



**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH**

Assessment of knowledge, attitude, practice of cervical cancer screening and its associated factors among HIV positive women, in public health institutions of Bahirdar Town, Northwest Ethiopia

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A thesis submitted to School of Graduate Studies, College of Health Sciences, School of Public Health, Addis Ababa University, in partial fulfillment of the requirements for the degree of master in public health

Addis Ababa, Ethiopia

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SCHOOL OF GRADUATE STUDIES

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As thesis research advisor, I hereby certify that I have read and evaluated this thesis prepared under my guidance by Likina Bizuayehu entitled assessment of knowledge, attitude, practice of cervical cancer screening and its associated factors among HIV positive women attending public health institutions in Bahirdar town, Northwest Ethiopia, 2017. I recommended that it be submitted as fulfilling the thesis requirement.

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As members of the Board of Examiners of the MPH thesis open defense examination, we certify that we have read and evaluated the thesis prepared by Likina Bizuayehu and examined the candidate. We recommend that the thesis be accepted as fulfilling the thesis requirements for the Degree of Master of Public health.

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STATEMENT OF THE AUTHOR

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every serious effort has been made to avoid any plagiarism in the preparation of this thesis.

This thesis is submitted in partial fulfillment of the requirement for master of public health degree to Addis Ababa University, College of Health Science, and School of public health. I would like to declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

Name: _____ Signature _____

Date _____

Department/program: Extension MPH program of Addis Ababa University, College of Health Science, and School of Public Health.

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Abbreviations

AAU	Addis Ababa University
AIDS	Acquired Immune Deficiency Syndrome
ART	Anti- Retroviral Treatment
CD4	Cluster of Differentiation 4
EFY	Ethiopian Fiscal Year
FP	Family Planning
HC	Health Center
HIV	Human Immunodeficiency Virus
HO	Hospital
HPV	Human Papilloma Virus
LMICs	Low and Middle Income Countries
MOH	Minister of Health
NGO	Non-Governmental Organization
PAP smears	Papanicolaou Smears
RHB	Regional Health Bureau
STD	Sexually Transmitted Disease
VCT	Voluntary counseling and testing
VIA	Visual Inspection with Acetic acid
VL	Viral Load
WHO	World Health Organization
WLHA	Women Living with HIV/AIDS

Abstract

Introduction: Cervical cancer is the fourth most common women cancer and the fourth most common cause of cancer death worldwide. The high rate of cervical cancer among women have been reported from several African countries including Ethiopia. HIV positive women have a higher prevalence and incidence of cervical precancerous lesions than HIV negative women. In Ethiopia a little is known about HIV positive women knowledge, attitude and their screening practice about cervical cancer screening.

Objective: To assess knowledge, attitude, practice about cervical cancer screening and associated factors among HIV positive women attending public health institutions in Bahirdar, Northwest Ethiopia

Methods: Facility based cross sectional study was conducted among a total of 477 HIV positive women who attended public health institutions using a pre tested structured questionnaire. The study participants were selected using Systematic Random Sampling Technique. Descriptive statistics were used to summarize socio-demographic characteristics of study participants. Logistic regression analysis was fitted and odds ratios with 95% CI and P value were computed to identify effects of covariates with participants' knowledge, attitude and cervical cancer screening practice.

Result: About 162(35.4%) of HIV positive women have had a good knowledge about cervical cancer and screening practice. More than half of the respondents had a positive attitude 298(65.1%) but only 14.2% [95% CI (0.11,0.17)] of the respondents were screened once in a lifetime. Educational status was the only variable to show significant association with knowledge. Marital status, education, and women with one sexual partner showed significant association with attitude. Knowledge and occupation were significantly associated with the practice of cervical cancer screening. Women with good knowledge of cervical cancer screening were 15 times more likely to seek cervical cancer screening [AOR=15.28; 95% CI (7.338, 31.819)].

Conclusion: This study revealed that most of HIV positive women have poor knowledge about cervical cancer screening and very few were ever screened for cervical cancer. Thus warrant to the concerned bodies for the creation of cervical cancer awareness campaigns and screening programs at all levels of the health sector and encourage HIV positive women for cervical cancer screening.

1. Introduction

1.1. Background

Cervical cancer is a malignant tumor occurs when abnormal cells in the cervix turn into cancer cells. There are two main types of cervical cancer: squamous cell carcinoma and adenocarcinoma. Each one is distinguished by the appearance of cells under a microscope. Squamous cell carcinoma is the most common types which accounts for about 8 out of 10 cases. Adenocarcinoma a less common types that starting in the glandular cells [1].

Cervical cancer was the fourth most common cancer-affecting women worldwide, after breast, colorectal, and lung cancers. According to, 2012 released data showed 528,000 new cases of cervical cancer occur every year; it is most notable in the lower-resource countries of sub-Saharan Africa. It is also the fourth most common cause of cancer death (266,000 deaths in 2012) in women worldwide [2]. Women in Sub-Saharan Africa are extremely affected with cervical cancer, accounting 13% of all female cancers [3,4].

In Ethiopia cervical cancer is the second most frequent cancer among women between 15 and 44 years of age. According to, 2012 estimates every year 7,095 women are diagnosed with cervical cancer and 4,732 die from the disease [5].

Virtually all cases of cervical pre-cancer and cancer are associated with a high-risk human papillomavirus infection, with types 16 and 18 reported to account for the majority of cases [6,7]. HPV, smoking, parity, education, diet, physical inactivity, sexual behavior and use of oral contraceptives has an impact on progression, from persistent HPV infection to cervical pre-cancer to cancer [8,9].

Both HIV and HPV infection are sexually transmitted; the two infections are often occurred together. HIV infected women are at increased risk of acquiring the persistent type of HPV infections, which has a more rapid progression to pre-cancer and cervical cancer [10].

Most women with intact immune systems will clear human papillomavirus (HPV) infection. Among immunosuppressed women such as women living with HIV/AIDS (WLHA), potentially oncogenic HPV infection is less likely to be transient [12].

Kaposi's sarcoma, non-Hodgkin's lymphoma, and cervical cancer are among 26 acquired immune deficiency syndrome (AIDS)-defining clinical conditions [13].

The American Cancer Society recommends that all women should begin cervical cancer screening at age 21. Women aged 21 to 29, should have a Pap test every 3 years. Women who are at high risk of cervical cancer because of a suppressed immune system (for example from HIV infection, organ transplant, or long term steroid use) need to be screened more often [14].

Most of the guidelines published by the U.S. Department of Health and Human Services (HHS) and partially based on the opinions of professionals knowledgeable about the care and management of cervical cancer and HIV infection in women. HIV-positive women should be provided cervical cytology screening twice (every 6 months) within the first year after initial HIV diagnosis and, if both tests are normal, annual screening can be resumed thereafter [15].

WHO recommended age for women to start screening is 30 years and older because of their higher risk of cervical cancer. For HIV positive women screening should be done as soon as they tested positive for HIV [16].

In high-income countries, Pap smear (cytology based) screening is widely used. In LMICs visual inspection with acetic acid (VIA) and rapid human papillomavirus (HPV)-based screening tests are effective alternatives for scaling up prevention services [17]

The success of screening depends on access and uptake, quality of screening tests, adequacy of follow-up, and diagnosis and treatment of lesions detected. In low and middle-income countries coverage of cancer screening services is lowest averagely

estimated at 19%. This is partly due to the presence of only a few trained and skilled health workers, and lack of healthcare resources to sustain screening programs [18,19].

Effective screening and early treatment of precancerous cervical lesions are, thus, key factors in preventing cervical cancer in both HIV-infected and HIV-uninfected women [20].

Currently in Ethiopia there is an initiative, which started in 2015 supported by pink Ribbon Red Ribbon to improve the quality of service delivery for cervical cancer prevention. The government of Ethiopia primarily adopts visual inspection with acetic acid (VIA) test in 3 regions with a goal to open in 4 regions by the end of 2017 [21].

1.2. Statement of the problem

Cervical cancer has a profound societal impact because it primarily affects women from their 30's to their 50's, who are often raising or supporting families [22].

The high rate of cervical cancer has been reported from several African countries including Ethiopia. PAP smear and other cervical cancer screening methods have significantly reduced the rates of cervical cancer in high and middle income countries are still very poorly applied in Africa. In Africa lack of awareness about cervical cancer and the role of screening, inappropriate health seeking behavior by women, poor organization of health services and low priority accorded to women's health by policymakers are some of the reasons for low acceptance of secondary prevention services for cervical cancer [23].

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 [24]. The reason behind this in most studies is poor knowledge about the disease and screening practice [25,26,27].

Although several studies have been done before to estimate the level of knowledge, attitude and screening practice of cervical cancer, most of them were done either among health workers [30,31] or students [32] which might not be the reflection of the general community.

Despite the fact that women infected with HIV are at higher risk for precancerous lesions and are more likely to progress to invasive cervical cancer compared with uninfected women [33], only limited studies done so far to assess the level of knowledge, attitude and cervical cancer screening practice of these individuals [29, 34]. On top of this, there is a dearth of evidence on this problem in Northwest Ethiopia as most of the previous studies were done in other districts of Ethiopia [31,35, 36].

1.3. Significance of the study

Since HIV positive women are at increased risk of acquiring cervical cancer special attention has to be given to prevention by addressing appropriate information about the disease, screening services and treatment modalities. In addition, it is essential to study their level of knowledge about cervical cancer, screening practice and what associated factors will prevent them from screening in order to avert cervical cancer related death among HIV positive women.

This study aims to fill information gaps among women in Bahirdar and the findings will provide information to the concerned bodies (Governmental and nongovernmental organizations) to plan important interventions to improve HIV positive women's on cervical cancer screening practice. Furthermore better documenting women's practice of cervical cancer would be useful to design an intervention that aim at reducing cervical cancer mortality through increasing community awareness and improving early diagnosis and treatment of the disease.

2. Literature reviews

2.1. Magnitude of cervical cancer

According to the latest data on cancer incidence, mortality, and prevalence worldwide, cervical cancer is the fourth most common cancer affecting women worldwide, after breast, colorectal, and lung cancers released data showed with 528,000 new cases every year; it is most notable in the lower-resource countries of sub-Saharan Africa. It is also the fourth most common cause of cancer death (266 000 deaths in 2012) in women worldwide. Almost 70% of the global burden falls in areas with lower levels of development and more than one fifth of all new cases are diagnosed in India [2].

In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100 000 women annually, and 22.5 per 100 000 women die from the disease. These figures compare with 6.6 and 2.5 per 100 000 women, respectively, in North America. The drastic differences can be explained by lack of access to effective screening and to services that facilitate early detection and treatment [2].

The prevalence of precancerous cervical cancer lesion among HIV-infected women in southern Ethiopia was found to be high. Out of 448 study participants, 99(22.1%) were found to be positive for precancerous cervical cancer. Being currently on highly active antiretroviral treatment history of a sexually transmitted disease and having only one lifetime sexual partner were factors associated with precancerous cervical cancer lesion [37].

2.2. Knowledge of cervical cancer and screening practice

A survey done among women living in Kisumu, Kenya, 388 women participated in the study with a median age of 27 years of which 91% women had heard of cancer but only 29% had ever heard about cervical cancer [38].

A study done in church-affiliated hospital in Zimbabwe from a total of 208 HIV infected women forty-five (21.6 %) respondents claimed to know what cervical cancer but the majority of these could not correctly explain what cervical cancer is [25].

