ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

KNOWLEDGE, ATTITUDE, PRACTICE OF CERVICAL CANCER SCREENING AND ITS ASSOCIATED FACTORS AMONG FEMALE STUDENTS IN HAWASSA UNIVERSITYCOLLEGE OF MEDICINE AND HEALTH SCIENCE HAWASSA ETHIOPIA

BY: SHIMELES TSEGAYE (BScMW)

A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT FOR MASTERS DEGREE IN MATERNITY AND REPRODUCTIVE HEALTH

ADVISOR: Mr. DANIEL MENGISTU (ASSISTANT PROFESSOR)

JUNE, 2015

ADDIS ABABA ETHIOPIA

APPROVED BY THE BOARD OF EXAMINERS

This thesis by Shimeles Tsegaye is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Masters of Science in child health nursing.

Examiner:

_____ _____ _____

Full name Rank Signature and Date

Advisor: Mr. Daniel Mengistu (assistant professor)

_____ _____ _____

Full name Rank Signature and Date

June, 2015

Addis Ababa Ethiopia

Contents

List of tables

List of figures

Acknowledgements

Above all, I thank the Almighty God

I would like to extend my sincere thanks to my advisor Mr. Daniel mengistu (Assistant professor), for his unreserved guidance and comments from the stage of the research proposal up to thesis write-up.

A very special thanks also goes to my friends and colleagues who have supported me in any way during my studies. To all my friends I never forget your valuable contribution and for your unreserved support throughout the work of this study.

My sincere thanks also go to the Addis Ababa University College of health science school of allied health science, department nursing and midwifery.

Also I would like to highly acknowledge the Hawassa university college Medicine and Health Science for providing relevant information and cooperation for my research proposal development up to the whole process of data collection.

Finally I would like to the study participants and data collectors.

ACRONYMS

AAU	Addis Ababa University
AIDS	Acquired Immuno-deficiency Virus
CC	Cervical Cancer
CCS	Cervical Cancer Screening
CI	Confidence interval
COC	Combined Oral Contraceptive
DNA	Deoxyribonucleic Acid
ETB	Ethiopian Birr
GH	General Hospital
HIV	Human Immuno-deficiency Virus
HPV	Human Papilloma Virus
IRR	Institutional Review Board
IUD	Intra Uterine Device
IRB	Institutional Review Board
KAP	Knowledge, Attitude and Practice
OR	Odds ratio
AOR	Adjusted odds ratio
Med	Medicine
MPH	Master of Public Health
PHC	Primary Health Care
POP	Progesterone Only Pills
PPS	Probability Proportional to Size
PST	Pap-Smear Test and their Rate of Being Tested
SNNPR	Southern nations Nationalities Peoples Region
STD	Sexually Transmitted Diseases
UH	Upper Hospital
VIA	Visual Inspection of cervix with Acetic acid
WHO	World Health Organization

Abstract

Background: Cervical cancer remains a major cause of morbidity and mortality among women in the world. It has been estimated that about 500,000 cases of cervical cancer occur worldwide yearly, with 85% occurrence in resource-poor countries. In Ethiopia, cervical cancer is the 2nd most common female cancer in women aged 15 to 44 years and 7,095 new cervical cancer cases are diagnosed annually. The most common factors which contribute for cervical cancer and its prevention are: inadequate knowledge about the disease, early initiation of sexual intercourse and multiple sexual partner. Therefore; basic knowledge and an early screening for cervical cancer is a key intervention in reduction of maternal deaths secondary to cervical cancer.

Objectives: To assess the knowledge, attitude, practice of cervical cancer screening and its associated factors among female students in Hawassa University College of Medicine and Health Sciences, Hawassa Ethiopia 2015.

