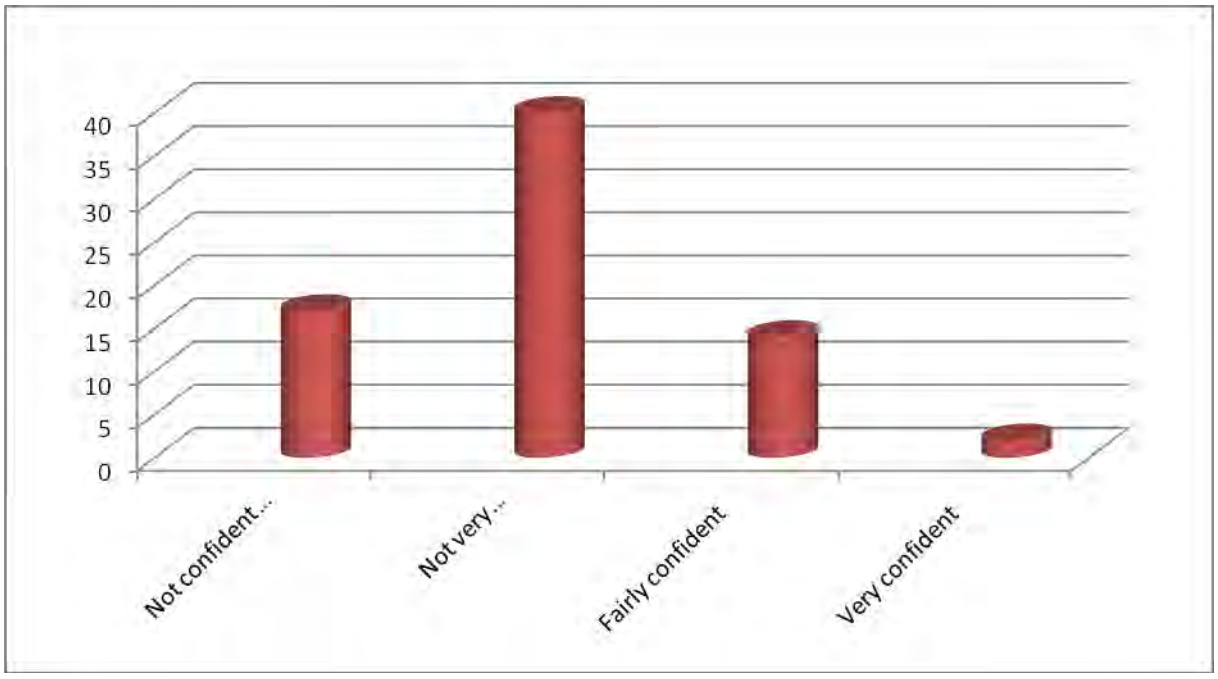

Figure 3 Confidence level to capture cervical cancer Symptoms, WLH, Addis Ababa, Ethiopia, June, 2014

As illustrated in figure 3, of them who know about the symptoms of cervical cancer the greater proportion 40 (54.8%) were not very confident on identifying cervical cancer symptoms and only 2 (2.7%) were very confident to capture changes following cervical cancer.

Regarding time of health institution visit, of them who know the symptom of cervical cancer 60 (82.2%) will have immediate health institution visit if they develop some of the mentioned symptoms, around 7(9.6 %) will wait till they became sure of the symptoms, the other 3 (4.1 %) will get health institution visit if the symptoms didn't resolve by themselves and the same proportion of study units 3 (4.1%) don't know when to get medical consultation.

On the preventive aspect of cervical cancer of them who heard about cervical cancer 97 (88.2%) believe that as it is a preventable disease.

Regarding the test and screening procedures 101(31.4%) of them know as there is screening test available for cervical cancer, and the remaining 221 (68.6%) didn't know about the availability of the test. In addition to this, on the recommended age to start screening 14 (13.8%) and 27 (26.8%) of the respondents mention as screening is better to start on less than 21 and starting from age 21 respectively. The other 29 (28.7%) believe to start screening after some time of

pregnancy or delivery. The remaining 21 (20%) agree to start screening if there are unusual changes/symptoms are detected and 10 (9.9%) respond other than the listed one.

Acceptable interval of screening (frequency of screening) is also mentioned by the respondents as it is better if the frequency between tests will be: every six month, every year, every three year and every five year by 20 (19.8%), 36 (35.7%), 18 (17.8%) and 17 (16.8%) of the respondent respectively. The remaining 10 (9.9%) of the respondents mention intervals other than these. On the practices before the screening procedure participants mentioned that: not having in your period 63 (62.4%), should not douch 27 (36.9%), should not have sex 35 (47.9%) and prevented from using contraceptives and vaginal creams 9 (12.3%).

Having the above responses, from the whole study participants interviewed 202 (62.7%) were willing to be screened for cervical cancer, and the remaining 120 (37.3%) were not willing to undergo the screening test for cervical cancer.

Of those who were willing to be tested for cervical cancer most of them need to get the screening test mentioning the reason that because they are living with HIV/AIDS 120 (59.4%) and 16 (7.9%) didn't know the reason for screening but still need to be screened for cervical cancer.

Table 3 Reason for screening, Women living with HIV, Addis Ababa, Ethiopia, June 2014

	Response	Frequency	Percentage (%)
Reasons for having the screening test	B/c I'm living with HIV/AIDS	120	59.4
	To get early treatment	67	33.2
	To detect cervical changes before	69	34.1
	No reason	11	5.4
	I don't know	16	7.9
	Others	7	3.5

And most of them try to mention the importance of screening as to capture cervical changes before development of cancer 119 (58.9%), to take early measure 108 (53.5%) and to have good prognosis 43 (21.3%). The remaining 13 (6.4%) didn't know the importance of screening, and 3 (1.5%) believed that the screening doesn't have any importance.

Most of the participants were not willing to take the screening test assuming that the test is time consuming 43 (35.8%) and the least mentioned reason for not having the screening test was lack of female screeners in the facility 16 (13.3%).

Table 4 Reason for not having screening test, WLH, Addis Ababa, Ethiopia, June, 2014

	Variable	Frequency	Percentage (%)
Reason for not having the screening test	High cost of the test	36	30.0
	Religious denial	12	10.0
	Partner acceptance	12	10.0
	Time consuming	43	35.8
	Recently delivered/Pregnant	16	13.3
	Fear of test result	37	30.8
	Lack of female screeners	16	13.3
	No reason	25	20.8
	Others	9	10.8

Most of the study participants were on ART follow up 296 (91.9%) and the remaining were on Pre-ART category 26 (8.1%).

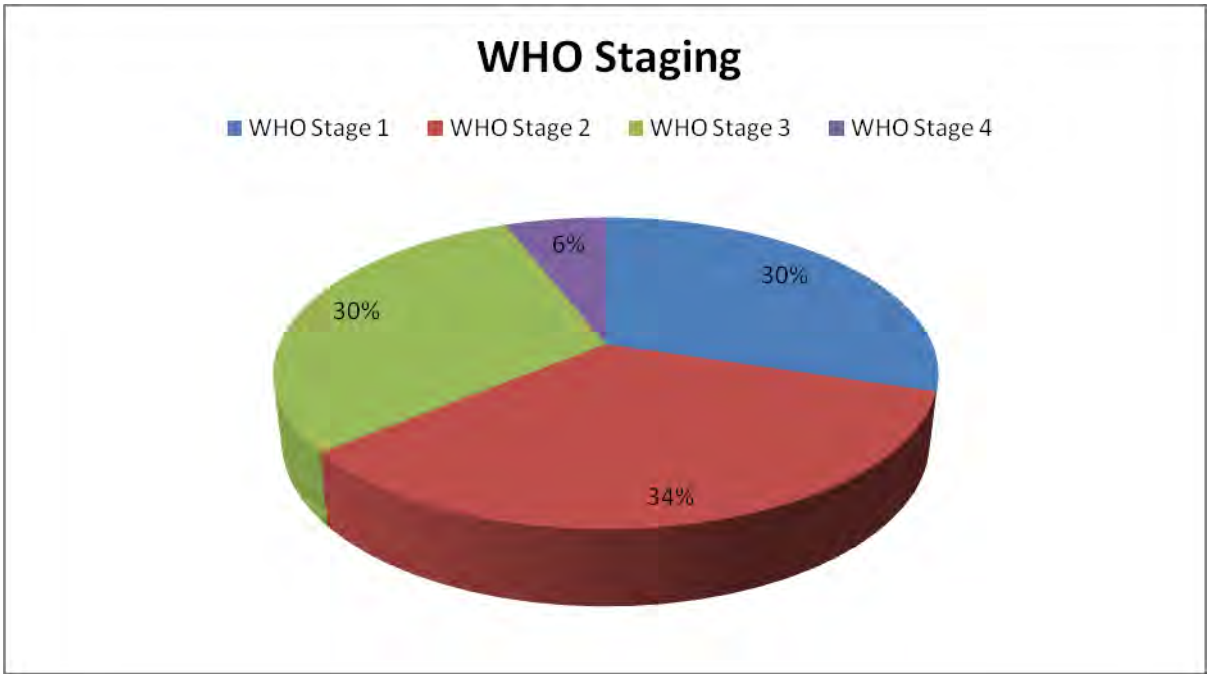

Figure 4 WHO clinical staging, WLH, Addis Ababa, Ethiopia, June, 2014

As illustrated in figure 4 most of the participants were from WHO clinical stage 2 and the least were from WHO clinical stage 4 110 (34%) and 19 (6%) respectively.