In rural Uganda knowing at least one test method for cervical cancer was positively associated with having screened for the disease [39].

A study in Northern Ethiopia showed knowledge on cervical cancer and screening (AOR = 2.355, 95%CI = 1.155–4.802) was one of the significant predictors of cervical cancer screening service uptake [40]

In Northwest Ethiopia knowledge about cervical cancer among women aged 15 and above is low; 78.7% had heard about cervical cancer and only 31% of them were knowledgeable about the disease [27].

2.3. Attitude towards cervical cancer screening

According to a cross sectional study done in Kenya 2013 among women (57%) reported that they would be willing to pay or to have free cervical screening, and only 5% of women reported that they would not be willing to undergo screening, regardless of cost [38]

A cross sectional study done in Zimbabwe among women shows, despite never having had cervical screening and lacking prior knowledge of its purpose, 80% of the females expressed positive beliefs about cervical screening tests after an educational intervention [41].

A cross sectional study among 208 HIV positive women in Zimbabwe shows, the respondents 161 (77.4%) felt at risk of cervical cancer and 200 (96.2%) respondents reported would like to screen for cervical cancer in the future. HIV-infected women have inadequate knowledge and a positive attitude towards cervical cancer screening [25]

2.4. Screening practice for cervical cancer

A cross-sectional study was done in Kisumu, Kenya on women seeking reproductive health services only (6%) of them had ever been screened for cervical cancer and cited barriers such as fear, time, and lacking knowledge about cervical cancer [38].

In Lagos, Nigeria Cervical cancer counseling and screening is not part of the routine management of HIV positive women. From 300 respondents none of them received any form of counseling about cervical cancer and screening. Only 15 (31.3%) of these (5% of the total number of respondents) have ever done the test before.

The majority (69.7%) of those who had not been screened despite knowledge of the Pap smear gave non- recommended by their doctor as the main reason for not doing the test [42].

The prevalence of cervical cancer screening is very low in rural Uganda this is because of negative individual perceptions and health facility related challenges [39].

A cross sectional study done among 1517 HIV positive women in Nigeria, cervical cancer screening practice were low 9.4% [43].

A Community based study using Health Belief Model in Northern Ethiopia among 1186 age eligible women; only 235(19.8%) have been screened for cervical cancer [40].

A cross sectional study done on willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in Addis Ababa, Ethiopia shows the screening uptake from 322 study participants was 11.5%, which is low [29].

2.5. Factors associated with cervical cancer

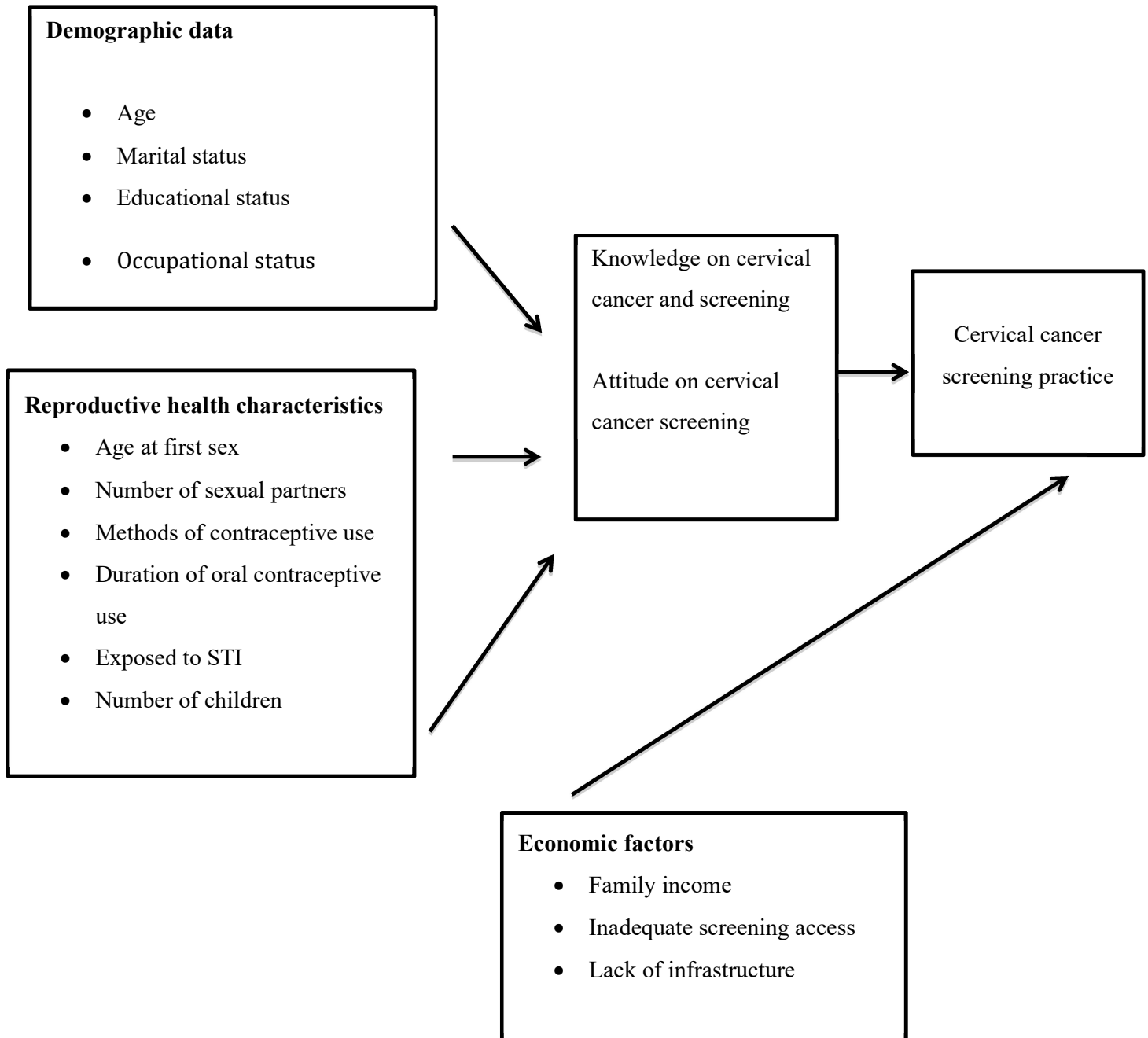
A study done in church-affiliated hospital in Zimbabwe most socio-demographic characteristics was not statistically significant predictors of knowledge of cervical cancer. However, compared to no formal education, tertiary education associated with increased knowledge of cervical cancer [25].

The other known risk factors were number of sexual partners, age at first sexual intercourse, infection of sexually transmitted diseases (Chlamydia infection), use of hormonal contraceptives, parity, age, tobacco smoking and women whose diets do not include enough fruits and vegetables may be at increased risk for cervical cancer. Overweight women are more likely to develop adenocarcinoma of the cervix. Apart from these factors, some other issues, such as policy on cancer, capacity of health systems, socioeconomic and cultural factors and awareness among the women are also associated with cervical cancer related morbidity and mortality [26].

Secondary and above educational status, knowing someone with cervical cancer and visit to a health institution were also factors that are more likely to increase knowledge of cervical cancer in Northwest Ethiopia [27].

3. Conceptual framework

Conceptual framework developed from different literature, Bahirdar, Ethiopia, 2017



4. Objective

4.1. General objective

To assess knowledge, attitude, practice about cervical cancer screening and associated factors among HIV positive women attending public health institutions in Bahirdar town, Northwest Ethiopia, 2017

4.2. Specific objectives

- To determine knowledge of cervical cancer screening practice among HIV positive women
- To assess attitude of cervical cancer screening among HIV positive women
- To determine the practice of cervical cancer screening among HIV positive women
- To identify associated factors affecting knowledge, attitude and practice of cervical cancer screening among HIV positive women

5. Methods

5.1. Study area and period

The study was carried out in Bahirdar from January to February 2017GC. Bahirdar district is located in the Northwest Ethiopia approximately 578 kms from Addis Ababa the capital city of Ethiopia. The district had a total population of 221,991, of whom 108,456 are men and 113,535 women; 180,174 or 81.16% are urban inhabitants, the rest of population are living at rural kebeles around Bahirdar [CSA, 2007]. There was an estimated total of 113, 879 PLHIV currently on ART in Amhara Region, 2007 EFY. In Bahirdar the sum of facilities 2015 annual report showed that 6,593 women are currently on ART. Bahirdar has two public hospitals and 10 health centers. From this two hospitals and five health centers provide ART while only one hospital provide cervical cancer screening (VIA).

5.2. Study design

Facility based cross sectional study was employed.

5.3. Population

5.3.1. Source population

All HIV positive women enrolled in chronic care of public health facilities in Bahirdar.

5.3.2 Study population

All women who are registered in ART clinics of public health facilities in Bahirdar and visited the health institutions during the study period.

5.3.3. Inclusion and exclusion criteria

All HIV positive women age from 21 to 65 years who were registered and visit the ART clinic during the study period were included in this study. Women who were critically sick unable to give the response were excluded from the study.

5.4. Sample size determination

Before sample size determination literatures were reviewed to get information on the knowledge, attitude, practice about cervical cancer screening and associated factors from similar studies.

The sample size was determined using both single and double population proportion formula.

5.4.1. For specific objective one

The prevalence of knowledge about cervical cancer was taken from a prior study done in North West Ethiopia, which was 31% [27].

By using this formula:

$$n = \frac{Z_{\alpha/2}^2 \cdot p(1-p)}{d^2} = \frac{(1.96)^2 \cdot 0.31(1-0.31)}{(0.05)^2} = 329$$

Considering 10% non-response rate the total number of sample size=362

Where: P= the prevalence of knowledge about cervical among Women

d =margin of error considered to be 5%

$Z_{\alpha/2}$ = Z-value for 95% confidence level which is 1.96.

n = the required sample size

5.4.2. For specific objective two

Give lack of concrete evidence from a previous study on the attitude of HIV positive women towards cervical cancer screening. The formula that can yield the largest sample size of the study population is considered. Assuming the proportion (p) to be 50% and q value will be 1-p which is 50% and 95% confidence interval, 5% margin of error.

$$n = \frac{Z_{\alpha/2}^2 p (1-p)}{d^2} = \frac{(1.96)^2 \cdot 0.5(1-0.5)}{(0.05)^2} = 384$$

Considering 10% non-response rate the total number of sample size=422

5.4.3. For specific objective three

To calculate the sample size for the estimation of cervical cancer screening practice a prevalence of 11.5% was taken from a previous study [29].

$$N = \frac{Z_{\alpha/2}^2 p (1-p)}{d^2} = \frac{(1.96)^2 \cdot 0.115(1-0.115)}{(0.03)^2} = 434$$

Considering 10% non-response rate the total number of sample size=477

Where p=the prevalence of screening practice among HIV positive women

d=margin of error considered to be 3%

$Z_{\alpha/2}$ = Z-value for 95% confidence level which is 1.96.

n = the required sample size

5.4.4. For specific objective four

The sample size was determined by using Epi Info 3.5.1 with absolute precision of 5% and 95% confidence limit.

To calculate sample size for associated factors of cervical cancer screening:

Two sided confidence level= 95%

Power = 80%

Ratio of unexposed to exposed= 1:1

Outcome in unexposed group =50%

Odds ratio=2

Considering 10% of non-response rate total sample size **341**.