Methods: A cross sectional quantitative survey was conducted using a pretested anonymous self-administered questionnaire among female students in Hawassa University College of Medicine and Health Sciences from January, 2015 to May 30. The study subjects were selected using by lottery method of simple random sampling technique and a total of 422 female students aged 18-26 years took part in the study. Six diploma midwives were employed to facilitate data collection. The collected data were entered in using EPI-info version 3.5.1 software and exported to SPSS version 20 for further analysis. Bivariate and multivariate logistic regression analysis was conducted to examine the factors associated with knowledge, attitude and practice towards cervical cancer screening. For data processing and analysis, SPSS version 20 was used

Results: overall, (76.8%) of the female students had heard about cervical cancer. Risk factors like having multiple sexual partners and initiation of sexual intercourse at early age by and Human papilloma virus were mainly reported risk factors for cervical cancer by 189 (49.7%) and 47.4% of respondents respectively. Of the risk factors, 189 (49.77%) of students indicated that having multiple sexual partners and initiation of sexual intercourse at early age were commonly reported risk factor for cervical cancer while 180(47.4%) of them identified Human papilloma virus.

But only 202(53.3%) of the respondents were heard about cervical cancer screening, and almost near to half 48.2 of the respondent were not knew whether there is screening procedures to detect early stages of cervical cancer. There were poor practice of cervical cancer screening among female students. Also almost near to half 170(44.7%) of the students had negative attitude towards screening practice.

Conclusion: More than half of the respondents knew about risk factors and symptoms of cervical cancer fairly and most of the students heard about cervical cancer. But most of the respondents were not heard weather there is screening methods for early detection of cervical cancer and poor practice of screening.

Keywords: Cervical cancer, Cervical cancer screening, Knowledge, Attitude, Practice

Introduction

1.1 Background

Non-communicable diseases like cancers are creating devastating effects in the developing countries. According to the World Health Organization (WHO) and International Union against Cancer there were 24.6 million people living with cancer around the world in 2002 and in 2008 cancer was responsible for the deaths of 7.6 million people (1, 2). Globally cancer is the fifth most frequent malignancy in men and second among women, overall, 715,000 new cancer cases and 542,000 cancer deaths were estimated to have occurred in Africa (2, 3).

Approximately half a million women develop cervical cancer each year, with an estimated 85% or more occurring in developing countries (2, 3). It is the most common and most lethal cancer among the women of Sub-Saharan Africa, second only to breast cancer in northern Africa (4). In South Africa, cervical cancer is the most common cancer in black women and fourth among white women. Although cervical cancer remains a major cause of morbidity and mortality among women in developing countries, the patients were present with advanced disease (5).

A considerable reduction in cervical cancer (CC) incidence and deaths has been achieved in developed countries with systematic cytological screening programs. Thus it is largely preventable by effective screening programs. However, this has not been possible in most limited resource countries, mainly because systematic screening is rarely performed (6, 7). In Ethiopia, Cervical Cancer ranks as the 2nd most frequent cancer among women between 15 and 44 years of age. Every year 4648 women are diagnosed with cervical cancer and 3,235 die from the disease (8).

The Papanicolaou test is a cytological study used to detect cancer in cells that an organ has shed. It is recognized as an effective and successful cervical cancer screening (CCS) test. It has become an essential component of annual primary care for women with access to regular medical care. With the help of routine organized screening programs that detect the disease in its premalignant stage (cervical intraepithelial neoplasia) or at an early stage when it can be cured, both morbidity and mortality from the invasive disease are falling (9, 10, and 11).

Cervical cancer, a complication of Human Papillomavirus (HPV) infection, is the second most common cancer in women with 529,000 new cases each year worldwide. Eighty percent of the cases occur in low-resource countries like Africa, Latin America and South East Asia. It is also a leading cause of mortality worldwide with 270 00 0 women every year. But, 85% of these deaths occur in the developing world (12).

HPV is central to the development of cervical neoplasia and can be detected in 99.7 percent of cervical cancer. The two major histologic types of cervical cancer, adenocarcinoma and squamous cell carcinoma, and the pre-invasive disease that corresponds with these histology's share many of the same risk factors. Most of these are associated with an increased risk of acquiring or having inappropriate compromised immune response to infection with HPV, the etiologic agent of most cervical cancer (13).

1.2 Statement of the problem

Worldwide, cancer of the cervix is the major leading cause of cancer death in women after cancer of the breast. Each year, an estimated half-million new cases are diagnosed and approximately 274,000 deaths from the disease in 2008 alone. It is the most common malignancy among females in developing countries. Cancer of the uterine cervix is the most common female cancer and approximately half a million women develop cervical cancer each year, with an estimated 80% or more occurring in developing countries (14, 15).