On card review CD4 count of 211 (65.5%) were less than or equal to 500 cells/ul, and the remaining 111(34.5%) were CD4 count greater than 500 cells/ul.

Only 37 (11.5%) of the study participants were ever tested for cervical cancer in their life time and the time of screening was before HIV/AIDS diagnosis 11 (29.7%), within one year of HIV/AIDS diagnosis 12 (32.4%), after one year of HIV/AIDS diagnosis 6 (16.2%) and 9 (24.3%) didn't remember the time of screening.

Of those who get the screening test 11(29.7%) were positive for the test and the remaining 26 (70.3%) were negative for the test.

Regarding the acceptability of the test only 80 (24.8%) were registered their name with the professional to be screened in the near future but greater than half of the respondents 242 (75.2%) didn't accept the test.

Table 5 Association table, WLH, Addis Ababa, Ethiopia, June, 2014

S.no	Variable	COR, 95% CI
1	**Age in completed years**	
	< 29 Years	1
	30-39 Years	1.4 (1.482, 2.073)
	40-49 Years	0.35 (501, 2.063)
	50-59 Years	1.06 (0.535, 2.102)*
	> 60 Years	0.605 (0.247, 1.482)*
2	**Level of education**	
	Read and write	1
	Primary Education (1-8)	0.605 (0.247, 2.102)
	secondary Education (9-12)	1.02 (0.501, 0.535)
	Higher education above 12	0.06 (1.482, 2.027)*
3	**Regular source of income**	
	Yes	2.6 (1.535, 4.419)
	No	1
4	**First most cause of cervical cancer**	
	Viral/HPV	0.3 (0.095, 0.949)*
	I don't know	0.09 (0.001, 8.499)
	Others	1
5	**Health professional source**	
	Yes	2.1 (3.196, 6.608)
	No	1
6	**Is cervical cancer preventable**	
	Yes	0.2 (0.57, 0.73)
	No	1
7	**Aware of the test used**	
	Yes	2.1 (1.177, 1.640)
	No	1
8	**To take early Measure**	
	Yes	2.5 (1.808, 7.785)
	No	1
9	**High cost of the test**	
	Yes	0.5 (0.38, 0.754)
	No	1
10	**WHO Clinical staging**	
	WHO stage 1	1
	WHO stage 2	2.3 (2.624, 8.537)
	WHO stage 3	2.0 (0.06, 1.468)*
	WHO stage 4	0.6 (0.107, 3.732)

To determine the predictors of acceptance of cervical cancer screening, the investigator tried to compare socio-demographic characteristics, cervical cancer awareness status and characteristics related to the screening test and being HIV positive. Those marked as * in table 6 were variables which have a significant association with the outcome variable in multivariate logistic regression analysis after controlling for the confounders.

On the average age range this study showed that as the age of the women increases test acceptability has also a direct increase, 40-49 years (AOR: 3.8, 95% CI:1.212, 12.294, P=0.022), 50-59 years (AOR: 4.2, 95% CI: 1.505, 17.482, P=0.043), and finally those aged in between >60 years have 8.2 times higher screening test acceptability than those aged below this (AOR: 8.2, 95% CI:1.104, 61.534, P=0.034).

Women's educational level has also a significant association with the outcome variable; women's who attend higher educations have 1.2 times likely to accept the screening test than those who attend below that level (AOR: 1.2, 95% CI: 1.313, 5.269, P= 0.028). Those women's having regular source of income has 3.2 times higher screening test acceptability than those who didn't have regular source of income (AOR: 3.2, 95% CI: 1.346, 8.005, P=0.009).

Regarding the knowledge, those women who know the first most cause of cervical cancer as viral/HPV have 1.8 times greater test acceptance than those who list other than this (AOR: 1.8, 95% CI :1.011, 3.895, P= 0.04).

Those who ever heard about cervical cancer and their source of knowledge was health professional were 6 times greater test acceptance than those who had another source (AOR: 6.0 95% CI: 1.440, 83.993, P=0.017). Those women who know as cervical cancer is a preventable disease were 0.07 times less likely to accept the screening test than those who assume cervical cancer is a non-preventable disease (AOR: 0.07, 95% CI: 0.001, 0.249, P=0.007). Those who think if the screening is done it will alert to take early measure were 9.9 times higher test acceptance than those who didn't assume this (AOR: 9.9, 95% CI: 1.423, 309.316 P=0.027). Those women who know as there is a screening test were 3.6 times higher to accept the screening test than those who didn't know the availability of this service (AOR: 3.6, 95% CI 1.395, 33.76, P=0.013).

Table 6 Independent Association of variables, WLH, Addis Ababa, Ethiopia, June, 2014

Variable	Model 1 (AOR, 95% CI)
Socio-demographic characteristics	
Age in completed years	
< 29 Years	1
30-39 Years	0.96 (0.372, 1.671)
40-49 Years	3.8 (1.212, 12.290)*
50-59 Years	4.2 (1.505, 17.482)*
> 60 Years	8.2 (1.104, 61.543)*
Level of education	
Read and write	1
Primary Education (1-8)	1.2 (0.417, 3.846)
secondary Education (9-12)	1.6 (0.479, 5.600)
Higher education above 12	1.2 (1.313, 5.269)*
Regular source of income	
Yes	3.2 (1.346, 8.005)*
No	1
First most cause of cervical cancer	
Viral/HPV	1.8 (0.011, 3.895)*
I don't know	0.619 (0.001, 2.233)
Others	1
Health professional source	
Yes	6.0 (1.440, 83.933)*
No	1
Is cervical cancer preventable	
Yes	0.07 (0.001, 0.249)*
No	1
Aware of the test used	
Yes	3.6 (1.395, 33.76)*
No	1
To take early Measure	
Yes	9.9 (1.423, 309.316)*
No	1
High cost of the test	
Yes	1.001 (0.811, 29.268)
No	1
WHO Clinical staging	
WHO stage 1	1
WHO stage 2	0.68 (0.079, 5.870)
WHO stage 3	0.67 (0.042, 10.675)
WHO stage 4	0.011 (0.463, 3.282)

5.2 Results from the qualitative study

A total of 14 in depth interviews were conducted with women living with HIV/AIDS regardless of their cervical screening status. Most of the participants were attended secondary education and were between the age of 29 and 35. Greater portion of participants were married by marital status.

Awareness about cervical cancer

Even though they didn't have detail knowledge regarding the disease, most of the in-depth participants were aware of cervical cancer. Some of the participants agree as it is the cancer of the female reproductive tract that exposes the womb for heavy bleeding and results in offensive discharges from the vagina and also once the disease is experienced a woman can reach to death. Medias are mentioned as a source of knowledge about the disease for most of the participants and some of them also experience the disease in their family members and neighbors. Majority of the participants agree: once a woman has diagnosed as having cervical cancer she can't also deliver through the natural route, so the disease has also delivery complications.

They were also asked about the risk factors that will expose a woman for cervical cancer. Cervical cancer risk factors were recognized by less than half the respondents, and those who were married had a higher recognition of cervical cancer risk factors than those who have never been married. Some of the respondents, majority of whom were attended primary education, agreed that being in geriatrics age group will have increased risk for having cervical cancer, without mentioning the reason and a 33 years old woman said **"I experience a woman around my residence who has diagnosed as having cervical cancer in her later age"**. The other risk factors identified were having sex many times, repeated vaginal bleeding and sexually transmitted infections (STI). And some of them listed as it have some genetic component, and in addition a 29 years old respondent note that **–if a woman gets hemorrhoid some time in her life, she will also have a greater probability of developing cervical cancer some time in her future".**

The participants also tried to identify causes of cervical cancer: and all most all of them have a common stand on sexually transmitted infections (STI), having many sexual partners- i.e. having sex without condom, early marriage, unprotected sexual intercourse and excessive vaginal bleeding following different reasons. Other including: living with HIV by itself, having sex

without getting tested for all type of sexually transmitted disease, rape, weekend immunity, hygiene problem and procedures that take place during delivery (like episiotomy) were considered as enough factors to develop cervical cancer.