Therefore from the above calculated sample size; the largest sample size, which is **477**, was used in the current study.

5.5. Sampling procedure

Currently in Bahirdar, there are 12 public health institutions (two public hospital and 10 health centers); from these only two hospitals and five health centers are providing ART services. The sample size in each health center and hospital was allocated proportional to population size.

The study participants were selected using systematic random sampling technique. To calculate the sampling interval (K), the average number of women who visited selected health centers and hospital per day was divided by number of women required in each health center and hospital.

By using lottery method choice of the starting point was made and the next participant was determined by the sampling interval.

If the selected individual did not fulfill the inclusion criteria, the next client replaced it and the interval continued accordingly.

Table 1: Sampling procedure and proportional allocation of study subjects in Bahirdar, Ethiopia, 2017

Selected Health institution	NO of HIV positive women attending ART clinic in each HC (N)	Average HIV positive women attending ART clinic in each HC per day (n')	No of HIV positive women required in each HC (n)	No of HIV positive women required in each HC per day. (n'')	The sampling interval (K)
HO	3454	60	250	36	2
HC 1	595	18	43	6	3
HC 2	1022	25	74	11	2
HC 3	454	10	33	5	2
HC 4	572	18	41	6	3
HC 5	496	15	36	5	3

Where N= Number of HIV positive women's registered in the last month in each health center (data from each health center).

N = number of HIV positive women's required for this study from each health center (calculation proportion to population size)

n' = an average number of HIV positive women's per day visited HC last month (data from each health center).

N'' = number of HIV positive women's required in each selected health center (by dividing n by number of data collection day)

$K = \text{sampling interval calculated by } n'/n''$. By using the lottery method we chosen the starting point and the next participant was determined by sampling interval.

5.6. Data collection procedures

After reviewing relevant literatures, a structured questionnaire was developed to collect data. The questionnaire was initially prepared in English and then translated to the Amharic language, and was translated back to English to check for any inconsistencies. For data collectors training was given by the investigator to make them familiar with the data collection tool. A pretest was conducted on 5% of the sample size in health facilities not included in the actual study, and based on the result necessary modification were done. The questionnaire contained five parts comprising of socio-demographics, reproductive characteristics, knowledge of cervical cancer screening, attitude about cervical cancer and cervical cancer screening practice. The interviewer-based questionnaire was administered after obtaining informed consent from the study participants.

5.7. Definition of Variables

5.7.1. Independent variables

- Socio-demographic status (age, marital status, educational status, occupational status, income)
- Reproductive health characteristics (age at first sex, number of sexual partner, methods of contraceptive use, duration of oral contraceptive use, exposed to STI, number of children)

5.7.2. Dependent Variable

- Knowledge about cervical cancer and cervical cancer screening
- Attitude on cervical cancer screening
- Practice of cervical cancer Screening

5.8. Operational definitions

Good knowledge: participants who scored the median and above value from the provided 16 closed ended question about the knowledge on screening.

Poor knowledge: participants who scored below the median value from the provided 16 closed ended question about the knowledge on screening.

Positive attitude: Those who scored the mean and the above mean/median from the provided five question.

Negative attitude: Those who scored below the mean from the provided five question.

Cervical cancer screening practice: those who ever had got a Papanicolaou/VIA test at list once in a life time were considered as having screening practice. And those who never screened were considered as having no screening practice.

5.9. Data analysis procedures

After data collection, each questionnaire was checked for completeness and consistency. Data entry was done using Epi info version 7. The entered data was cleaned and exported to SPSS version 20 statistical packages for analysis. Different frequency tables, graphs and descriptive summaries were used to describe the study variables. The responses to the 16 knowledge questions were summed up together to get overall knowledge score of the participant. Then participants were dichotomized as good knowledge if the score is equal to or greater than the median otherwise poor knowledge.

The attitude about cervical cancer and its screening were measured using Likert scale system, which ranges from score 5 (strongly agree) to score 1 (strongly disagree). The responses were summed up to get a total score for each respondent. The mean score was calculated and those who scored equal to or greater than the mean were categorized as having a positive attitude and those who scored below the mean were categorized as having a negative attitude towards cervical cancer screening.

Bivariate analysis was applied primarily to see the association of independent variables with knowledge, attitude and practice of cervical screening. Variables that had an association (p value < 0.05) were entered into multivariable logistic regression model for controlling the possible effects of confounders and finally the variable that had significant association were identified by calculating the odds ratio, with 95% CI. We declared statistical association at P -value < 0.05 .

5.10. Data quality management

To assure the data quality, training was given for data collectors by the principal investigator. Pre-testing of the questionnaire was carried out on the 5% of sample size in the health institution that was not included in the study. Based on the result obtained necessary modification was made. Data collectors were checked the completeness of the data during data collection daily and also crosschecked after data collection by a principal investigator.

5.11. Ethical consideration

Ethical clearance was obtained from the Review Ethics Committee of the School of Public Health at Addis Ababa University. An official letter was submitted to the Regional Health Bureau and every selected health institutions were informed about the study objective and relevance through a letter. Informed consent was obtained from all respondents before participation after explaining the purpose of the study,

risk, benefit, confidentiality and their right to anonymity. The participants were informed that they could withdraw from the interview at any point if they feel any discomfort.

In order to keep any information provided by study subjects confidential, the data collection procedure was maintained by excluding their names as identification in the questionnaire and keeping their privacy during interview period by interviewing them alone.

5.12. Dissemination of the result

The finding of the study will be submitted in the form of a thesis to Addis Ababa University College of Health Science, School of Public Health, and Department of Preventive Medicine. The result will be publicly defended following submission. Copies will be provided to relevant stakeholders. In addition the results of the study will be presented at regional and national conferences. Finally the result will be published in a peer reviewed international journal.

6. Result

6.1. Socio-demographic characteristics and knowledge, attitude, screening practice on cervical cancer screening

A total of 477 female respondents enrolled at ART clinics of the selected health centers and hospital were included in the study with a response rate of 96%. The participants were between 21-65 years with a median age of 35 and interquartile range 10 years. The majority of respondents 420(91.7%) were predominantly Orthodox follower, married 230(49.6%), no formal education 170(37.1%), self-employed 200(43.7%), monthly income less than and equal to 1000 ETB (63.1%) and all are currently on ART who have been taken the ART up to 4-8years around 202(40.2%).

Our study showed that only 162(35.4%) of the respondents had good knowledge about cervical cancer and screening practice with (mean 6.8, SD 2.93). From the respondents who had good knowledge on cervical cancer and screening practice 80(48.8%) of them were married and 51(31.5%) attained secondary education. On the other hand based on the operational definition stated 298(65.1%) of study participants had positive attitude while 160(34.9%) had negative attitude towards selected variables and the overall practice of screening in this study shown that only 65(14.2%) of the respondents were screened once in a lifetime and all had a negative result. More than half 37(56.9%) of the ever screened are married and 24(36.9%) attained at least primary school education.

Table 2: Socio demographic characteristics of HIV positive women in Bahirdar health institution, Northwest Ethiopia, 2017

Variables	Knowledge		Attitude		Screening Practice	
	Good	Poor	Positive	Negative	Yes	No
Age category						
21-30	59	106	101	64	19	146
31-40	75	112	121	66	29	158
>40	28	78	76	30	17	89

Marital status						
Married/living together	80	150	144	86	37	193
Single	22	31	42	11	5	48
Divorced/separated	45	70	74	41	14	101
Widowed	15	45	38	22	9	51
Religion						
Orthodox	146	274	277	143	61	359
Protestant	11	19	15	15	3	27
Muslim	4	2	5	1	1	5
Catholic	1	1	1	1	0	2
Educational status						
No formal education	41	129	102	68	15	155
Primary school	47	78	87	38	24	101
Secondary school	51	69	86	34	16	104
Diploma and above	23	20	23	20	10	33
Occupation						
House wife	37	91	81	47	17	111
Self-employed	79	121	136	64	35	165
Government employee	16	32	32	16	9	39
Private company employee	27	37	37	27	4	60
Student & others	3	15	12	6	0	18
Income						
≤ 1000	94	195	183	106	40	249
1001 – 2000	23	64	62	25	8	79
2001 – 3000	23	15	31	7	8	30
3001 – 4000	7	8	11	4	6	9
>4000	13	6	5	14	3	16

Duration of ART treatment						
< 4years	44	121	98	67	13	152
4-8 years	80	122	143	59	32	170
>8 years	38	53	57	34	20	71

6.2. Reproductive health characteristics of the respondent

During the study period almost all 451(98.5%) the respondents are sexually active and majority 288(63.9%) of them had a sexual debut at an early (age<20 years). As shown in table 3, 246(54.5%) had multiple sexual partners. About 283(62.7%) of participants used contraceptive of which only 43(15.2%) were oral contraceptive users while 117(25.9%) uses condom and 55.6% use condom always. The result of this study also reveals that one fifth (20.2%) of the respondents had STI.

Table 3: Reproductive characteristics of HIV positive women in Bahirdar health institution, Northwest Ethiopia, 2017.

Variables	Frequency	Percentage
Sexual debut		
Had sex	451	98.5%
Never had sex	7	1.5%
Age at first sex		
<20 years	288	63.9%
≥ 20 years	163	36.1%
No of sexual partner		
1	205	45.5%
>1	246	54.5%
Contraceptive use		
Yes	283	62.7%
No	168	37.3%
Contraceptive type		
Oral contraceptive	43	15.2%
Injectable	140	49.5%

Long term FP	65	22.9%
Male or female condom	35	12.4%
Condom use		
Always	65	55.6%
Sometimes	52	44.4%
Ever had STI		
Yes	91	20.2%
No	360	79.8%
Children		
No children	103	22.8%
1	130	28.8%
2-4	197	43.7%
5 and above	21	4.7%

6.3. Respondent's knowledge and related information about cervical cancer

More than two third of the respondents, 306 (66.8%) had heard about cervical cancer among which half; 237 (77.5%) of them mentioned health professionals as a source of information other sources of information mass media 109(35.6%) and friends 44(14.3%), 27 (8.8%) of the respondents also knew someone who has cervical cancer. As shown in table 4, most of the respondents were not aware of cervical cancer cause, transmission, risk factors, symptom and prevention. In terms of cause, only 53(17.3%) knew that virus is a cause and about 76(24.8%) of the respondents knew it could be transmitted by sexual intercourse. About 104(33.9%) of the respondents identified cervical cancer symptoms. Surprisingly the majority of respondents, 248(81%), could not identify that having multiple sexual partners is a risk factor. Similarly, the majority of respondents did not aware the importance of condom and screening to prevent the transmission of the virus (90% and 64% respectively).

Table 4: Knowledge and related information about cervical cancer on HIV positive women Bahirdar health institution, Northwest Ethiopia, 2017.