The epidemiologic risk factors for cervical cancer include multiple sexual partners, early onset of sexual activity, a high-risk sexual partner (history of multiple sexual partners, HPV infection, lower genital tract neoplasia, or prior sexual exposure to someone with cervical neoplasia), a history of Sexually Transmitted Diseases (STDs), as well as cigarette smoking, human immunodeficiency virus (HIV) infection, acquired immune deficiency syndrome (AIDS), other forms of immunosuppression, multiparty, and long-term oral contraceptive pill use (16).

In Ethiopia among the general population about 33.6% of women are estimated to harbor cervical HPV infection at a given time. From those, 7,095 new cervical cancer cases are diagnosed annually. However, data is not yet available on the HPV burden in the general population of Ethiopia, current estimate indicates that every year 4,648 women are diagnosed with cervical cancer and 3,235 die from the disease. Cervical cancer ranks as the 2nd most frequent cancer among women between 15 and 44 years of age (17).

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. Despite this fact, very few women receive cervical cancer screening services in Ethiopia (18, 19).

Much of the recent research identify low levels of knowledge, is believed, to contribute low rates of screening uptake in the populations. To date, however, little attention has been directed toward assessing women's knowledge in countries where mass screening has long been implemented as a matter of public policy and where general uptake rates are consistently high (20).

Cervical cancer screening has been consistently shown to be effective in reducing the incidence rate or the occurrence of new CC cases and mortality from the disease. However, cervical cancer screening attendance rate are still far from satisfactory in many countries. Perhaps, challenges of cervical cancer screening in developing countries include: limited access to health services and labs, no screening programs, limited or non-existent awareness among populations and health workers, limited or no access to diagnostics and laboratories, poor referral and follow up etc. Analysis of population-based surveys indicates that coverage of cervical cancer screening in developing countries is on average 19%, compared to 63% in developed countries (21, 22).

Most women present with advanced stages of cervical cancer with poor prognosis. Thus, in Ethiopia, only 0.6% of all women, 1.6% of urban and 0.4% of rural women aged 18-69yrs screened every 3yrs. The major factor associated with are, inadequate knowledge about the disease process, and Pap smear testing and clients negative attitude towards the procedure. Besides, Poor knowledge about cervical cancer, and lack of awareness of available screening methods have been identified as the most important factors hindering the use of available cervical cancer screening services (22, 23, 24).

Community based screening programs followed by treatment are very effective even in the resource-poor settings. Screening and treating approach or single-visit approach using Visual Inspection of cervix with Acetic acid (VIA) is a very effective prevention strategy for cervical cancer. These programs have positive effects on reducing the morbidity and mortality caused by cervical cancer even in resource-poor settings. Therefore low coverage of cervical cancer screening is a serious problem and a major barrier in reducing the mortality and morbidity in the developing countries (25).

1.3 Significance of the study

Cervical cancer disease is a preventable disease; its prevention, among other ways, is through detection of early stages of the disease and treatment. Recent studies shows that a screening test for cervical precancerous and cancerous lesions using VIA has been a suitable low-cost and a feasible alternative modality for control of cervical cancer in resource poor setting. Detection of the premalignant lesions requires knowledge on the disease so that people are aware and hence have positive attitude towards practice of screening for premalignant cervical lesions.

Knowledge of the disease is important, so that students are aware and through motivation they can have positive attitude towards screening for premalignant cervical lesions and treatment. So this study aimed to explore the knowledge, attitude and screening practices for early detection and identifying the factors associated with knowledge, attitudes and practices towards cervical cancer screening among female students in Hawassa University College of Medicine and Health Sciences. Since they are the tomorrow's health professional to take the responsibility to care and educate the society and also they are vulnerable group for cervical cancer.

Findings from this study will provides available information to authorities so that proper measures can be taken according to the results to save the lives of victims women by creating awareness and provide screening services in the university/nearby. At the end of the study recommendation was given to the concerned bodies to fill the gaps based on the findings, it will also help as a base line for further researches.