When they were asked about the preventable status of cervical cancer most of them believe as cervical cancer is a preventable disease. On the way of prevention most of them mention that since it is a highly contagious disease everyone should have protected sex and most common replies were using condom as the best method to prevent cervical cancer from occurring. A young respondent mention that one can get prevented from cervical cancer by having the screening test regularly.

Cervical cancer screening

The following were respective responses from the participants regarding cervical cancer screening including the identified merits and demerits of the screening test: the main misconception was considering the test as it is a diagnostic test which is used to detect the existing cervical cancer and related problems and most participants failed to mention the concept of precancerous lesion. And mention merits following the test as it is used to know once status either having cervical cancer or not, and then she will be free from thinking about the disease and its consequences. It also allows to know the disease progress earlier, to get advice from health professionals, and to control sever forms of the disease before they happen. If treatments of any type are available it also supports to start treatments earlier. And if a woman is diagnosed as having cervical cancer while screening, she also take measures that didn't aggravate the disease. Further it also will prevent delivery complications. Most agree any test didn't have any sever impact on health, but few who were in older age group believe as it is better if a women get screened in the early symptomatic stage of the disease. And most consider only hygienic practices to be fulfilled before the screening procedure.

When they are asked about the age range to start screening and frequency of screening, none of the respondents could answer with confidence and more than half of the participants guess the screening can be started at any of the age groups, few agree as it is better if a women starts screening after she initiates sexual intercourse. And some also agree that everyone can get screening but it is better if a female in adolescent age group can get this service, specifying the

age as starting from 18. They were also unsure of the interval of screening and most of them assume screening once every year will be enough.

Reasons for acceptance and non-acceptance of the test

Most of the respondents accepted the test assuming that: it is used to know once status and to have appropriate medical follow up timely, it is also especially important to save the coming generations and to limit the spread, since it has also some genetic component. One response is also focused on: since people living with HIV/AIDS have many risk factors and most of the diseases get aggravated from their side, and concluding that knowing about any disease including cervical cancer is important to stay healthy. A 37 years old respondent expresses her feeling about the importance of accepting the test by saying **–according to my understanding if the screening takes place once it confirms as there is cervical cancer or not, there will not be a need to repeat the test, and I think it is not as such difficult".**

There are also reasons mentioned for not taking the test and the most frequently mentioned were: high cost of the test and timing, and when probed most of them indicated that, it takes many days and even weeks to know the results after the first medical consultation has been held, few respondents whose HIV diagnosis was within the past three years mentioned fear of result of the test (being diagnosed as having cervical cancer) to don't undergo the screening, and a recently HIV diagnosed woman noted that **"the word you have a cancer diagnosis is really irritating beside my HIV, I think I will get hopeless, if I am diagnosed as having cervical cancer".** And commented: as there was nothing they could do if cervical cancer was diagnosed. They would rather prefer not to know if they had the disease.

Some agree that in our country traditionally health institution visit is very common after things got sever, so waiting for sever signs and symptoms is also a reason and culturally it is believed that if there are no signs and symptoms experienced, no one is willing to visit health institutions because of fear of causing other disease. And near half of the respondents agree that since the service is available only in Black lion (specialized referral hospital in Ethiopia), with reasonable cost, there will be many people prior and it is difficult to access the service easily.

Relation between HIV/AIDS and cervical cancer

Several had believed that people living with HIV were in increased risk of acquiring cervical cancer mentioning the reason that HIV make the immunity to lower and expose the patient to many types of diseases including cervical cancer. In addition CD4 count has also a role in making HIV positive women to have increased risk. Some do not know about the relation between the two, a 28 years old woman said**" I know only cervical cancer didn't give time, since it is a type of cancer, but still we are living with HIV, it is very lethal as compared with HIV".**

Areas to be improved

Few respondents agree if they have the disease they tried to have intensive medical follow up like they do for HIV. Regarding the things to be improved, Lack of recommendation by health providers prevented women from taking the screening service. a woman who had frequent ART follow up said that **"I have ART follow up in three health institutions including this, and cervical cancer is not as such a great deal and most of the health professionals have a concern on physical changes, any new thing experienced on health and generally on ART follow up".**

Others agree that the obstacle is, since we can't access the service everywhere (especially in every public health institutions), up to now they have the information as the service is available in one specialized referral hospital only (Black lion specialized referral hospital), and it is better if we access the service in reasonable distance. And a 27 woman said that **"I didn't undergo screening service before, but now I need to be screened for cervical cancer, but it is difficult to access the service".**

6. Discussion

The results from this study showed that 34.2% of participants heard about cervical cancer and 31.4% of them know as there is screening test available for cervical cancer. Only 11.5% of the study participants were ever tested for cervical cancer in their life time. Similar study conducted in Nigeria showed that 56.2% were aware of cervical cancer and only 34.5% respondents were aware of cervical cancer screening/test. 9.4% respondents had ever tested for cervical cancer. Both studies have a common decline from the awareness to the practical screening stage.

This study showed that on risk factor identification 83.6% believed that as there is a risk factor for cervical cancer, and the major risk factors identified were having many sexual partners 52.7%, sexually transmitted infections (STI) 47.3%, early sexual initiation 18.2% and family history accounts 2.7%.Similarly a study conducted in North West shoa revealed that, of the participants 31.0% of them were able to identify at least one risk factor for cervical cancer. STI and early onset of sexual activity were specific risk factors mentioned by 21.0% and 16.4% of the respondents respectively. Both studies agree on specific risk factors, but most factors are mentioned on this study so those living in Addis were better exposure about the disease.

This study showed that about 5.5% believe as there is risk factor for cervical cancer but they didn't mention any of those risk factors, a similar study conducted in north shoa showed that 18.8% of the study participants were unable to mention a risk factor although they said that cervical cancer has a risk factor, this knowledge gap is, women living in the capital were more knowledge source than those who live outside of Addis.

According to this study most of the participants were not willing to take the test assuming that the test is time consuming, fear of being positive for the test and high cost of the test 35.8%, 30.8 % and 30.0 % respectively. Similar study from Nigeria showed that most common reason for refusal was the anticipated high cost of the test 35.2%. Other reasons were religious denial 14.0%, the need to obtain partner's approval 12.4%, anticipated long waiting time 12.7%, and pregnant/recently delivered 10.7% and fear of test outcome 4.2%. There is a difference in the most listed factor that prevent women from getting the screening test, and this is following most women living in Addis Ababa believe that since the service is available in Black Lion only,

there will be many peoples prior waiting for the service and also getting the result takes many days. And the second reason is, since they are living with HIV/AIDS, they are facing many problems and diagnosed as having cervical cancer will be a bad news in their environment.

This study identifies the following symptoms as the most common symptoms presented following cervical cancer: offensive vaginal discharge, excessive vaginal discharge, minimal vaginal bleeding on sexual contact 69.9%, 30.1%, and 24.7% respectively. Of them 27.4% know as there is symptom but they didn't mention the symptoms. A study finding in North West Ethiopia showed that, regarding symptoms of cervical cancer 35.3% and 29.7% of them mentioned offensive and excessive vaginal discharge respectively. However, 39.6% of the respondents did not know any symptom. Still living in Addis Ababa makes the women to be near for the information.

This study identifies that those women who know as there is a screening test for cervical cancer were 3.6 higher to accept the screening test than those who didn't know the availability of this service (AOR: 3.6, 95% CI 1.395, 33.76, P=0.013). A study conducted in Mozambique showed that knowing the screening was available (AOR: 9.98, 95% CI: 1.96–50.8, P=0.006) were significantly associated with willingness to be screened. So being aware of the test used to screen cervical cancer has a significant determinant of test acceptability.

This study revealed that ever tested rate was found to be 11.5% with 29.7% of them had positive result for the test which was almost similar with study finding from rural Mozambique, in which VIA tests were performed for 11% of women. This showed that the screening rate was remained low in Addis Ababa, might be because of knowing as cervical cancer is preventable.

According to the result of this study 62.7% were willing to be screened for cervical cancer, similar findings were true for the studies conducted in Mozambique and Nigeria and the willingness rate was 84% and 96.5% respectively. This is due to the reason that most of the participants in this study were from the side of the preventable status of cervical cancer and this study showed that being aware of the preventable status prevents women from getting the screening service.

This study showed that acceptance of the test was found to be low 24.8% when compared to a study finding in Nigeria in which 79.8% of respondents accepted to take cervical cancer screening/test. Which might be because of the participants in this study are not still concerned with preventive services and still waiting for signs and symptoms.