Variables	Frequency	Proportion
Heard about cervical cancer		
Yes	306	66.8%
No	152	33.2%
Source of information		
Health care provider	237	77.5%
Media	109	35.6%
Friends	44	14.3%
Knew someone with cervical cancer	27	8.8%
Causes for cervical cancer		
Virus	53	17.3%
Bacteria	30	9.8%
Fungus	15	4.9%
Hereditary	7	2.3%
Michi	54	17.6%
Other	4	1.3%
Do not know	143	46.7%
Transmission		
Sexual intercourse	76	24.8%
Genital contact	23	7.5%
Mother to child	12	3.9%
Kissing	2	0.7%
Body fluid	44	14.4%
Do not know	150	49%

Risk factors for cervical cancer		
Smoking	14	4.6%
Multiple sexual partner	58	19%
Early sexual debut	39	12.7%
Prolonged contraceptive use	11	3.6%
Multiple parity	8	2.6%
Has no risk factor	45	14.7%
Do not know	175	57.2%
Symptoms of cervical cancer		
Post coital bleeding	32	10.5%
Vaginal discharge mixed with blood	69	22.5%
Post menopause bleeding	34	11%
Irregular menses	23	7.5%
Fever	17	5.5%
Pelvic pain	26	8.5%
Pain during intercourse	43	14%
Do not know	202	66%
Prevention mechanisms		
Vaccine	11	3.6%
Screening	111	36.3%
Condom use	31	10.1%
Do not know	174	56.9%

6.4. Knowledge on cervical cancer screening and treatment methods

About cervical cancer screening, 124(27.1%) of participant have heard about cervical cancer screening, 114(92 %) heard from health care providers and 47(38%) from media. From this 65(52.4%), 38(30.6%), 26(20.8%) study subjects identified pap smear, VIA, HPV test as screening procedure respectively.

Regarding advantage of screening, 60 (19.6%) study participants believe that screening helps for prevention of cervical cancer, 81 (26.5%) for early detection while 63(20.6%) for early seeking treatment of cervical cancer.

A total of 112 (36.6%) study participant said the recommended age of HIV positive women for cervical cancer screening was at age 30 years and 79(25.8%) do not know.

About 117(38.2%) study participants mentioned the time interval for cervical cancer screening was every five-year and 75(24.5%) mentioned every one year.

About cervical cancer treatment 128(41.8%) study participants believe it is curable if detected early, 121(39.5%) do not know about it and 57(18.6%) believe it is not curable if detected early. Treatment methods identified radiotherapy, surgery, and chemotherapy by 77(25.2%), 55(18%), 17(5.5%) respectively while 171(55.8%) do not know the treatment method for cervical cancer.

Table 5: knowledge of HIV positive women about cervical cancer screening and treatment methods in Bahirdar health institution, Northwest Ethiopia, 2017.

Variables	Frequency	Percentage
Heard about cervical cancer screening procedures		
Yes	124	27.1%
No	334	72.9%
Source of information		
Health care provider	114	92%
Media	47	38%
Friends	12	9.7%
Knew someone with cervical cancer	5	4%
Other	2	1.6%

Types of cervical cancer screening procedures		
Pap smear	65	52%
VIA	38	30.6%
HPV test	26	20.8%
Advantage of screening		
For prevention of cervical cancer	60	19.1%
For early detection of cervical cancer	81	26.4%
For early seek of cervical cancer treatment	63	20.6%
For treatment of cervical cancer	34	11%
Do not know	181	59%
The recommended age of screening for HIV positive women		
Menarche	43	14.1%
As soon as she became sexually active	54	17.6%
At the age of 30	112	36.6%
When start having children	8	2.6%
After menopause	6	2%
Other	4	1.3%
Do not know	79	25.8%
Screening frequency for cervical cancer		
Once every year	75	24.5%
Once every two year	1	0.3%
Once every three year	31	10.1%
Once every five year	117	38.2%
Other	20	6.5%
Do not know	62	20.3%

Curable		
Yes	128	41.8%
No	57	18.6%
Do not know	121	39.5%
Treatment modalities for cervical cancer		
Herbal	17	5.6%
Surgery	55	18%
Radiotherapy	77	25.2%
Chemotherapy	17	5.5%
Cryotherapy	1	0.3%
Do not know	171	55.8%

6.5. Screening practice of cervical cancer

The overall practice of screening in this study has shown that only 65(14.2%) of the respondents were screened once in a lifetime and all had a negative result. More than half 37(56.9%) screened in the last three years and the most common reason for not having screening test didn't know the benefit 157(34.3%), no reason for the testing 119(26%) and not knowing the presence of screening 55(12%).

Table 6: Cervical cancer screening practice of HIV positive women in Bahirdar health institution, Northwest Ethiopia, 2017.

Variables	Frequency	Percentage
Have you ever screened for cervical cancer		
Yes	65	14.2%
No	393	85.8%
How many times		
One times	59	90.8%
Two times	6	9.2%

When was the last time you screened		
Within the last three year	37	56.9%
Within the last five year	20	30.8%
Before five year	8	12.3%
Ever council about cervical cancer screening test		
Yes	85	18.6%
No	373	81.4%

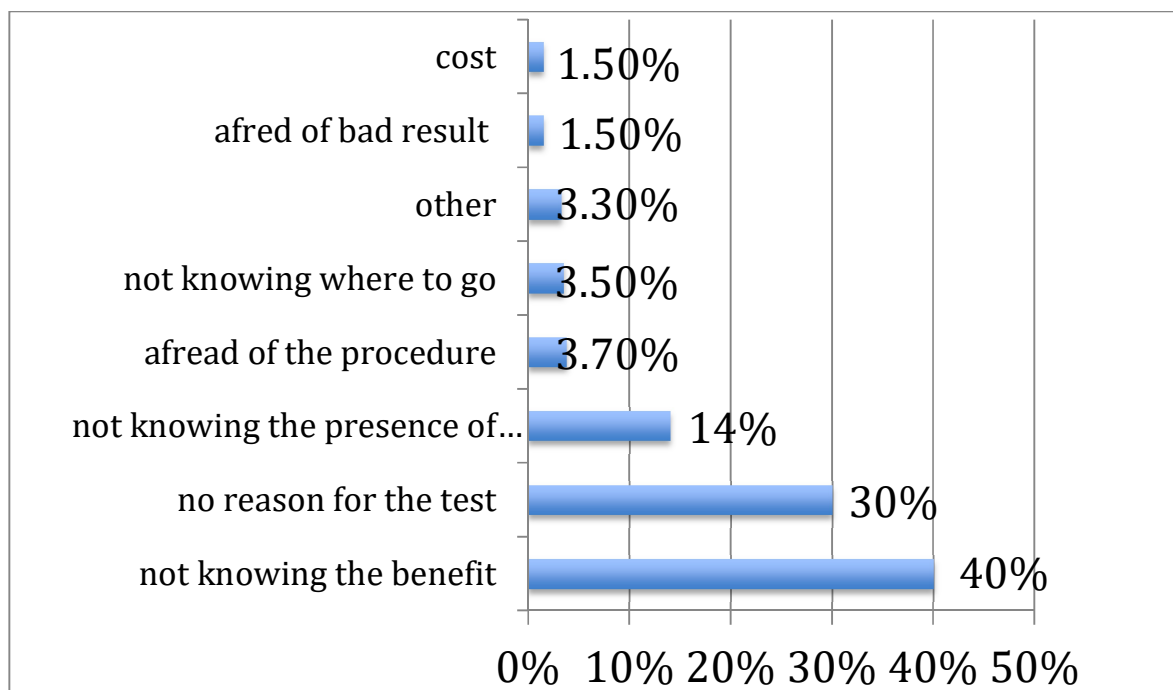


Fig 2: Respondents reason for not to do screening to cervical cancer in public health institution, Bahirdar, Northwest Ethiopia, 2017

6.6. Association between socio demographic characteristics, reproductive health and knowledge score

Marital status, education, occupation, were associated with knowledge about cervical cancer and screening practice in binary logistic regression while on multiple logistic regression only education significantly associated with the level of knowledge with a p- value less than 0.05.

The study showed that those who have primary education almost two times more likely to have good knowledge [AOR=1.753; 1.046-2.936] and those who had secondary education are more than two times more likely to have good knowledge about cervical cancer and screening than those who don't have formal education [AOR=2.525; 95% CI (1.47, 4.326)], Similarly, women with a tertiary level of education were six times more likely to have good knowledge [AOR=6.124; 95% CI (2.59, 14.483)].

Table 7: Association of socio demographic characteristics, reproductive health and knowledge

Variables	Knowledge		COR, CI 95%	AOR, CI 95%
Marital status	Good	Poor		
Married /living together	80	150	1	1
Single	22	31	1.331(0.723-2.449)	1.469(0.743-2.902)
Divorced/separated	45	70	1.21(0.759-1.914)	1.237(0.755-2.027)
Widowed	15	45	0.625(0.328-1.190)	0.619(0.311-1.234)
Educational status				
No formal education	41	129	1	1
Primary school	47	78	1.896(1.145-3.140)	1.753(1.046-2.936)
Secondary school	51	69	2.326(1.404-3.851)	2.522(1.47-4.326)
Diploma and above	23	20	3.618(1.806-7.248)	6.124(2.59-14.483)

Occupational status					
House wife	37	91	1		1
Self-employed	79	121	1.606(0.998-2.584)		1.555(0.935-2.585)
Government employee	16	32	1.23(0.604-2.505)		0.566(0.239-1.34)
Private company employee	27	37	1.795(0.959-3.357)		1.378(0.71-2.673)
Student & others	3	15	0.492(0.134-1.8)		0.38(0.093-1.546)

6.7. Association between socio demographic characteristics, reproductive health and attitude

Marital status, education, occupation, number of sexual partner were associated with attitude about cervical cancer and screening practice in binary logistic regression.

In the multivariable analysis marital status, education and number of sexual partners were independently associated with the attitude towards cervical cancer screening. From all categories under education, those who have secondary education were almost two times more likely to have a positive attitude towards cervical cancer screening than those women without any formal education [AOR=1.87; 95% CI (1.086, 3.219)]. Those who were single were more than two times more likely to have a positive attitude towards cervical cancer screening than married/living together women (AOR=2.359; 95% CI (1.187-5.624)).

The last variable, which associated with attitude, was the number of sexual partners. Women who had one sexual partner were 38% less likely to have a positive attitude than those women who had more than one sexual partner [AOR=0.624; 95% CI (0.418,0.933)].

Table 8: association of socio demographic characteristics, reproductive health and attitude score

Variables	Attitude		COR (CI) 95%	AOR (CI) 95%
Marital status	Positive	Negative		
Married/living together	144	86	1	1
Single	42	11	2.28(1.115-4.664)	2.539(1.187-5.624)
Divorced/separated	74	41	1.078(0.677-1.717)	0.888(0.539-1.464)
Widowed	38	22	1.032(0.572-1.859)	1.112(0.595-2.077)
Educational status				
No formal education	102	68	1	1
Primary school	87	38	1.526(0.936-2.49)	1.482(0.894-2.456)
Secondary school	86	34	1.686(1.021-2.785)	1.87(1.086-3.219)
Diploma and above	23	20	0.767(0.391-1.503)	0.594(0.262-1.349)
Occupational status				
House wife	81	47	1	1
Self-employed	136	64	1.233(0.774-1.966)	1.212(0.738-1.988)
Government employee	32	16	1.160(0.577-2.336)	1.548(0.659-3.638)
Private company employee	37	27	0.795(0.431-1.467)	0.623(0.325-1.196)
Student & others	12	6	1.16(0.409-3.296)	0.7(0.221-2.217)
Number of sexual partner				
1	127	85	0.655(0.445-0.964)	0.624(0.418-0.933)
>1	171	75	1	1

6.8. Association between socio demographic characteristics, reproductive health and screening practice

Knowledge, education, occupation were associated in binary logistic regression while only knowledge and occupation were significantly associated with screening practice on multiple logistic regression with a p - value less than 0.05. Those who have good knowledge about cervical cancer and screening were fifteen times more likely to have had cervical cancer screening [AOR=15.28; 95% CI (7.338, 31.819)].