Literature Review

2.1 Cervical cancer

According to 2008 Global Cancer Statistics, there are 529,800 new cervical cancer cases identified globally every year. Out of this estimate, 275,100 women died in the year 2008. The WHO and International Union against Cancer stated that there were 24.6 million people living with cancer around the world in 2002 and in 2008 cancer was responsible for the deaths of 7.6 million people. Approximately half a million women develop cervical cancer each year, with an estimated 80% or more occurring in developing countries (26).

The risk for developing cervical cancer is associated with early age of first intercourse, multiple sexual partners, smoking and infection with HPV; use oral contraceptive for a longer period and occupation as risk factor for the development of cervical cancer. In addition, woman who has sexual intercourse with a male partner who in turn has had intercourse with multiple women also confers a significant risk (26, 27).

In Eastern Africa region Ethiopia belongs to, about 33.6% of women in the general population are estimated to harbor cervical HPV infection at a given time. According to the Publications of the WHO Information Center on HPV and Cervical Cancers in Ethiopia, every year 4,648 women are diagnosed with cervical cancer and 3,235 die from the disease. Cervical cancer ranks as the 2nd most frequent cancer among women in Ethiopia. Data is not yet available on the HPV burden in the general population of Ethiopia (27).

2.2 Cervical cancer screening

In asymptomatic women, cervical cancer may be discovered as a result of cervical cancer screening or incidentally, if a visible lesion is discovered upon pelvic examination. Some popular screening methods are Papanicolaou (Pap) smear, VIA, HPV DNA test and colposcopy. The screening for cervical cancer is based on two assumptions. The first is that prevention is better than cure and the second is early detection may allow early treatment as the primary pathologic process is still reversible. Screening tests are relatively simple procedures that separate healthy persons from those with a high probability of having the disease (27).

Papanicolaou test (Pap test)

Pap test is helpful for detecting cervical cancer at early stages by identifying precancerous lesions before leading to cancer where treatment is most effective. So that screening for cancer has resulted in an ample decrease in mortality and incidence rates. Therefore, it is recognized as an effective and successful CCS test (27).

Pap test is a non-invasive screening tool that shows only the presence of abnormal cells. A spatula and a brush are used to scrape off some cells from the surface of the cervix and then cancer cells are identified through a microscopic examination. It is useful simply as a screening test that identifies women who may have pre-invasive or early cancerous changes. For a definitive diagnosis, the next step is usually colposcopy, during which the cervix is visualized under low power magnification. The surgeon takes samples of suspicious cells for biopsies. A biopsy will determine the stage of the precancerous growth or whether invasive cancer is present (28).

It is recommend that, Pap test for cervical screening would be conducted within three years of the initiation of sexual activity or at the age of 21 whichever occurs earlier. Rescreening is reduced to every two to three years until the age of 69 if the first two smears are normal at the discretion of the physician. Effective screening can reduce the risk of developing invasive cervical cancer by 90% (28).

The Pap smear test has significantly reduce cervical cancer incidence and mortality in developed countries, although this is not the case for on the spot cryotherapy treatment. A Nationwide Study done in Taiwan about the utilization of Pap test services of women Papanicolaou test (Pap test) showed that it is the most effective screening tool to prevent CC; that the National Health Insurance offers women older than 30 years free Pap test; however, the screening rate is merely 52.6% (29).

2.3 Knowledge about Risk factors:

In study conducted on Current knowledge, attitude and practices of female health workers in Sokoto, Nigeria, almost all (98.6%) the respondents had ever heard of cervical cancer. In another study done in awareness of HPV and cervical cancer prevention among Cameroonian healthcare workers the causative link between high-risk HPV and cervical cancer was well identified by most respondents. On other hands, many were not aware of the association between cervical cancer and HPV infection (31%), nor did many know that in almost all cases cervical cancer is the result of a sexually transmitted infection (28%). Thus, history of HPV infection was identified by only 43.1%

as risks for developing cervical cancer by the respondents. Similarly only 45% were aware that HIV infection is a risk factor for HPV infection and cervical cancer (30, 31, and 32).