Strength and Limitation of the Study

Strength

- The study is new in its type, since the already investigated topics in our country were concerned on patient side cost, on the supportive care given etc. and this study try to investigate the patient's willingness and their acceptability regarding this preventive care service.
- The sampling technique employed, use of both quantitative and qualitative methods and utilization of appropriate statistical methods to minimize bias and confounders made this study generalizable to all women living with HIV/AIDS in Addis Ababa, Ethiopia.

Limitation

- Lack of similar literature on cervical cancer screening and related factors done in the country to compare study findings.
- Cancer registration was started almost before a decay and limit this study on referring some related information's.
- Practical acceptability was not measured which would have better estimator of acceptance rate.

7. Conclusions and Recommendation

Conclusions

From this study the following points could be drawn:-

- Women living with HIV/AIDS in our environment are willing to be screen for cervical cancer but still there are gaps regarding the practicability.
- Knowing the cause of cervical cancer and being aware of the screening test availability were found to be positive factors that make the women to have the screening service.
- Having source of knowledge regarding cervical cancer from the health professionals side is an important factor to accept the test than getting the information from other sources like media, friends, family and reading books.
- Knowing that cervical cancer is a preventable disease prevents women from accessing the screening service.
- Most findings from the qualitative highlights the importance of emphasizing on accurate information about cervical cancer and the purpose of screening and also to increase the acceptability rate available screening sites may play a great role.

Recommendation

- ® Integration of reproductive health service into the existing HIV programs will strengthen women's health rather than disrupt the services. So, it will be better if concerned bodies including FMoH will integrate this preventive care service in to the existing HIV/AIDS diagnosis and treatment guideline, assuming that this will not only decrease morbidity and mortality but also improve HIV treatment outcomes.
- ® Screening refusals as a result of, assuming the test is time consuming, fear of the test result and anticipated high cost, need to be urgently addressed through advocacy and public mobilization.

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ANNEXES

ANNEX I: Information Sheet for a Study Conducted on Willingness and Acceptability of Cervical Cancer Screening on women living with HIV/AIDS in Addis Ababa, Ethiopia

My name is _____. I am working as data collector in the research conducted by Netsanet Belete, who is conducting her research for the partial fulfillment of her Master degree in Maternity and reproductive health nursing specialty track in Addis Ababa University. We are trying to assess the Acceptability and willingness of cervical cancer screening among women living with HIV/AIDS. We would like your honest opinion pertaining to the questions.

Name of the Principal Investigator: **NETSANET BELETE**

Name of the Advisor: **YOSEPH TSGIE**

Name of the organization: **Addis Ababa University**

Name of the Sponsor: Addis Ababa University

Information sheet prepared for study participants from Addis Ababa city administration health facilities in research project that study about willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in selected public hospitals and health centers.

Introduction

This information sheet and consent form is prepared by the investigator whose main aim is to study **willingness and acceptability of cervical cancer screening among women living with HIV/AIDS** from Addis Ababa University.

Purpose

The purpose of this research is to study willingness and acceptability of cervical cancer screening on selected health facilities in Addis Ababa. Cervical cancer is one of the leading causes of cancer death in women in Ethiopia. However, very few were got screening service, which was an effective measure tested in industrialized world.

Procedure: In order to assess the willingness and acceptability of cervical cancer screening in Addis Ababa, Ethiopia, we invite you to take part in this project. If you are willing to participate in our project, you need to understand and give consent through signing. Then, you will be asked to give your response by the data collectors.

Risk and/or Discomfort: By participating in this research project you may feel that it has some discomfort specially on wasting your time (about 20 minutes) but this will not be too much as you are coming to the facility for health services and comparing with its benefit it contributes to the prevention of cervical cancer in the future. There is no risk in participating in this research project.

Benefits: If you participate in this research project, you may not get direct benefit but your participation is likely to help us in assessing the barriers against cervical cancer screening.

Incentives: You will not be provided any incentives to take part in this project.

Confidentiality and Anonymity: The information that we will collect from this research project will be kept confidential. Information about you that will be collected from the study will be stored in a file, which will not have your name on it, but a code number assigned to it. Which number belongs to which name will be kept under lock and key, and it will not be revealed to anyone except the principal investigator.

Right to Refuse or Withdraw: You have the full right to refuse from participating in this research (you can choose not to respond some or all of the questions) if you do not wish to participate, this will not affect your health services you get at any health facilities. You have also the full right to withdraw from this study at any time you wish to, without losing any of your rights as a resident of this site.

Persons to contact: If you have any question you can contact and ask at any time you want.

1. ***Miss. Netsanet Belete:*** Addis Ababa university, Tel: +251-938-93-51-35
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2. ***Mr. Yoseph Tsige:*** Addis Ababa university Tel: +251-911-30-58-24
   E-mail: josephtsige@yahoo.com

Annex 2 Amharic information Sheet

ከ ኤች አይ ቪ ጋር አብረው የሚኖሩ ሴቶች ለማህፀን በር ካንሰር ቅድመ ምርመራ ያላቸውን ፍቃደኝነት እና የተያያዙ ችግሮች ምን እንደሆኑ ለማወቅ የሚደረግ ጥናት ነው፡፡

የምርምር ፕሮጀክቱ ርዕስ፡ ከ ኤች አይ ቪ ጋር አብረው የሚኖሩ ሴቶች ለማህፀን በር ካንሰር ቅድመ ምርመራ ያላቸውን ፍቃደኝነት እና የተያያዙ ችግሮች ምን እንደሆኑ ለማወቅ የሚደረግ ጥናት

እኔ ስሜ _____ ነው፡፡ የምሰራውም በ _____የጤና ተቋም ነው፡፡ ይህ ጥናት የተዘጋጀው በአዲስ አበባ ዩኒቨርሲቲ የድህረ ምረቃ ተማሪ በሆኑት ወ/ሪት ነፃነት በለጠ ነው፡፡

ይህ ጥናት ከ ኤች አይ ቪ ጋር አብረው የሚኖሩ እናቶች የማህፀን በር ቅድመ ምርመራ አገልግሎት ለማግኘት ባላቸውን ፍቃደኝነት ላይ እንዲሁም አገልግሎቱን ላለማግኘት የስቻሏቸው ምክንያቶች ላይ የሚያተኩር ሲሆን ይህ የቅድመ ምርመራ አገልግሎት ቢጓደል ሊያስከትል የሚችለውን ውጤት ለማወቅ እና ለማስገንዘብ ከፍተኛ ጠቀሜታ አለው፡፡እርሶን የምንጠይቅበት ምክንያት ጉዳዩ በቀጥታ ስለሚመለከትዎ አስተያየትዎ ሌሎች ሰዎች ከሚሰጡት አስተያየት ጋር ተደምሮ ሪፖርት የሚዘጋጅ ሲሆን የእርሰዎ በዚህ ጥናት መሳተፍም ሆነ ምን እንደተናገሩ የሚያውቅ ሰው አይኖርም፡፡ ምላሽ መስጠት የማይፈልጉት ጥያቄ ሲኖር አለመመለስና መጠይቁን በፈለጉበት ቦታ ማቋረጥ ሲፈልጉ ማቋረጥ ይችላሉ፡፡ ስለዚህ ይህንን መጠይቅ በተዋናይነት በመመለስ ለሚያደርጉልን ትብብር አድናቆታችን ከፍ ያለ ነው፡፡

የዋና ተመራማሪ ስም፡- ሲ/ር ነፃነት በለጠ

የአድቫይዘር ስም -አቶ ዮሴፍ ፅጌ

የድርጅቱ ስም፡- አዲስ አበባ ዩኒቨርሲቲ

የገንዘብ ድጋፍ ያደረገው ድርጅት ስም፡- አዲስ አበባ ዩኒቨርሲቲ

መግቢያ

የዚህ የምርምር ማብራሪያና የስምምነት ቅጽ አላማ አሁን እርስዎ እንዲሳተፉበት የምንጠይቆትን የምርምር ጥናት ምንነት ማብራራት ነው፡፡ በዚህ የምርምር ፕሮጀክት ለመሳተፍ ከመወሰዎ በፊት ይህንን የማብራሪያ ቅጽ በጥንቃቄ በማንበብ ጥያቄ ካለዎት ይጠይቁ፡፡ በጥናቱ መሳተፍ ከጀመሩ በኋላ በማንኛው ጊዜ ጥያቄ ካለዎት መጠየቅ ይችላሉ፡፡

የምርምር ፕሮጀክቱ ዓላማ

የዚህ ጥናት ዓላማ ከኤች አይ ቪ ጋር አብረው የሚኖሩ ሴቶች ለማህፀን በር ካንሰር ቅድመ ምርመራ ያላቸውን ፍቃደኝነት እና የተያያዙ ችግሮች ምን እንደሆኑ ለማወቅ የሚደረግ ጥናት ሲሆን በሀገራችን ሴቶች በከፍተኛ ደረጃ እየገደሉ ካሉ የካንሰር አይነቶች በቀዳሚነት የሚጠቀስ ነው፡፡ ነገር ግን በዚህ ሁኔታ የቅድመ ምርመራውን አገልግሎት የሚያገኙ ሴቶች ቁጥር ከዚህ ግባ የሚባል አይደለም፡፡