Surprisingly among categories under occupation private company employee women 74% less likely to practice cervical cancer screening than housewife women [AOR=0.26; 95% CI (0.077, 0.878)].

Table 9: Association of socio demographic characteristics, reproductive health and screening practice score

Variables	Screening practice		COR (CI) 95%	AOR (CI) 95%
Knowledge	Yes	NO		
Good knowledge	55	107	14.701(7.232-29.89)	15.28(7.338-31.819)
Poor knowledge	10	286	1	1
Educational status				
No formal education	15	155	1	1
Primary school	24	101	2.455(1.229-4.906)	1.944(0.894-4.229)
Secondary school	16	104	1.590(0.753-3.355)	1.208(0.511-2.858)
Diploma and above	10	33	3.131(1.294-7.579)	1.364(0.443-4.198)
Occupational status				
House wife	17	111	1	1
Self-employed	35	165	1.385(0.74-2.594)	1.032(0.507-2.102)
Government employee	9	39	1.507(0.621-3.656)	1.419(0.45-4.475)
Private company employee	4	60	0.435(0.14-1.352)	0.26(0.077-0.878)

7. Discussion

The result of this study reveals that 35.4% of respondents had a good knowledge, 65.1% had a positive attitude and 14.2% had undergone screening practice at least one time.

This study revealed that almost two third of study participants lack knowledge about cervical cancer and cervical cancer screening methods. This finding was similar with a study done in Addis Ababa among 322 study participants only 81(25.1%) were knowledgeable [29] and a study in church-affiliated hospital in Zimbabwe, which reported from a total of 208 HIV infected women only forty-five (21.6 %) respondents claimed to know what cervical cancer [25]. This might be due to low socio economic status of the countries influenced the respondents to get adequate knowledge.

The current study also showed that more than two-third (66.8%) of the study participants had heard about cervical cancer. Compared to a study conducted in North West Ethiopia and Kenya our study is lower in which the studies revealed 78% and 91% of study participants ever heard of cervical cancer respectively [27,38]. The gap might be due to the difference of study participants that means in some studies offer all women can participate and others specifically use only HIV positive women. In addition, the studies have a difference in study area, which was facility based and community based.

In this study most respondents 237 (77.5%) & 96 (35.6%) source of information about cervical cancer from the health providers and the media respectively. This is similar with a study done in Addis Ababa among HIV positive women in which majority of them heard from health professionals 53%[29]. In contrary, a study done among women in North West Ethiopia showed that 34% and 60% respondents heard about cervical cancer from the health providers and the media respectively [27].

This might be due to the fact that health institution and media give an attention of providing the information about cervical cancer and screening among HIV positive women due to new initiation rose through government and non-government institution. The discrepancy with the study in northwest Ethiopia might be HIV positive women have better health seeking behavior because of their follow up for ART than HIV negative women.

Although the majority of study participants lack a good knowledge about cervical cancer and its screening method, a significant proportion (65.1%) of respondents had a good attitude towards cervical cancer screenings. In agreement with this a cross sectional study in Zimbabwe has reported, HIV-infected women with inadequate knowledge showed a positive attitude towards cervical cancer screening [25]. The reason behind might be related to study population selection and study design.

According to our finding 14.2% respondents ever had cervical cancer screening. Studies done in North West Ethiopia and in Addis Ababa had shown a comparable finding with this study [27,29]. However, our finding is higher compared to a study done in Kisumu, Kenya (6%) and Nigeria (5%) [38,42]. This discrepancy might be explained by two possible reasons. First, we conducted a facility-based study whereas the studies in Kenya and Nigeria were community based. Second, in this study only HIV positive women were included. However, the former studies include women seeking reproductive health services, which might underestimate the cervical cancer screening practice.

Women who were educated were more likely to be knowledgeable about cervical cancer specially women with a tertiary level of education were six times more likely to be knowledgeable than those with no formal education. This finding is in line with studies conducted in Zimbabwe and Dessie, northeast Ethiopia where knowledge of women was significantly associated with an education plus all the results assured that as the level of education increases from primary to tertiary level women were more likely to have sufficient knowledge about cervical cancer [25,44]. This expressed that, education-improved individuals capturing information.

Attitude towards cervical cancer screening significantly associated with marital status, education and number of sexual partners to the contrary studies in Zimbabwe and southern Ethiopia found attitude has no association with socio demographic characteristics of respondents [25,35].

The study reveals that knowledge was found to be significant factor for cervical cancer screening practice showing those who are knowledgeable were fifteen times more likely to practice cervical cancer screening. In agreement to this finding study conducted in Nigeria among HIV positive women and a study in northern Ethiopia among age eligible women found women who have knowledge were two times more likely to practice cervical cancer screening. [40,43].

8. Strength and limitation of the study

8.1. Strength

- The sampling method and procedure decreased selection bias because we used probability systematic sampling method so that it could be possible to generalize for the whole population.
- Since there are limited studies were conducted in this area at national and regional level, it provides baseline information for those interested.

8.2. Limitation

- The study was conducted only in public health facilities, which might not be generalizable to private and NGO health facilities.
- The use of a cross- sectional design has limited the degree of cause and effect associations among variables of interest.
- Lack of qualitative aspect in the study

9. Conclusion

Based on this study the knowledge about cervical cancer and screening practice of the respondents were low. Most of the respondents heard about cervical cancer from different sources primarily from health care providers but the majority of them possessed low knowledge of cervical cancer, its cause, risk factors, transmission and prevention. Almost all of the respondents did not know the link between HPV and cervical cancer. Most of them also did not aware of the relation between sexual intercourse and transmission, multiple sexual partners as a risk factor, screening/vaccine as a prevention tool. In this study screening practice was low and the most common reasons for this low level were not knowing the benefit of the test and seeing no reason (not feeling sick) which cue to screening. Knowledge and occupation were significantly associated with screening practice on multiple logistic regressions.

10. Recommendation

Based on the findings of this study, the following recommendations were forwarded to concerned bodies:

- Develop practical strategies by FMOH to reduce the risk of developing cervical cancer, by promoting HIV positive women for cervical cancer screening.
- Awareness creation through health extension workers and screening programs at all levels of the health sector and provide effective training for the health professionals by government and non government organizations.
- Integration of education campaign and screening services into already existing programs like Family planning and reproductive health services, VCT, ART clinics and so on.
- Provide and integrate cervical cancer screening service into HIV/AIDS care and treatment in health centers. Till the health center start this service the health professional should refer their clients to the hospital, which provide the service.
- Develop information access in the facility by distributing different printed materials like Magazines and leaflets by hospital and health center staffs.

11. References

1. Cancer treatment centers of America (CTCA). Cervical cancer information.2014
www.cancercenter.com
2. Ferlay J, Soerjomataram I, Ervik M, et al. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013.
3. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM: GLOBOCAN 2008 v1.2, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 10 [Internet]. Lyon, France: International Agency for Research on Cancer; 2010.
4. Mbulaiteye SM, Bhatia K, Adebamowo C, Sasco AJ: HIV and cancer in Africa: mutual collaboration between HIV and cancer programs may provide timely research and public health data. *Infectious Agents and Cancer* 2011, 6(1):16.
5. Human Papillomavirus and Related Cancers. Fact sheet. Ethiopia: 2015
6. Clifford GM, Smith JS, Plummer M, Munoz N, Franceschi S: Human papillomavirus types in invasive cervical cancer worldwide: a metaanalysis. *Br J Cancer* 2003, 88(1):63–73.
7. Vuyst HD, Ndirangu G, Moodley M, Tenet V, Estambale B, Meijer CJ, Snijders PJ, Clifford G, Franceschi S: Prevalence of human papillomavirus in women with invasive cervical carcinoma by HIV status in Kenya and South Africa. *International journal of cancer Journal international du cancer* 2012, 131(4): 949–955.
8. Castellsague X, Diaz M, de Sanjose S, Munoz N, Herrero R, Franceschi S, Peeling RW, Ashley R, Smith JS, Snijders PJ, et al: Worldwide human papillomavirus etiology of cervical adenocarcinoma and its cofactors: implications for screening and prevention. *J Natl Cancer Inst* 2006, 98(5):303–315.
9. Castellsague X, Munoz N: Chapter 3: Cofactors in human papillomavirus carcinogenesis—role of parity, oral contraceptives, and tobacco smoking. *Journal of the National Cancer Institute Monographs* 2003, 31(31):20–28.
10. 13. Strickler HD, Burk RD, Fazzari M, et al. Natural history and possible reactivation of human papillomavirus in human immunodeficiency virus-positive women. *J Natl Cancer Inst* **2005**; 97:577–86.

11. Clifford GM, Goncalves MA, Franceschi S. Human papillomavirus types among women infected with HIV: a meta-analysis. *AIDS* **2006**; 20:2337–44.
12. Grulich AE, van Leeuwen MT, Falster MO, Vajdic CM. Incidence of cancers in people with HIV/AIDS compared with immunosuppressed transplant recipients: a meta-analysis. *Lancet*. 2007; 370(9581): 59–67. [PubMed: 17617273]
13. Centers for Disease Control and Prevention. 1993 revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. *Morbidity and Mortality Weekly Report. Recommendations and Reports*. 1992; 41(RR-17):1–19.
14. Simon S. New Screening Guidelines for Cervical Cancer. American Cancer society; 2012.
15. Kimberly A. Workowski, MD Stuart Berman, MD, Sexually Transmitted Diseases Treatment Guidelines, 2010, Vol. 59 / No. RR-12
16. www.who.int/reproductivehealth/publications/cancers/screening_and_treatment_of_precancerous_lesions/en/index.html
17. Cervical Cancer Prevention in Low- and Middle-Income Countries: Feasible, Affordable, Essential *Cancer Prev Res* (2012) 5 (1): 11-17)
18. Holowaty P, Miller AB, Rohan T, To T. Natural history of dysplasia of the uterine cervix. *Journal of the National Cancer Institute*. 1999; 91(3):252–8. Epub 1999/02/26. PMID: 10037103.
19. Gakidou E, Nordhagen S, Obermeyer Z. Coverage of cervical cancer screening in 57 countries: low average levels and large inequalities. *PloS medicine*. 2008; 5(6):e132. Epub 2008/06/20. Doi: 10.1371/ journal.pmed.0050132 PMID: 18563963; PubMed Central PMCID: PMC2429949.
20. International Agency for Research on Cancer (IARC). IARC handbooks of cancer prevention, volume 10: cervix cancer screening. Lyon, France: IARC Press, **2005**
21. pinkribbonredribbon.org/where-we-work/ethiopia/
22. Louie KS, de Sanjose S, Mayaud P. Epidemiology and prevention of human papillomavirus and cervical cancer in sub-Saharan Africa: a comprehensive review. *Trop Med Int Health*. 2009 Oct;14(10):1287-302. PubMed | Google Scholar
23. Friday Okanofua. HPV vaccine and prevention of cervical cancer in Africa. *African Journal of reproductive health*. 2007; 11(2)