Studies identified that multiple sexual partners was being a risk factor for cervical cancer, although fewer (44%) were aware of a partner who has or has had many sexual partners is also a risk factor. In better manner than the above, 85.5% and 87.7%) know that cervical cancer is associated with HPV and multiple sexual partners, respectively. Another study showed that three main risk factors for development of cervical cancer: multiple sexual partners (85.5%), early sexual intercourse (80.1%) and HPV infection (69.1%) (31, 32).

In other studies, few female health workers know that risk factors also include age of first sexual intercourse below 20 years and HIV infection for cervical cancer. Besides, few of the nurses correctly identified that genetic predisposition were causes of cervical cancer while almost all and 75.2% of female health workers correctly know that certain foods, bacterial infections, body fluids, drinking unsafe water, mother to child transmission and air droplets were not causes of cervical cancer respectively. Knowledge on cervical cancer disease overall was, 359 (55.7%) of midwives had appropriate knowledge (score >70%) about epidemiology of CC, risk factors and symptoms. Study conducted on KAP concerning cervical cancer and screening among rural and urban female healthcare practitioners in the Democratic People's Republic of Korea smoking was identified as risk factors for cervical cancer (74% rural, 94% urban, $p<0.05$) (33).

2.4. Knowledge about Signs and symptoms:

Almost all respondents know about cervical cancer. The majority of the participants responds that cervical cancer is the most common cancer of the reproductive tract (77%), that all women are at risk (81%), and that the majority of cervical cancer develop through a series of gradual, well-defined precancerous lesions (78%) and more than half of them knew about cervical cancer symptoms. Also most respondents know that CC is preceded by dysplasia, which can be treated to avoid progression towards cancer. However, approximately half of the study population considered that HPV infection and dysplasia are generally asymptomatic (33).

The most common symptom of cervical cancer identified was blood stained vaginal discharge (53.3%), followed by post-coital bleeding (46%), painful coitus (43.1%) and post-menopausal bleeding (38%). Only 19% and 9.5% identified pelvic pain and inter-menstrual bleeding as symptoms (33, 34).

2.5 Knowledge about immune response and preventive methods:

The study conducted in awareness of HPV and cervical cancer prevention among Cameroonian healthcare workers showed that most respondents did not consider HPV a transient infection and only 36% believed that HPV infection is most often cleared by a competent immune system and does not usually cause cancer.

However, more than 90.0% of midwives knew that cervical cancer was preventable and screening was as a preventive method. In contrast to the fact only 22.6% of the respondents were aware of the HPV vaccine and some of them recommended that it should be done before sexual debut (33, 34).

According to the study of Côte d'Ivoire about knowledge on cervical cancer prevention 42.4% midwives had appropriate knowledge about prevention of cervical cancer with knowledge score >70% . In spite of the level of knowledge, only 50.3% of them were aware of HPV vaccine and knew that the vaccine protects against cervical cancer. On other hand, in study done in Cameron most (75%) of healthcare workers did not believe as the vaccine was effective yet, and others recommend it only for young women aged 10-25 years. Forty three point eight percent of the respondents recommend the vaccine should be administered before first sexual intercourse and 38.5% of them know that it was already available in Côte d'Ivoire. Condom use and being faithful to one partner were also identified as other methods of prevention of HPV infection by 48.2% and 46.7% respectively of the nurses. But a few (11.7%) of nurses identified antibiotics as preventive/prophylactic method of cervical cancer (34).

There was a significant association between the nurses' cadre and knowledge level of symptoms of cervical cancer; 43.3% of the registered nurses had adequate knowledge of symptoms of CC compared to only 21.4% of enrolled nurses. Similarly, there was high significant differences between doctors and nurse-midwives' knowledge on identification of risk factors, asymptomatic syndrome of cervical cancer and types of screenings ($p < 0.05$). Besides the above truth the more recent graduates were more likely to be aware of the immune system's ability to clear away infection than the older (34).

Work place variation in knowledge of previous respondents a bout CC:

However, the Côted'Ivoirian study identified that there was no statistical difference in knowledge among the study subjects regarding professional locations ($p = 0.94$); midwives working in upper hospitals (UH) were more aware of the oncogenic role of HPV (78.4%) than those working in general hospitals (GH) (63.4%, $p < 0.01$) and those working in primary health care (PHC) (66.0%, $p < 0.01$) and had better knowledge about CC prevention (52.8%) than those working in PHC (39.7%, $p < 0.01$) and medical students (36.0%, $p < 0.01$) (30). In the other hand, Midwives working in PHC were less aware of visual inspection (32.5%) than those working in UH (52.8%, $p < 0.01$), those working in GH (41.8%, $p = 0.04$) and in medical students (59.7%, $p < 0.01$) (34, 35).