የአሰራር ሂደት

በአዲስ አበባ ከተማ የማህፀን በር ቅድመ ምርመራ ፍቃደኝነትን በተመለከተ የሚደረግ ጥናት ሲሆን በዚህ ጥናት ውስጥ ለመሳተፍ ከተስማሙ ስምምነቱን በደንብ መረዳትና ስምምነትዎን መግለፅና መፈራረም ይገባዎታል፡፡ ከዚህ በመቀጠል በጥናቱ መረጃ ሰብሳቢዎች ለሚጠይቁት ጥያቄ እንዲመልሱ ፍቃደኛነቶት ይጠየቃል፡፡

ሊከሰቱ የሚችሉ ስጋቶችና ምቾት መጓደሎች

በዚህ ጥናት መሳተፍዎ ምናልባት ጊዜዎትን ሊሻማዎት ይችል ይሆናል፤ ነገር ግን ወደ ጤና አገልግሎት ሰጪ ድርጅቶች ከመመላለስዎ እና የጥናቱ ውጤት የማህፀን በር ካንሰርን ለመከላከል ከሚሰጠው ጥቅም አንፃር ይህን ያህል አይደለም። በዚህ ጥናት በመሳተፍዎ ምንም አይነት ስጋት (ችግር) አያጋጥምዎትም።

ጥቅሞች

በዚህ ጥናት በመሳተፎ የተለየ ጥቅም አያገኙም ነገር ግን የእርሶ በጥናቱ መሳተፍ የማህፀን በር ካንሰርን ለመከላከል ከሚሰጠው ጥቅም እንዲሁም ያሉትን ችግሮችን ለማወቅ ይረዳል።

ማካካሻ

በዚህ ጥናት በመሳተፍዎ ምንም አይነት ማካካሻ የሚያገኙ አይሆንም። ነገር ግን በጥናቱ በመሳተፍዎ ምስጋናችን ከፍተኛ ይሆናል።

ሚስጢር ስለመጠበቅ

ከዚህ ጥናት የሚገኘው መረጃ ሁሉ በሚስጥራዊነት ይጠበቃል። ለዚህ ጥናት የሚሰበሰበው እርስዎን የሚመለከት መረጃ በማህደር የሚቀመጥ ሲሆን ማህደሩም በስም ሳይሆን በተለየ ኮድ ሲቀመጥ ኮዱ ከዋናው ተመራማሪ ውጭ ለማንም አይገለጽም።

በጥናቱ ያለመሳተፍ ወይም እራስዎን የማግለል መብት: በጥናቱ ላለመሳተፍ ከፈለጉ በዚህ ጥናት ያለመሳተፍ እንዲሁም ከአንድ በላይ ወይም ሁሉንም ጥያቄዎች አለመመለስ ይቻላል። በዚህ ጥናት ባለመሳተፍዎ ወይም በከፊልም ሆነ በሙሉ ጥያቄዎችን ባለመመለስዎ እንደነዋሪነቶ የሚያጡት አገልግሎት አይኖርም።

የሚገናኟቸው ሰዎች

ይህ ጥናት የጥናቱ ተሳታፊዎች ከጉዳት መጠበቃቸውን የሚያረጋግጠው ከአዲስ አበባ ዩኒቨርሲቲ በሚገኘው ኮሚቴ ታይቶ ድጋፍ አግኝቶአል። በጥናቱ ዙሪያ ማንኛውም ጥያቄ ካሎት የሚከተሉትን ሰዎች በሚፈልጉት ጊዜ ማነጋገር ይችላሉ።

1. ሲ/ር ነፃነት በለጠ ፤ አዲስ አበባ ፣ስልክ ቁጥር Tel: +251-938-93-51-35

   ኢሜል ፣netsanetbelete2012@yahoo.com

2. አቶ ዮሴፍ ፅጌ፣ አዲስ አበባ፣ስልክ ቁጥር : Tel:+251-911-30-58-24

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Annex 3- English Questionnaire

A study conducted to assess Willingness and Acceptability of Cervical Cancer Screening among women living with HIV/AIDS at Selected Public Health Facilities, Addis Ababa

I undersigning this document, I am giving my consent to participate in the study entitled as –Assessment willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in selected public health institutions of Addis Ababa, Ethiopia." I have been informed that the purpose of this study is to assess willingness and acceptability of cervical cancer screening in women attending ART clinics of selected public health institutions of Addis Ababa, Ethiopia. I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me. I understood that participation in this study does not involve risks. I understood that Netsanet belete is the contact person if I have questions about the study or about my rights as a study participant.

- ✓ Do you have any question?
- ✓ Do I have your agreement to proceed? If yes ……continue

  If no ……..Stop

1. Name of facility/hospital/Health center: _____
2. Date: _____/_____/_____
3. Questionnaire Identification Number _____
4. Interviewer's Name _____ Signature_____
5. Supervisor's Name_____ Signature_____

Section 1 Socio demographic characteristics			
S.no	**Question**	**Response categories**	**Skip**
101	Where do you live now?	Addis Ababa ……..1 Outside Addis Ababa…….2	
102	Card Number	_____	
103	Would you tell me your age in completed years?	_____	
104	What is your level of education?	Read and write……...1 Primary (1-8)……..2 Secondary (9-12)……4 Tertiary (above 12)…….5	
105	Religion	Orthodox Christian……1 Muslim……....2 Protestant……3 Catholic……4 Other,_____5 specify	
106	Ethnicity	Amhara……1 Oromo……2 Tigrie……3 Guragie……4 Other,_____5 specify	
107	What is your occupation?	Government employed……1 Private employed……2 Merchant ……3 Student……4 Other,_____5 specify	
108	What is your marital status now?	Not married……1 Married…….. 2 Separated……3 Divorced…… 4 Widowed……5	
109	Do you have regular source of income?	Yes……...1 No……2	**If 2 skip to 109**
110	How much do you estimate your average monthly income?	Below 200. . . . . .1 201-500. 2	

		5001-1000. . . . . .3 1001-1500. . . . . 4 Above 1500. . . . . .. 5 Preferred not to say……...6	
111	How many pregnancies did you experience, including abortions/Gravidity/?	Didn't experience pregnancy…….1 1-2 pregnancies…….……..2 3-5 pregnancies…….…..3 Greater than 5 pregnancies…….….4	**If 1 skip to 113**
112	How many deliveries did you experience, including still births/Parity/?	Didn't experience delivery……..1 1-2 deliveries..……..……...2 3-5 deliveries… ……...3 Greater than 5 times …….….4	
113	How many living children do you have?	No living child…..……..…..1 1-2 living children……..….2 3-5 living children…….……..3 >5 living children……4	
114	Did you have history of abortion in your reproductive age?	Yes……1 No ……2	
115	How long since your HIV infection have been diagnosed?	0-5 year ……..1 6-10 years……2 11-15 years……..3 16-20 years……..4	

Section 2 - knowledge about cervical cancer

S. no	Question	Ceding categories	Skip
201	Have you ever heard about cervical cancer?	Yes……1 No……..2	**If 2 skip to 301**
202	From where did you hear about cervical cancer? ***(Multiple responses are possible)***	Media…….….1 Friends…….…...2 Family…….……...3 Health professional…….4 Reading books……..5 Other,_____6 specify	
203	Do you believe that cervical cancer has a risk factor?	Yes, cervical cancer has a risk factors..1 No risk factor for cervical cancer….2	**If 2 skip to 205**

204	What are the risk factors for cervical cancer? ***(Multiple responses are possible)***	Many sexual partners…….1 STI…….2 Early initiation of sex…….3 Family history……4 I don't know……...5 Other,_____6 specify	
205	What factors are mentioned as a cause for cervical cancer/ causes/? ***(Multiple responses are possible)***	Human papilloma virus/Virus……..1 many sexual partners…….…2 early sexual initiation……...….3 Smoking……..4 Weakened immune……5 genetic factors……6 Long-term mental stress…….7 Giving birth at a very young age……8 several pregnancies……..9 long term use of contraceptive pills……10 sexually transmitted diseases (STDs)…….11 I don't know……12 Other,_____13 specify	
206	What is the first most cause of cervical cancer and what is the mode of transmission?	HPV/Virus and sexual route……1 Not mentioned…….……2 Other,_____3 specify	
207	Are there symptoms that are related to cervical cancer?	Yes…….……1 No……..2	**If 2 skip to 213**
208	Mention the symptoms of cervical cancer? ***(Multiple responses are possible)***	offensive vaginal discharge…....1 Excessive vaginal discharge..…..2 lower abdominal pain……..3 minimal vaginal bleeding on sexual contact……..….5 I don't know……....6 Other_____7 specify	
209	Do you think menstrual periods that are heavier or longer than usual are a sign of cervical cancer?	Yes…….……1 No…….2	
210	Do you think blood in stool or urine could be	Yes…….……1	

	a sign of cervical cancer?	No……2	
211	How confident you are that you would notice a cervical cancer symptom?	Not at all confident……..1 Not very confident……...2 Fairly confident……3 Very confident……..4	
212	If you have a symptoms that you thought might me a sign of cervical cancer how soon would you contact your doctor?	Immediately ……1 After I became sure that they are a sign of cervical cancer……..2 If it didn't resolve by itself…..… 3 I don't know when to go……..4	
213	Is cervical cancer a preventable disease?	Yes, preventable……..1 No, not preventable……2	
Total questions answered from the knowledge related questionaries' _____			