24. Hamad HM: Cancer initiatives in Sudan. *Ann Oncol* 2006, 17 Suppl 8:viii32–viii36
25. Matangaidze Olivia, Dr Ramalivhana N.J, Professor Mbambo-Kekana, N.P Ndaimani Augustine, Mhlanga Maxwell. Knowledge , Attitudes and Practices of HIV-Infected Women on Cervical Cancer Screening at a Church-affiliated Hospital. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 15, Issue 4 Ver. VII (Apr. 2016), PP 119-126
www.iosrjournals.org
26. WHO/ICO information Centre on HPV and cervical cancer (HPV information center). Human 50apilloma virus and related cancers in Ethiopia. *Summary report* 2016 Available at www.who.int/hpvcentre
27. Getahun1 F, Mazengia F, Abuhay M, Birhanu Z. Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia. *BMC Cancer*. 2013;13:2.
28. Ruthann Richter. Ethiopia to benefit from new cervical-cancer diagnostic tool. Stanford University School of Medicine, Stanford Health Care (formerly Stanford Hospital & Clinics), and Lucile Packard Children’s Hospital Stanford
29. Belete N, Tsige Y, Mellie H. Willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in Addis Ababa, Ethiopia: a cross sectional study. Belete et al. *Gynecologic Oncology Research and Practice* (2015) 2:6 DOI 10.1186/s40661-015-0012-3
30. Gebreegziabher M, Gebremedhin Asefa N, Berhe S. Factors Affecting the Practices of Cervical Cancer Screening among Female Nurses at Public Health Institutions in Mekelle Town, Northern Ethiopia, 2014: A Cross-Sectional Study. *Hindawi Publishing Corporation Journal of Cancer Research* Volume 2016, Article ID 4743075, 7 pages <http://dx.doi.org/10.1155/2016/4743075>
31. Dulla D, Daka D, Wakgari N Knowledge about cervical cancer screening and its practice among female health care workers in southern Ethiopia: a cross-sectional study. *International Journal of Women’s Health* 2017;9 365–372
32. Mulatu K, Motma A, Seid M, et al. Assessment of Knowledge, Attitude and Prattice on Cervical Cancer Screening among Female Students of Mizan Tepi University, Ethiopia, 2016. *Cancer Biol Ther Oncol*. 2017, 1:1.

33. Hugo De Vuyst^{a,b}, Flavia Lillo, Nathalie Broutet^d and Jennifer S. Smith HIV, human papillomavirus, and cervical neoplasia and cancer in the era of highly active antiretroviral therapy. *European Journal of Cancer Prevention* 2008, 17:545–554
34. Shiferaw N, Brooks MI, Davila GS, Lonsako S, Kassahun K, Ansel J, Osakwe C, Weldegebreal T, Ahmed I, Asnake M, and Blumenthal PD Knowledge and Awareness of Cervical Cancer among HIV-Infected Women in Ethiopia. *Hindawi Publishing Corporation Obstetrics and Gynecology International Volume* 2016, Article ID 1274734, 8 pages
35. Aweke YH, Ayanto SY, Ersado TL Knowledge, attitude and practice for cervical cancer prevention and control among women of childbearing age in Hossana Town, Hadiya zone, Southern Ethiopia: Community-based cross-sectional study. 2017 *PLoS ONE* 12(7): e0181415.
36. Gebru Z, Gerbaba M and Dirar A Barriers to Cervical Cancer Screening in Arba Minch Town, Southern Ethiopia: A Qualitative Study. Gebru et al., *J Community Med Health* 2016, 6:1
37. Gedefaw A, Astatkie A, Tessema GA The Prevalence of Precancerous Cervical Cancer Lesion among HIV-Infected Women in Southern Ethiopia: A Cross-Sectional Study. *PloS ONE* 8(12): e84519. (2013) Doi:10.1371/journal.pone.0084519
38. Staci L. Sudenga, Anne F. Rositch, Walter A. Otieno, and Jennifer S. Smith. Brief Report: Knowledge, attitudes, practices and perceived risk of cervical cancer among Kenyan women. *Int J Gynecol Cancer*. 2013 June ; 23(5): 895–899. Doi:10.1097/IGC.0b013e31828e425c
39. Ndejjo R, Mukama T, Musabyimana A, Musoke D. Uptake of Cervical Cancer Screening and Associated Factors among Women in Rural Uganda: A Cross Sectional Study. *PLOS ONE* | DOI:10.1371/journal.pone.0149696 February 19, 2016
40. Bayu H, Berhe Y, Mulat A, Alemu A. Cervical Cancer Screening Service Uptake and Associated Factors among Age Eligible Women in Mekelle Zone, Northern Ethiopia, 2015: A Community Based Study Using Health Belief Model. *PLOS ONE* | DOI: 10.1371/journal.pone.0149908 March 10, 2016

41. Sylvia C. Mupepi., Carolyn M. Sampselle, and Timothy R.B. Johnson.
Knowledge, Attitudes, and Demographic Factors Influencing Cervical Cancer
Screening Behavior of Zimbabwean Women. JOURNAL OF WOMEN'S HEALTH
Volume 20, Number 6, 2011 ^a Mary Ann Liebert, Inc. DOI: 10.1089/jwh.2010.2062
42. Rabi KA, Akinbami AA, Adewunmi AA, Akinola OI, Wright KO. The Need to
Incorporate Routine Cervical Cancer Counselling and Screening in the Management
of HIV Positive Women in Nigeria. Asian Pac J Cancer Prev. 2011; 12(5): 1211-4.
43. Ezechi OC, Gab-Okafor CV, Ostergren PO and Pettersson KO Willingness and
acceptability of cervical cancer screening among HIV positive Nigerian women.
Ezechi et al. BMC Public Health 2013, 13:46
44. Mitiku I, Tefera F Knowledge about Cervical Cancer and Associated Factors
among 15-49 Year Old Women in Dessie Town, Northeast Ethiopia. PLoS ONE
11(9): e0163136. doi:10.1371/ journal.pone.0163136 (2016)

Appendices

Appendix A: Information sheet

Principal investigator: Likina Bizuayehu

Title: Knowledge, attitude and practice about cervical cancer screening and associated factors among HIV positive women attending public health institutions in Bahirdar town, Northwest Ethiopia, 2017

Hello. My name is _____, I am here to collect data for the research purpose, which is conducted to complete a thesis for Master's Degree of Public Health. The study will be conducted in public health institutions of Bahirdar town.

Before you decide to participate or not in this study, I like to clarify the purpose of the study, risk and benefits.

Purpose: The main purpose of this study is to assess knowledge, attitude and practice about cervical cancer screening and associated factors among HIV positive women attending public health institutions of Bahirdar city. This finding will help to identify the main barriers of cervical cancer screening, which are important to improve screening practice, early detection and treatment.

Procedure: After signing the consent form the data collector will ask you questions using structured questionnaire. The interview will take 20 to 30 minute of your time.

Risk/Discomfort: There is no any risk that will happen to you due to your participation, but your precious time will be used to answer the question. Some questions may be too personal but it is helpful for the study.

Benefit or Incentive: By your participation, you may not get the direct benefit/incentive, but this research finding will give information about knowledge, attitude, practice and associated factors on cervical cancer screening regarding source population and any question related to cervical cancer and cervical cancer screening will be clarified.

Confidentiality: The information that you will give will be kept confidential (will not be shared with any one) and used only for research purpose. A code will be used to identify the participant therefore, writing your name is not needed.

Rights of Participants: Your participation in this research is fully voluntary and you have also a right to refuse some question you are not willing to answer. You have also a full right to withdraw from this study at any time you want.

Are you willing to participate in this study? 1. Yes 2. No

Informed Consent

I the undersigned have been informed about the purpose, the risk, benefits and confidentiality of this study. I have been informed that the information I give will be used only for the purpose of the study, my identity as well as the information I provide will be kept confidential and also I can withdraw at any time without having to give an explanation. Based on this, I agree to participate in the research voluntarily.

Participant's signature_____

Contact details: If you have something that is not clear about the study please contact the principal investigator, Likina Bizuayehu (Mobile 0912-917752), E-mail: anab_80@yahoo.com at any time.

Appendix B: Data collection instrument questionnaire (English version)

Socio-Demographic characteristics

	Question	Response	Skip pattern
Q101	How old are you	_____ Years	
Q102	Marital status	1. Single 2. Married 3. Divorced 4. Widowed 5. Separated 6. Living together	
Q103	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. No religion 6. Other (specify)-----	
Q104	Educational Status	1 No formal education 2. Primary education (1-8) 3. Secondary education (9-12) 4. Tertiary and above	
Q105	What is your occupation?	1. Student 2. Self-employed 3. Government employee 4. Private company employee 5. No job 6. Others-----	

Q106	How much is your monthly average income (in Ethio, Birr)?	_____ Birr.	
Q107	Status on ART	1. Pre ART 2. ART	
Q108	When did you start follow up in this ART clinic for ART or Pre ART?	_____ Month.	

Reproductive health characteristics

	Question	Response	Skip pattern
Q201	Have you ever had sex?	1. Yes 2. No	
Q202	Age at first sex?	_____ Years	
Q203	How many sexual partners have you had?	_____	
Q204	Do you use contraceptive?	1. Yes 2. No	If no skip to 208

Q205	If your answer is yes for question 204, which method of contraception you use? (multiple answer is possible)	1.Oral contraceptive 2. Injectable contraceptive 3.Implant 4. IUCD 5. Coitus interrupts 6. Tubal ligation 7. Male or female condom 8. Others-----	
Q206	If your answer is oral contraceptive for Q 205, for how long you use?	_____ Years	
Q207	If your answer is condom for Q 205, how often you use?	1. Always 2. Sometimes	
Q208	Have you ever had STI?	1. Yes 2. No	
Q209	How many children do you have?	1. 0 2. 1 3. 2_4 4. 5+	

Knowledge of women about cervical cancer and cervical cancer screening

	Question	Response	Skip pattern
Q301	Have you ever heard of cervical cancer?	1. Yes 2. No	
Q302	If yes for Q 301, what was your source of information (multiple answer is possible)	1.health institution 2.Mass media (TV, Radio) 3.Journals 4.internet/website 5.friends/relatives 6.knew someone who has cervical cancer 7.other (specify)	
Q303	What is the cause for cervical cancer?	1.Virus (HPV) 2.Bacterial infection 3. Fungus 4.Hereditary disease 5. Urinating on the sun 6. Other specify 7. Do not know	
Q304	How is it transmitted? (multiple answer is possible)	1.Sexual intercourse 2.Direct genital contact 3.From mother to child 4.Kissing 5.Body fluid 6. Other specify 7. Do not know	

Q305	What are the risk factors for cervical cancer? (multiple answer is possible)	1. Smoking 2. Multiple sexual partner 3. Early sexual debut 4. Prolonged use of oral contraceptive 5. Multiparty 6. No risk factors 7. Do not know	
Q306	What is the symptom of cervical cancer? (multiple answer is possible)	1. Bleeding after sexual intercourse 2. Vaginal discharge that is not normal (some blood contain discharge) 3. Post menopausal bleeding 4. Irregular menses 5. Fever 6. Pain in the lower belly or pelvis 7. Pain during sex 8. Do not know	
Q307	In what way we can prevent cervical cancer? (multiple answer is possible)	1. Vaccine 2. Screening (regular medical checkup) 3. Consistent Condom use	