2.6 Knowledge about Pap smear:

Pap smear was the most widely and consistently known screening method for cervical cancer. Other methods such as VIA or HPV testing were not recognized as such. Among whole study population, 88.7% Pap smear, 53.9% HPV test and 49.7% visual inspection methods were responded as screening methods. In study done Turkey on Determining Nurse-Midwives' Knowledge of the Pap-Smear Test and their Rate of Being Tested, almost half of the nurse-midwives responded that the aim of performing PST is to diagnose of HPV infection (50.5%) and the state of cancer" (51.2%). But only 19.2% of participants responded that PST is for "screening test" only (35, 36).

2.7 Knowledge about screening intervals:

However the screening interval depended on the presence of symptoms in women, studies showed that about half of study subjects identified either once between the ages of 35 and 45 or once every 3 to 5 years and/ thought that PST should be performed more frequently than usual "when there is a gynecological health problem;" but less than half said that it should be carried out "when cancer is suspected;" and "when there is a complaint of discharge/infection". In addition, a negligible portion of the participants (6%) responded that screening interval have to be conducted at early start of sexual activity (2.8%), polygamous relationships (3.2%), history of HPV infection etc.

Besides, 6.8% of the participants had no knowledge about the interval of PST and only 44.7% of the participants responds correctly with “midway in the menstrual cycle,” while over half (55.3%) gave incorrect answers including “Immediately after the menstrual period stops, before menstruation, during menstruation, anytime except during the menstrual period (35, 36).

On a study which was conducted among young women of Malaysia shows that, the prevalence of ever having had a Pap test was 6%. Majority of the participants had adequate knowledge about risk factors of cervical cancer. The highest knowledge about cervical cancer risk factor reported by the respondents was having more than one sex partner (77.5%), whereas the lowest was the relationship between HPV and cervical cancer (51.2%). Age, marital status, ethnicity, monthly family income and faculty were significantly associated with knowledge of cervical cancer screening (p=0.003; p=0.001; p=0.002; p=0.002; p=0.001 p=0.002; respectively).Regarding barriers of cervical cancer screening the major one was the Pap smear test will make them worry (95.8%) whereas the least common barrier reported among participants was no encouragement from the partner (8.8%) (37).