Section 3 – Cervical cancer Screening

s.no	Question	Coding categories	Skip
301	Are you aware of the test used to screen for cervical cancer?	Yes……1 No……2	**If 2 skip to 305**
302	When is the age that a woman can start screening for cervical cancer (Pap test)? (Regardless of sexual activity)	Below the age of 21……1 When she is 21 years ……..…..2 After some years of her delivery……3 After she experiences cervical changes .4 Other_____5 specify	
303	What is the acceptable interval to have cervical cancer screening /pap test/	Every six month……1 Every year……2 Every three year……3 Every five year……..4 Other_____5 specify	

304	If a woman is going to be screened in the next two days, what should be the DO NOT DO's?	Not having your period……..1 You should not douche……..2 You should not have sex……....3 You should not have medicines or cream in your vagina……...……..4 Other_____5 specify	
305	Do you want to be screened for cervical cancer?	Yes……1 No…….2	**If 2 skip to 305**
306	What is the reason for screening? ***(Multiple responses are possible)***	Because I am living with HIV/AIDS……..1 To take early measure……..2 To capture cervical changes before they became cancerous…….3 No reason……..…….….4 I don't know……..……...…..5	
307	What was the importance of screening? ***(Multiple responses are possible)***	The test could find cervical changes before they became cancerous……...1 It alerts early treatment measures…..2 To have good prognosis…….3 I don't know……...4 Not important…….....5	
308	What is the reason for non-acceptance of the test? ***(Multiple responses are possible)***	High coast of the test……...…..1 Religious denial ……...……..2 The need to obtain partner's approval ...3 Long waiting time…..…….4 Pregnant/recently delivered……....5 Fear of test outcome…….....6 Lack of female screeners……..……..7 No reason……...……....8	

Section - 4 cervical cancers Versus HIV

S no.	Questions	Coding categories	Skip
401	What is the patient's category?	Pre-ART…….……..1 On ART follow up……2	
402	What is the WHO clinical staging of the patient?	WHO clinical stage 1……1 WHO clinical stage 2……2 WHO clinical stage 3……3	

		WHO clinical stage 4……4	
403	What is the CD4 count of the patient	<=500cells/µl……..1 >500 cells/µl…….2	
404	Did you screened for cervical cancer/did you have Pap test?	Yes……1 No…….2	**If 2 skip to 407**
405	When was the time? ***(Multiple responses are possible)***	Before HIV diagnosis……...1 Within one of HIV diagnosis…..2 Greater than one year of HIV diagnosis……..3	
406	What was the result?	Positive for Pap test…….1 Negative for Pap test……2	
407	Are you willing to be registered by a professional to be screened for cervical cancer?	Yes……...1 No……2	

Thank your respondent!

Interview guide for in depth interview

1. What do you know about cervical cancer?
2. What is the importance of screening?
3. What are the reasons for acceptance and non-acceptance of screening?
4. What do you know about the relation between HIV and cervical cancer?
5. What do you do if you are diagnosed as having cervical cancer, advice on how to improve?

Annex 4 Amharic questionnaires

የአማርኛ ቃለ መጠይቅ

በአዲስ አበባ በተመረጡ የመንግስት ሆስፒታሎች እና የኤች አይ ቪ ምርመራ እና ህክምና አገልግሎት በሚሰጡ ጤና ጣቢዎች ውስጥ ሴቶች የማህፀን በር ቅድመ ምርመራ አገልግሎት ለማግኘት ያላቸውን ፍቃደኝነት ለማወቅ የሚሰራ ጥናት

እኔ ከዚህ በታች የፈረምኩት፣ ከኤች አይ ቪ ጋር አብረው የሚኖሩ ሴቶች ለማህፀን በር ካንሰር ቅድመ ምርመራ ያላቸውን ፍቃደኝነት ለማወቅ በአዲስ አበባ ከተማ በሚገኙ የመንግስት ጤና ተቋማት በሚሰራ ጥናት ላይ ለመሳተፍ ፍቃደኛ መሆኔን እገልፃለሁ፡፡ የጥናቱ አላማ በአዲስ አበባ ከተማ በሚገኙ የመንግስት ጤና ተቋማት ውስጥ የፀረ ኤች አይ ቪ ህክምና የሚከታተሉ ሴቶችን ለማህፀን በር ካንሰር ቅድመ ምርመራ ላይ ያላቸውን ፍቃደኝነት ለማወቅ የሚሰራ ጥናት እንደሆነ የተነገረኝ ሲሆን በጥናቱ ላይ መሳተፍ ሙሉ በሙሉ በፍቃደኝነት ላይ የተመሰረተ እንደሆነ ተረድቻለሁ፡፡ለጥያቄዎቹ የምሰጣቸው ምላሾች ከዋና ተመራማሪው/ዋ እና ከሚመለከታቸው አካላት ውጭ ለማንም ይፋ እንደማይደረግ እንዲሁም የጥናቱ ውጤት ሌሎች ተሳታፊዎች ከሚሰጧቸው ምላሾች ጋር ተደምሮ የሚወጣ እንጂ የእያንዳንዱን ተሳታፊ መልስ ለይቶ ማወቅ እንደማይቻል አውቄያለሁ፡፡ በጥናቱ መሳተፌ ወይም አለመሳተፌ እንዲሁም ጥያቄዎችን መመለስ ማቋረጤ ምንም ጉዳት እንደሌለው እና መሳተፌም በኔ ላይ የሚያመጣው ጉዳት እንደሌለ አውቄያለሁ፡፡ የጥናቱ ተሳታፊ እንደመሆኔ መጠን ማንኛውንም አይነት ጥናቱን የተመለከተ ጥያቄ ካለኝ ሲ/ር ነፃነት በለጠን ማግኘት እንደምችል ተረድቻለሁ፡፡

ጥያቄ አለዎት?

በመጥይቁ ላይ ለመሳተፍ ፈቃደኛ ነዎት? አዎ.....ይቀጥሉ

አይደለም.....ያቁሙ

ተጠያቂ ፈቃደኛ ካልሆኑ አመሰግነው ያሰናበቷቸው ፈቃደኛ ከሆኑ ግን የሚከተሉትን ጥያቄዎች ይጠይቋቸው፡፡

አመሰግናለሁ!!!

1. የጤና ተቋሙ ስም_____
2. ቀን_____/_____/_____
3. የጥያቄ ወረቀቱ መለያ ቁጥር_____
4. የመረጃ ሰብሳቢ ስምና ፊርማ_____
5. የተቆጣጣሪ ስምና ፊርማ _____

የማህበራዊ፣ ኢኮኖሚያዊና ስነ ህዝብ ሁኔታ

ትክክለኛውን ምላሽ ያክብቡ

ተ.ቁ	ጥያቄ	ምላሽ		እለፍ
101	አሁን የሚኖሩት የት ነው?	አዲስ አበባ ከአዲስ አበባ ውጪ	1 2	
102	የካርድ ቁጥር	_____		
103	እድሜዎ ምን ያህል ነው?	_____		
104	ሐይማኖትሽ ምንድን ነው?	ኦርቶዶክስ ክርስትያን ሙስሊም ፕሮቴስታንት ካቶሊክ _____ ሌላ ካለ ይገለፅ	1 2 3 4 5	
105	ብሔር	አማራ ኦሮሞ ትግሬ ጉራጌ _____ ሌላ ካለ ይገለፅ	1 2 3 4 5	
106	የትምህርት ደረጃዎት?	ማንበብ እና መፃፍ የመጀመሪያ ደረጃ 1-8 ሁለተኛ ደረጃ 9-12 ከፍተኛ ደረጃ ከ12 በላይ	1 2 3 4	
107	ስራዎት ምንድን ነው?	የመንግስት ተቀጣሪ የግል ተቀጣሪ ነጋዴ ተማሪ ጠረተኛ _____ ሌላ ካለ ይገለፅ	1 2 3 4 5 6	
108	የጋብቻ ሁኔታ ምንድን ነው?	ያላገባ ያገባ ተለያይቶ የሚኖር የተፋታ የትዳር ጉዋደኛ የሞተበት	1 2 3 4 5	
109	መደበኛ የገቢ ምንጭ አልዎት?	አዎ አይደለም	1 2	**መልሱ 2 ከሆነ ወደ 109**
110	አማካይ ወርሃዊ ገቢዮ ምን ያህል ይገምቱታል?	ከ200 በታች 201-500 5001-1000 1001-1500 1500 በላይ መልስ አለመስጠትን መርጠዋል	1 2 3 4 5 6	