Q308	Do you know any screening procedures to detect cervical cancer?	1. Yes 2. No	If no skeep to 311
Q309	If yes to question no 308, which cervical cancer screening methods do you know? (multiple answers are possible)	1. Pap smear 2. VIA 3. HPV testing 4. Others specify	
Q310	From where did you heard about cervical cancer screening methods for the first time	1.Health institution 2.Mass media (TV, Radio) 3.Journals 4.internet/website 5.friends/relatives 6.knew someone who has cervical cancer 7.other (specify)	
Q311	What is the aim of cervical cancer screening? (multiple answers are possible)	1. To prevent cervical cancer 2. It helps for early detection of cervical cancer 3. It helps for early seek of treatment 4. It helps to treat cervical cancer 5. Other (please explain 6. Do not know	
Q312	When a HIV positive woman should have screening?	1. When menstruation starts	

		2. As soon as sexually active 3. At the age of 30 4. When start having children 5. After menopause 6. Other 7. Do not know	
Q313	How frequent, cervical cancer screening should be done for HIV positive women?	1. Once every year 2. Once every two year 3. Once every three years 4. Once every 5 years 5. Do not know 6. Others specify	
Q314	Is cervical cancer curable (treatable) if detected early?	1. Yes 2. No 3. Do not know	
Q315	What things make cervical cancer curable once diagnosed?	1. Seeking treatment at early stage 2. Seeking treatment at late stage 3. Seeking treatment at early or late stage Don't have difference 5.Others 6. Don't know	
Q316	What treatment modalities do you know for cervical cancer (multiple answers are possible)	1. Herbal remedies 2. Surgery 3. Radiotherapy	

		4. Chemotherapy (oral medication) 5. Cryotherapy 6. Other 7. Do not know	
--	--	---	--

Attitude about cervical cancer screening

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q401	Consulting a medical doctor is important in case of vaginal bleeding between periods is important.	1	2	3	4	5
Q402	It is important to consult a medical doctor regularly for screening of cervical cancer	1	2	3	4	5
Q403	Having a smear test is not as such important to detect cervical cancer	1	2	3	4	5
Q404	It will be important to strength national cervical cancer screening program in the future.	1	2	3	4	5
Q405	It is important to take vaccine against human papilloma virus if available.	1	2	3	4	5

Practice on cervical cancer screening

	Question	Response	Skip
Q501	Have you ever been screened for cervical cancer?	1. Yes 2. No	If no skip to Q505
Q502	If yes how many times since you became sexually active		
Q503	When was the last time you screened for cervical cancer	1. Within the past three years 2. Within the past five years 3. More than five years 4. Other	
Q504	What was your last result?	1. Positive 2. Negative	
Q505	What was your reason for not screening?	1. Not knowing the presence of screening at all 2. Not knowing where to go 3. No reason for the test	

		4. Afraid of the procedure 5. Afraid of bad result 6. Not knowing benefit 7. Cost 8. Other (specify)	
Q506	Have you ever been counseled about cervical cancer screening test in this ART clinic?	1. Yes 2. NO	

Appendix C: Informed sheet and consent form (Amharic version))

የምርምር/ጥናት ማብራሪያ የስምምነት መግለጫ ቅፅ

ጥናት አድራጊ፡- ልቅና ብዙአየሁ

ርዕስ፡- ከኤች አይ ቪ/ኤድስ ጋር የሚኖሩ ሴቶች ስለማህፀን ጫፍ ካንሰር ያላቸው እውቀት፣ አመለካከት እና የቅድመ ምርመራ ሁኔታ እንዲሁም ተያያዝ ጉዳዮች በባህርዳር በሚገኙ የመንግስት ጤና ተቋማት ውስጥ ማጥናት፡፡

ጤና ይስጥልኝ ስሜ _____ ይባላል፡፡ እዚህ

የመጣሁት በህብረተሰብ ጤና የሁለተኛ ዲግሪዬን ለመስራት በባህራዳር በሚገኙ የመንግስት ጤና ተቋማት ጥናት ለማድረግ ነው፡፡

በጥናቱ ላይ ለመሳተፍ ወይም ላለመሳተፍ ከመወሰንዎት በፊት የጥናቱን አላማ፣ጥናቱ ላይ በመሳተፍዎ የሚያገኙትን ጥቅም እና ጉዳት አብራራልዎታለው፡፡

አላማ፡- የዚህ ጥናት ዋና አላመው ከኤች ኤይ ቪ/ኤድስ ጋር የሚኖሩ ሴቶች ስለማህፀን ጫፍ ካንሰር ያላቸውን እውቀት አመለካከት እና የቅድመ ምርመራ ሁኔታ እንዲሁም ተያያዥ ጉዳዮችን በባህርዳር በሚገኙ የመንግስት ጤና ተቋማት ውስጥ ማጥናት ነው፡፡ ይህ ግኝት የማህፀን ጫፍ ካንሰር ምርመራ አጋች ሁኔታዎችን ለመለየት እንዲሁም የመመርመር ልምዳችንን በማካበት በሽታውን ሳይባባስ ለማግኘትና ለማከም ይረዳናል፡፡

የአሰራር ሂደት፡- የስምምነት ፎርምን ከፈረሙ በኋላ መረጃ ሰብሳቢው ከ 20-30 ደቂቃ የተዋቀረ መጠይቅ በመጠቀም ጥያቄ ይጠይቅዎታል፡፡

ሊያስከትለው የሚችለው ጉዳት፡- በጥናቱ በመሳተፎዎ የሚደርስብዎት ምንም አይነት ጉዳት አይኖርም፡፡ ነገር ግን ለቃለ መጠይቁ የምንወስድብዎት ሰዓት ይኖራል፡፡

ጥቅሞች/ማበረታቻዎች፡- በመሳተፍዎ የሚያገኙት ቀጥተኛ ጥቅም ላይኖር ይችላል፡፡ ነገር ግን የጥናቱ ውጤት ህብረተሰቡ ስለማህፀን ጫፍ ካንሰር ያለውን እውቀት፣ አመለካከት፣ የምርመራ ሁኔታ እንዲሁም ተያያዝ ጉዳዮች በተመለከተ መረጃ ይስጣል፡፡ በዚህ ርዕስ ዙሪያ ማንኛውም ጥያቄ ካለዎት ይብራራሎዎታል፡፡

ሚስጥር ስለመጠበቅ፡- የሚሰጡት መረጃ በሚስጥር የሚያዝ ሲሆን ለዚህ ጥናት አገልግሎት ብቻ የሚውል ነው፡፡ መለያ ቁጥር ስለምንጠቀም ስምዎትን መፃፍ አያስፈልግም፡፡

የተሳታፊው መብት፡- የርስዎ ተሳትፎ ሙሉ በሙሉ በፍቃደኝነት ላይ የተመሰረተ ነው፡፡ የማይፈልጉትን ጥያቄ አለመመለስ እንዲሁም በማንኛውም ሰዓት ከጥናቱ መውጣት ይችላሉ፡፡

በዚህ ጥናት ለመሳተፍ ፍቃደኛነዎት?

1. አዎ
2. አይደለሁም

ስምምነት

ከታች ፊርማዬ የተጠቀሰው ስለጥናቱ አላማ፣ ጥቅም፣ ጉዳት እንዲሁም ሚስጥራዊነት በሚገባ ተገልጻልኛል፡፡እንዲሁም ጥናቱን አቋርጪ መሄድ ብፊልግ ያለምንም ቅድመ ሁኔታ መሄድ እችላለሁ፡፡በዚህ መሰረት በጥናቱ ለመሳተፍ ተስማምቻለሁ፡፡

የተሳታፊ ፊርማ _____

የጥናቱ አድራጊ አድራሻ

ማንኛውንም ጥያቄ የጥናቱን ተጠሪ መጠየቅ ይችላል፡፡

ጥናት አድራጊ፡- ልቅና ብዙአየሁ

ስልክ፡- 0912917752

ኢሜል፡-anab_80@yahoo.com

Appendix D: Data collection instrument questionnaire (Amharic version)

ክፍልአንድ፡- ማህበራዊ እና የስነ- ህዝብ መረጃ

	ጥያቄዎች	ምላሽ	ይለፍ
Q101	እድሜሽ ስንት ነው	-----ዓመት	
Q102	የጋብቻ ሁኔታ	1. ያላገባች 2. ያገባች 3. የተፋታች 4. የትዳር አጋር የሞተባት 5. የተለያየች	

		6. ከፍቅር ጓደኛ ጋር አብረው የሚኖሩ	
103	የሚከተሉት ሃይማኖት ምንድን ነው?	1. ኦርቶዶክስ 2. እስልምና 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሃይማኖት የለኝም 6. ሌላ (ይገለፅ -----)	
104	የትምህርት ደረጃ	1. ያልተማረ 2. የመጀመሪያ ደረጃ (1-8) 3. ሁለተኛ ደረጃ (9-12) 4. ሦስተኛ ደረጃ (ዲፕሎማ/ዲግሪ)	
105	ስራሽ ምንድን ነው	1. ተማሪ 2. የግል ሠራተኛ (የራስ) 3. የመንግስት ሠራተኛ 4. የግል ድርጅት ሠራተኛ 5. ሥራ አጥ 6. ሌላ (ይገለፅ)----- -	
106	ወርሀዊ ገቢሽ ምን ያህል ነው	-----ብር	
107	በፀረ ኤች.አይ.ቪ ህክምና ክሊኒክ ውስጥ በምን ሁኔታ ላይ ይገኛሉ?	1. መድኃኒቱን መውሰድ ያልጀመሩ 2. መድኃኒቱን መውሰድ የጀመሩ	

108	በፀረ ኤች.አይ.ቪ. ህክምና ክሊኒክ ውስጥ ክትትል ከጀመሩ ምን ያህል ጊዜ ይሆኖታል?(መዳኒቱን መውሰድ የጀመሩ/ያልጀመሩ	_____ በወር	
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ክፍል 2: የሰነተዋልዶ ጤናን በተመለከተ መረጃ

	ጥያቄዎች	ምላሽ	ይለፍ
201	ግብረ ስጋ ግንኙነት(ወሲብ) ፈፅመሽ ታውቂያለሽ ?	1. አዎ 2. አላውቅም	
202	ለመጀመሪያ ጊዜ የግብረ ስጋ ግንኙነት የጀመሩበት አማካኝ እድሜ ስንት ነዉ ?	_____ ዓመት	
203	በዕድሜ ዘመናት ስንት የወሲብ አጋር (የግብረ ስጋ ግንኙነት ጓደኛ)ኖሮት ያውቃል?	_____	
204	የወሲድ መቆጣጠሪያ ይጠቀማሉ?	1. አዎ 2. አላውቅም	
205	ለ 204 ጥያቄ መልሶት አዎ ከሆነ የትኛውን የወሲድ መቆጣጠሪያ ይጠቀማሉ? (ከአንድ በላይ መጥቀስ ይቻላል)	1. በአፍ የሚዋጡ እንክበል(ኪኒን) 2. መርፌ 3. ክንድ ላይ የሚቀበር(ኖርፕላንት) 4. በማህፀን የሚገባ(ሉፕ) 5. የወንድ የዘር ፍሬን ውጭ ላይ ማፍሰስ 6. የማህፀን ትቦ ማስቻጠር 7. ኮንዶም መጠቀም	