111	ከዚህ በፊት ምን ያህል እርግዝናዎች ነበሩዎት፣ ውርጃን ጨምሮ	ምንም አላጋጠመኝም 1-2 እርግዝናዎች 3-5እርግዝናዎች ከ 5 በላይ እርግዝናዎች	1 2 3 4	**መልሱ 1 ከሆነ ወደ 113**
112	ከዚህ በፊት ምን ያህል ልጆችን ወልደሻል፣ ከተወለዱ በኋላ በሂወት የሌሉትን ጨምሮ	ምንም አላጋጠመኝም 1-2 ጊዜ 3-5 ጊዜ ከ 5 በላይ	1 2 3	
113	ስንት ልጆች በህይወት አሉሽ	ምንም ልጆች የሉኝም 1-2 ልጆች 3-5 ልጆች >5 ልጆች	1 2 3 4	
114	በህይወት ዘመንሽ ውርጃ አጋጥሞሽ ያውቃል?	አዎ አያውቅም	1 2	
115	ኤች አይ ቪ በደምሽ ውስጥ እንዳለ ያወቅሽው መቼ ነበር?	0-5 አመት 6-10 አመት 11-15 አመት 16-20 አመት	1 2 3 4	

ክፍል ሁለት - ስለ ማህፀን በር ካንሰር ያላቸውን እውቀት የሚመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄ	ምላሽ		እለፍ
201	ስለ ማህፀን በር ካንሰር ሰምተሽ ታውቂያለሽ?	አዎ አላውቅም	1 2	**መልሱ አላውቅም ከሆነ ወደ 301**
202	ስለ ማህፀን በር ካንሰር የሰማሽው ከየት ነው? ***(ከአንድ በላይ መልሰ መሰጠት ይቻላል)***	ከመገናኛ ብዙሀን ከጓደኛ ከቤተሰብ ከጤና ባለሙያ መፃህፍትንበማንበብ --- ሌሎች(ይጥቀሱ)	1 2 3 4 5 6	
203	ለማህፀን በር ካንሰር አጋላጭ ምክንያቶች አሉ ብለሽ ታስቢያለሽ?	አዎ አጋላጭ ምክንያቶች አሉ አይ አጋላጭ ምክንያቶች የሉትም	1 2	**መልሱ የሉም ከሆነ ወደ 205**
204	ለማህፀን በር ካንሰር አጋላጭ ምክንያቶች /Risk factors/ምንድን ናቸው? ***(ከአንድ በላይ መልሰ መሰጠት ይቻላል)***	ብዙ የተቃራኒ ፆታ ጓደኞች የአባላዘር በሽታ በለጋ እድሜ የግብረ ስጋ ግንኙነት መጀመር ከቤተሰብ የሚተላለፍ አላውቅም --- ሌሎች(ይጥቀሱ)	1 2 3 4 5 6	

205	ለማህፀን በር ካንሰር እንደመነሻ ወይም በሽታ አምጪ የሚጠቀሱ ምክንያቶች /cause/ ምንድን ናቸው? ***(ከአንድ በላይ መልሰ መሰጠት ይቻላል)***	ሂውማን ፓፒሎማ ቫይረስ(HPV) ብዙ የተቃራኒ ፆታ ጓደኞች በለጋ እድሜ የግብረ ስጋ ግንኙነት መጀመር ሲጋራ ማጨስ በሽታ የመከላከል አቅም መቀነስ ከቤተሰብ የሚተላለፍ ለብዙ ጊዜ የቆየ ጭንቀት በለጋ እድሜ መውለድ በዛ ያሉ እርግዝናዎች የሚዋጡ የእርግዝና መከላከያ ለረጅም ጊዜ መጠቀም አላውቀውም ---------- ሌሎች(ይጥቀሱ)	1 2 3 4 5 6 7 8 9 10 11 12 13	
206	ለማህፀን በር ካንሰር **በመጀመሪያ ደረጃ** እንደ በሽታ አምጪ የሚጠቀሰው ምንድን ነው፣ መተላለፊያ መንገዱስ ምንድን ነው	ሂውማን ፓፒሎማ ቫይረስ(HPV) እና በግብረ ስጋ ግንኙነት አላውቀውም ሌላ ካለ ይጠቀስ	1 2 3	
207	የማህፀን በር ካንሰር መኖሩን የሚያሳውቁ በታማሚው ላይ የሚታዩ ምልክቶች አሉ	አዎ የሉም	1 2	**መልሱ የሉም ከሆነ ወደ 213**
208	በማህፀን በር ካንሰር የተያዘች ሴት የምታሳያቸውን ምልክቶች ጥቀሱ? ***(ከአንድ በላይ መልሰ መሰጠት ይቻላል)***	ሽታ ያለው ከማህፀን የሚወጣ ፈሳሽ መጠኑ ብዙ የሆነ ከማህፀን የሚወጣ ፈሳሽ የሆድ ህመም በግብረ ስጋ ጊዜ መጠኑ ያነሰ ከማህፀን የሚፈስ ደም አላውቅም ሌላ ካለ ይጠቀስ	1 2 3 4 5 7 8	
209	የወር አበባ መጠን መብዛት እንዲሁም የወር አበባ የቆይታ ጊዜ መርዘም ለማህፀን በር ካንሰር ምልክቶች ይሆናሉ ብለሽ ታስቢያለሽ	አዎ አይደለም	1 2	
210	በሰገራ ወይም በሽንት ላይ የሚታይ ደም ለማህፀን በር ካንሰር ምልክች ይሆናል ብለሽ ታስቢያለሽ	አዎ አይደለም	1 2	
211	የማህፀን በር ካንሰርን በምልክቶቹ ለመለየት ምን ያህል ችሎታ አለኝ ብለሽ ታስቢያለሽ	ምንም አልችልም ብዙም አልችልም ደህና በሚባል ሁኔታ እችላለሁ በጣም መለየት እችላለሁ	1 2 3 4	
212	የማህፀን በር ካንሰር ምልክቶች ይሆናሉ ብለሽ የምታስቢያቸው ምልክቶችን በራስሽ ላይ ብታይ ወደ ጤና ባለሙያ የምትሄጅው መቼ ነው	ወዲውኑ ምልክቶቹ የማህፀን በር ካንሰር መሆናቸውን ካረጋገጥኩኝ በኋላ በራሱ መዳን ካልቻለ መቼ እንደምሄድ አላውቀውም	1 2 3 4	

213	የማህፀን በር ካንሰርን መከላከል ይቻላልን?	አዎ ይቻላል አይ አይቻልም	1 2	
በጠቅላላው _____ ስለ ማህፀን በር ካንሰር ዕውቀት የሚመለከቱ ጥያቄዎችን መልሰዋል።።				

ክፍልሶስት -ስለማህፀንበርካንሰርቅድመምርመራየሚመለከቱጥያቄዎች

ተ.ቁ	ጥያቄ	ምላሽ		እለፍ
301	የማህፀን በር ለውጦችን ለመመርመር የሚካሄድ ቴስት እንዳለ ታውቂያለሽ	አዎ አላውቅም	1 2	**መልሱ 2 ከሆነ ወደ ጥያቄ ቁጥር 305**
302	አንዲት ሴት የማህፀን በር ካንሰር ቅድመ ምርመራ መጀመር ያለባት እድሜ ስንት ነው	ከ 21 ዓመት በታች በ 21 ዓመቷ ልጅ ከወለደች ከተወሰኑ አመታት በኋላ በማህፀን አካባቢ ለውጦችን ማየት ስትጀምር _____ ሌላ ካለ ይጠቀስ	1 2 3 4 5	
303	አንዲት ሴት ቅድመ ምርመራውን ከጀመረች በኋላ በየስንት ጊዜው ምርመራውን መድገም አለባት	በየ ስድስት ወሩ በየ ዓመቱ በየ ሶስት ዓመቱ በየ ዓምስት ዓመቱ _____ ሌላ ካለ ይጠቀስ	1 2 3 4 5	
304	አንዲት ሴት ምርመራውን ከማድረጓ ከ 2 ቀን በፊት መደረግ ያለባቸው ቅድመ ጥንቃቄዎች ምንድን ናቸው	የወር አበባ ዑደት ላይ መሆን የለብትም በማህፀንዋ የውጨኛው ክፍል ላይ ምንም አይነት ፈሳሽ መጠቀም የለባትም (መታጠቢን ጨምሮ) የግብረ ስጋ ግንኙነት ማድረግ የለባትም በማህፀን የውጨኛው ክፍል ላይ የሚቀቡ የእርግዝና መከላከያ ዘዴዎችን መጠቀም የለባትም _____ ሌላ ካለ ይጠቀስ	1 2 3 4 5	
305	የማህፀንበርካንሰርቅድመምርመራለማድረግትፈልጊያለሽ	አዎ አልፈልግም	1 2	**መልሱ 2 ከሆነ ወደ 308**

306	ቅድመምርመራውንለማድረግምክንያትሽምንድንነው ***(ከአንድ በላይ መልስ መስጠት ይቻላል)***	ከኤችአይቪጋርአብሬስለምኖር ቶሎየህክምናክትትልለማግኜት ማህፀን በር ለውጡ ወደ ካንሰር ከመለወጡ በፊት ቀድሞ ለማወቅ ምንምምክንያትየለኝም አላውቀውም ሌላ ካለ ይጠቀስ	ነ 2 3 4 5 6	
307	የቅድመ ምርመራው ጠቀሜታ ምንድን ነው ብለሽ ታስቢያለሽ ***(ከአንድ በላይ መልስ መስጠት ይቻላል)***	ምርመራው የማህፀን በር ለውጦችን ወደ ካንሰር ሳይቀየሩ ማወቅ ያስችላል ቀደም ብሎ ህክምና ለመጀመር ይረዳል ምርመራው በጥሩ ውጤት እንዲጠናቀቅ አላውቅም ምርመራው ጥቅም የለውም	ነ 2 3 4 5	
308	ቅድመምርመራውንላለማድረግምክንያትሽምንድንነው ***(ከአንድ በላይ መልስ መስጠት ይቻላል)***	ምርመራው·በዘገንዘብስለሚፈልግ በሐይማኖትተቀባይነትስለሌለው የት·ዳርአጋሬስለማይስማማ ብዙጊዜስለሚፈጅ ነ·በሰ- ጡርስለሆንኩ/በቅርቡስለወለድኩ ውጤቱንበማሰብ ሴት የጤና ባለሙ·ያዎች በቦታው ስለሌሉ ምንምምክንያትየለኝም	ነ 2 3 4 5 6 7 8	

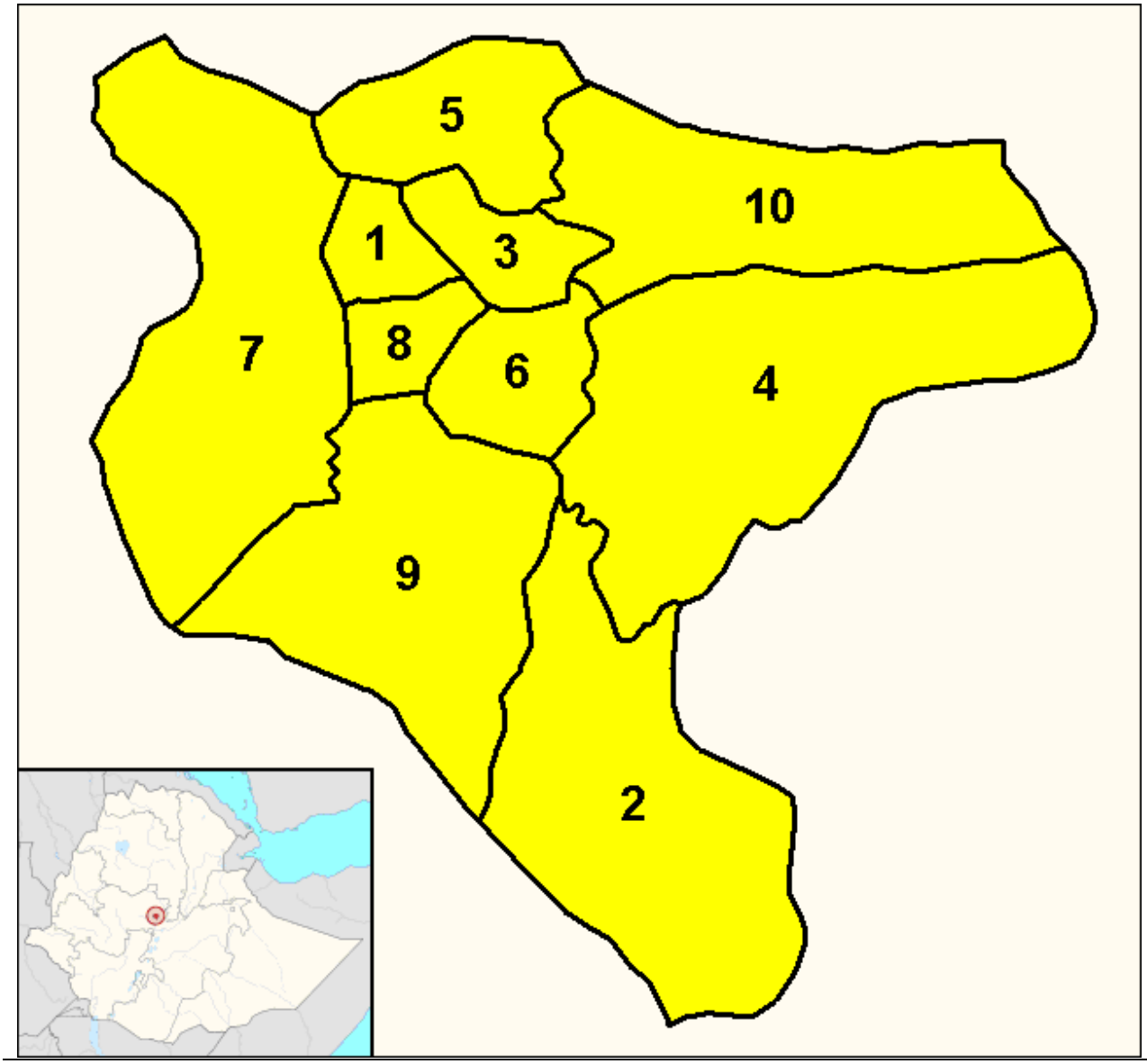
ክፍል 4 - የማህፀን በር ካንሰር እና ኤች አይ ቪ

ተ.ቁ	ጥያቄ	ምላሽ		እለፍ
401	የታካሚው ምድብ	Pre-ART On ART follow up	ነ 2	
402	የታካሚው ምድብ (በአለም ጤና ድርጅት ደረጃ)	WHO clinical stage 1 WHO clinical stage 2 WHO clinical stage 3 WHO clinical stage 4	ነ 2 3 4	
403	CD4 ካውንት	<=500 cells/µl >500 cells/µl	ነ 2	
404	በህይወት ዘመንዎ የማህፀን ካንሰር ቅድመ ምርመራ አድርገው ያውቃሉ	አዎ አላውቅም	ነ 2	**መልሱ 2 ከሆነ ወደ 407**

405	ቅድመ ምርመራውን ያደረጉት መቼ ነበር ***(ከአንድ በላይ መልሰ መሰጠት ይቻላል)***	ኤች አይ ቪ በደሜ ውስጥ እንደሚገኝ ከማወቄ በፊት ኤች አይ ቪ በደሜ ውስጥ እንደሚገኝ ካወቅኩ በአንድ አመት ውስጥ ኤች አይ ቪ በደሜ ውስጥ እንደሚገኝ ካወቅኩ በአንድ አመት በኋላ አላስታውስም	ነ 2 3 4 5	
406	የምርመራው ውጤት ምን ነበር	ለምርመራው ፖዜቲቭ ለምርመራው ኔጌቲቭ	ነ 2	
407	ለመመርመር የጤና ባለሙያው በሚይዘው ስም ዝርዝር ላይ ለመመዝገብ ፍቃደኛ ነሽ	አዎ አይደለሁም	ነ 2	

ስለነበራችሁ ቆይታ መልስ ስጭዋን አመስግኑ።።

Map of the Study area (Addis Ababa, Ethiopia)



Declaration

I the undersigned declare that this is a thesis report and has not been presented in this or any other University and all sources of materials used for this report have been fully acknowledged.

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Date: ____/____/_____

Place: School of Allied Health Sciences Department of Nursing and Midwifery, Addis Ababa University**.** This thesis report has been submitted to Department of Nursing and Midwifery for approval.

Advisor: Yoseph Tsgie (Bsc, Msc)

Signature: _____

Date: ___/____/_____