		8. ሌላ (ይገለፅ)-----	
206	ለ 205 ጥያቄ መልሶት በአፍ የሚዋጥ እንክብል(ኪኒን) ከሆነ ምን ያህል ጊዜ ተጠቅመዋል?	_____ ዓመት	
207	ለ 205 ጥያቄ መልሶት ኮንዶም ከሆነ እንዴት ነው የሚጠቀሙት?	1. ሁል ጊዜ 2. አልፎአልፎ	
208	ለአባላዘር በሽታ ተጋልጠዉ ያቃሉ?	1. አዎ 2. አላውቅም	
209	ስንት ልጆች ወልደዋል?	1. 0 2. 1 3. 2-4 4. 5+	

ክፍል 3: ስለማህፀን በር ካንሰር ያለውን እውቀት ለመገምገም

	ጥያቄዎች	ምላሽ	ይለፍ
301	ስለማህፀን በር ካንሰር ሰምተው ያውቃሉ?	1. አዎ 2. አላውቅም	
302	ለ301ኛው ጥያቄ መልስዎ አዎ ከሆነ የሰሙበት ምንጭ ምን ነበር? (ከአንድ በላይ መጥቀስ ይቻላል)	1. የጤና ተቋማት 2. መገናኛ ብዙሃን 3. ከህትመት መረጃዎች 4. ኢንተርኔት 5. ከጓደኞች 6. በማህፀን በር ካንሰር በሽታ ከተያዘ ሰው 7. ሌላ (ይገለፅ)	
303	ለማህፀን ጫፍ ካንሰር መከሰት ምክንያቱ ምንድን ነው?	1. ቫይረስ 2. ባክቴሪያ 3. ፈንገስ 4. በዘር ይተላለፋል	

		5. ምች(ለፀሀይ መጋለጥ) 6. ሌላ ካለ ይጥቀሱ 7. አላዉቅም	
304	የማህፀን በር ካንሠር መተላለፊያው መንገድ ምንድነው? (ከአንድ በላይ መጥቀስ ይቻላል)	1. የግብረሥጋ ግንኙነት 2. የሴት እና የወድ ብልት መነካካት 3. ከእናት ወደ ልጅ 4. መሣሣም 5. የሰውነት ፈሳሽ 6. ሌላ ካለ ይጥቀሱ 7. አላዉቅም	
305	ለማህፀን በር ካንሰር አደጋ ላይ የሚጥሉ (አጋላጮች) ምንድናቸው? (ከአንድ በላይ መጥቀስ ይቻላል)	1. ሲጋራ ማጨስ 2. ከአንድ በላይ የግብረሥጋ ግንኙነት ንደኛ መር 3. ለአቅመ ሄዋን ሳይደርሱ ወሲብ መፈፀም 4. የወሊድ ቆጣጠሪያ ለረጅም ጊዜ መጠቀም 5. ብዙ ልጅ መወለድ 6. ምንም አጋላጭ ቅድመ ሁኔታ የለውም 7. አላዉቅም	
306	ለማህፀን በር ካንሰር ምልክቶች ምንድናቸው? (ከአንድ በላይ መጥቀስ ይቻላል)	1. የወሲብ ርጊት ከፈፀሙ በኋላ መድማት 2. በደም የተበለ የማህፀን ፈሳሽ 3. የወር አበባ ከሄደ (ከታረጠ) ብዉሃ ደም ከማህፀን መፍሰስ/መድማት 4. የወር አበባ መዛባት 5. ትኩሣት (የሰውነት መቀት መጨመር) 6. የዳሌ ህመም 7. በግብረ ጋ ግንኙነት ጊዜ የሚሰማ ህመም	
307	ለማህፀን በር ካንሰር መከላከያው ምንድናቸው? (ከአንድ በላይ መጥቀስ ይቻላል)	1. ክትባት 2. ቅድመ ምርመራ ማድረግ 3. ኮንዶም (በግብረ ስጋ ግንኙነት ጊዜ የወንድ/የሴት ብልት ላይ የሚጠለቅ	

		ፕላስቲክ) መጠቀም	
308	ከዚህ በፊት ስለ ማህፀን ጫፍ ካንሰር ቅድመ ምርመራ ዘዴዎች ሰምተው ያውቃሉ	1. አዎ 2. አላውቅም	
309	አዎን ካሉ የትኞችን የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ ዘዴዎች ያውቃሉ? (ከአንድ በላይ መጥቀስ ይቻላል)	1. ፓፕ እስሚር(ከማህፀን ጫፍ ተቆንጥሮ የሚሰራ ምርመራ) 2. ቪ.አይ.ኤስ 3. የሁማን ፓፒሎማ ቫይረስ ምርመራ 4. ሌላ ካለ ይጠቀሱ-----	
310	ለመጀመሪያ ጊዜ ስለ ማህፀን ጫፍ ካንሰር ቅድመ ምርመራ ዘዴዎች ከየት ሰሙ?	1. የጤና ተቋማት 2. መገናኛ ብዙሃን 3. ከህትመት መረጃዎች 4. ኢንተርኔት 5. ከጓደኞች 6. በማህፀን በር ካንሰር በሽታ ከተያዘ ሰው 7. ሌላ (ይገለፅ)	
311	የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ ለምን ይረዳል(ይጠቅማል) ብለው ያስባሉ? (ከአንድ በላይ መጥቀስ ይቻላል)	1. የማህፀን ጫፍ ካንሰርን ለመከላከል 2. የማህፀን ጫፍ ካንሰር ቀድሞ መኖሩን ለማወቅ 3. የማህፀን ጫፍ ካንሰር ካለ ቶሎ ህክምናውን ለማግኘት 4. የማህፀን ጫፍ ካንሰርን ለማከም 5. ሌላ ካለ ይጥቀሱ 6. አላውቅም	
312	በደሟ ውስጥ ኤች.አይ.ቪ. ኤድስ ቫይረስ ያለባት ሴት የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ ማድረግ ያለባት መቼ ነው ብለው ያስባሉ?	1. የወር አበባ ማየት ስትጀምር 2. የግብረ ስጋ ግኑኝነት ልክ እንደ ጀመረች 3. 30 ዓመት ሲሆናት 4. ልጅ ከወለደች በኋላ 5. የወር አበባ ማየት ስታቆም ወይም ከአረጠች በኋላ 6. ሌላ ካለ ይጠቀስ 7. አላውቅም	
313	አንድ ሰው የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ	1. በዓመት አንድ ጊዜ 2.	

	በየስንት ጊዜው ማድረግ አለበት ብለው ያስባሉ	3. በሶስት ዓመት አንድ ጊዜ 4. በአምስት ዓመት አንድ ጊዜ 5. ሌላ ካለ ይጠቀስ 6. አላውቅም	
314	የማህጸን ጫፍ ካንሰርን ቶሎ ከታወቀ ሊድን ወይም ሊታከም ይችላል ብለው ያስባሉ?	1. አዎ 2. አይችልም 3. አላውቅም	
315	አንድ ሰው በማህጸን ጫፍ ካንሰር ከተያዘ በኋላ እንዲድን አስተዋፅኦ የሚያደርገው ምንድን ነው ብለው ያስባሉ?	1. በሽታው የጀመረ አከባቢ ቶሎ ብሎ ህክምና ማግኘት 2. በሽታው ከጀመረ ዘግይቶ ህክምና ማግኘት 3. ቶሎም ሆነ ዘግይቶ ህክምና ማግኘት ጥቅም የለውም 4. ሌላ ካለ ይጠቀስ 5. አላውቅም	
316	እርስዎ የሚያውቋቸው የማህፀን ጫፍ ካንሰር ህክምና ካለ ይጥቀሱ(ብዙ አማራጮች አሉት፣ ከአንድ መልስ በላይ መመለስ ይቻላል)	1. የባህል ህክምና 2. ቀዶ ጥገና 3. የጨረራ ህክምና 4. ኬሞቴራፒ(በአፍ የሚወሰድ ኪኒን) 5. ክራዮቴራፒ 6. ሌላ ካለ ይጥቀሱ 7. አላውቅም	

ክፍል4:ስለማህፀን በር ካንሰር ምርመራ ያለዎትን ግንዛቤ (አመለካከት) ለመገምገም

ቁጥር	ጥያቄ	በጣም አልስማማም	አልስማማም	እርግጠኛ አይደለሁም	እስማማለሁ	በጣም እስማማለሁ
401	በየወር አበባ ማካከል የደም መፈስስ ከተከሰተ ህኪም ማናገር ጠቃሚ ነው	1	2	3	4	5
402	ስለማህፀን ጫፍ ካንሰር ህኪም ማከር ጠቃሚ ነው	1	2	3	4	5
403	ፓፕ ስሚር (ከማህፀን ጫፍ ተቆንጥሮ የሚሰራ ምርመራ) የማህፀን ጫፍ ካንሰርን ለመለየት ብዙም ጠቃሚ አይደለም	1	2	3	4	5

404	የማህፀን ጫፍ ካንሰር የተመለከተ አገር አቀፍ ፕሮግራም ለቀጣይ ቢጠናከር ጥሩ ነው	1	2	3	4	5
405	የሁማን ፓፕሎማ ቫይረስ ክትባት ከተገኝ መውሰድ ጠቃሚ ነው	1	2	3	4	5

ክፍል5 የማህፀን ጫፍ ካንሰርን ቅድመ ምርመራ ተግባርን እና አጋች ሁኔታን በተመለከተ የተዘጋጀ መጠይቅ

	ጥያቄዎች	ምላሽ	ይለፍ
501	የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ አድርገው ያዉቃሉ ?	1. አዎ 2. አላውቅም	አላውቅም ካሉ ወደ ጥያቄ ቁጥር 404
502	ዎታዊ ግንኙነት ከጀመሩ ስንት ጊዜ የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ አድርገው ያዉቃሉ ?		
503	ለመጨረሻ ጊዜ የማህፀን ጫፍ ካንሰር ቅድመ ምርመራ ያደረጉት መቼ ነበር ?	1. ባለፉት ሶስት ዓመታት 2. ባለፉት አምስት ዓመታት 3. አምስት ዓመት በላይ 4. ሌላ ካለ ይጥቀሱ	
504	ለመጨረሻ ጊዜ የቅድመ ካንሰር ጠቋሚ ምርመራ ሲያደርጉ ውጤቱ ምን ነበር ?	1. ነፃ ያልሆነ 2. ነፃ	

505	ለ501ኛ ጥያቄ መልስዎ አላውቅም ከሆነ ምረመራ ያለማድረግዎ ዋነኛው ምክንያት ምን ነበር?	1. የማህፀን በር ምርመራ መኖሩን አለማወቅ 2. የት እንደሚሄዱ አለማወቅ 3. ለምርመራው ምንም ምክንያት አለማየት 4. -የምርመራውን ቅደም ተከተል ድርጊቶችን በመፍራት 5. መጥፎ ውጤትን በመፍራት 6. የምርመራውን ጥቅም ባለማወቅ 7. ወጪውን (ገንዘቡን) 8. ሌላ (ይገለፅ)-----	
506	የጤና ክትትል በምታደርገበት ክሊኒክ(የፀረ ኤቻይ ቪ መዳኒት በምትወስድበት ቦታ) ስለ ማህፀን በር ካንሰር ምርመራ የምክር አገልግሎት ተደርጎልኝ ያወቃል?	1. አዎ 2. አያወቅም	