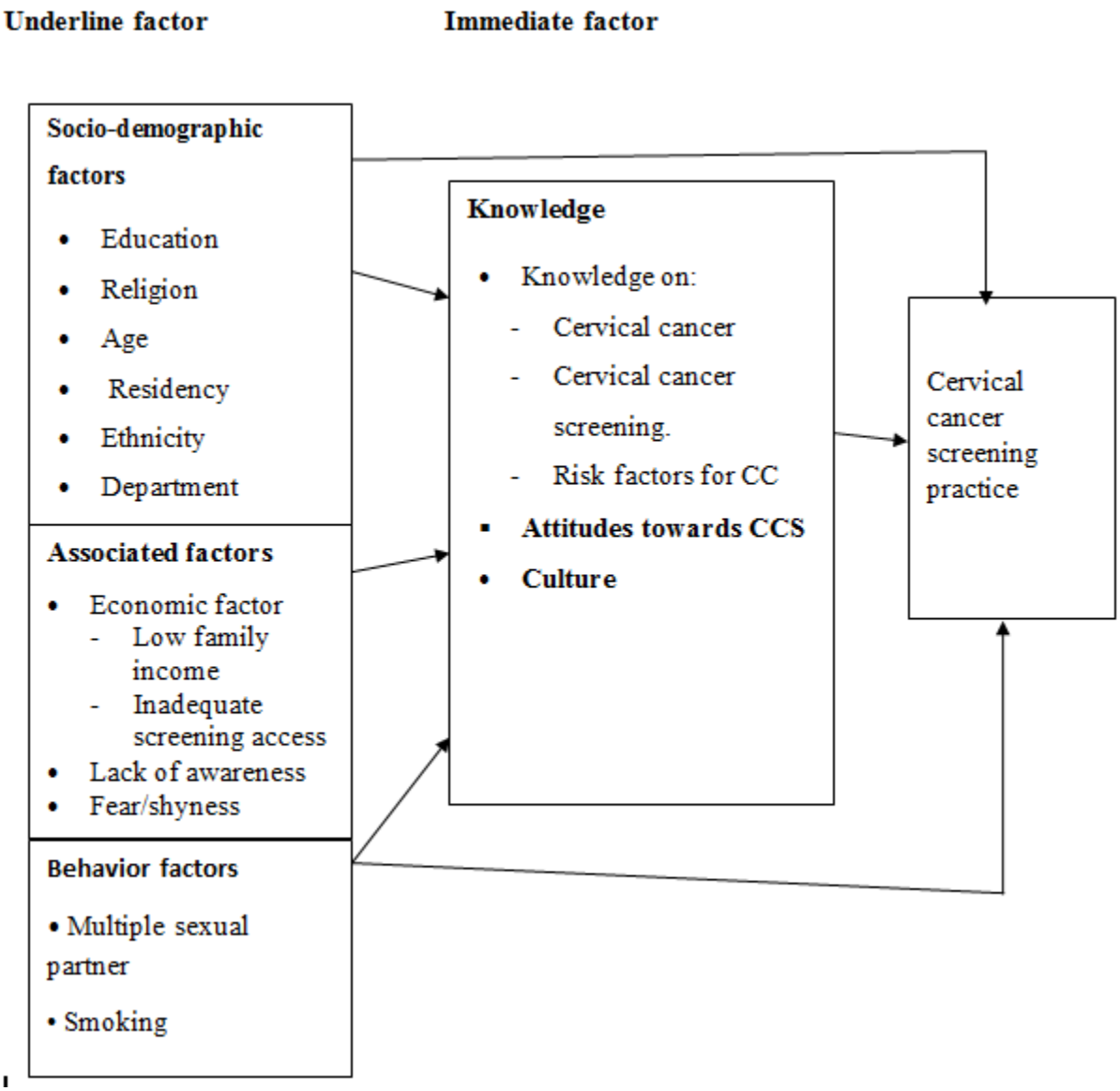

Figure 1 Conceptual framework for factors influencing cervical cancer and its screening program which developed to show factors of screening practice

Objectives

General objectives

- To assess knowledge attitude, practice of cervical cancer screening and its associated factors among female students in Hawassa University College of Medicine and Health Sciences, Hawassa Ethiopia 2015.

Specific Objective:

- To assess the knowledge on cervical cancer screening among female students in Hawassa University College of Medicine and Health Sciences.
- To assess attitude of female students towards screening for cervical cancer.
- To find out the practice of female students in Hawassa University College of Medicine and Health Sciences on cervical cancer screening.
- To identify factors affecting knowledge, attitudes and practice of female students towards cervical cancer screening.

Methodology

3.1 Study setting

The study was conducted in Hawassa University College of Medicine and Health Sciences which is found in Hawassa the capital city of southern nation, nationalities and people's regional state. This College is one of the 6 campuses of the Hawassa University which was established in 1996 at the former Dilla College of Teacher Education and Health Sciences in Dilla then move to Hawassa city in 2003. It is located to the south end of the town. The college has undergone both academic and community services through its referral hospital and different academic schools and departments. Currently the college has 3 large schools (i.e. school of nursing and midwifery, school of medicine, and school of public and environmental health) and one department (department of medical laboratory) with a total of 2,617students (1,884 male & 733 female). The college has run both undergraduate and graduate programs. The undergraduate programs are Nursing, midwifery, Psychiatry, Medicine, Optometry, Laboratory, Health officer, Environmental Health and Radiography. Graduate programs are Master of Public health (MPH), Emergency Surgery, and Medical specialty.

3.2 **Study design**

The institutional cross sectional quantitative study was conducted among 422 female students comprising different field of studying in Hawassa University College of Medicine and Health Sciences South Ethiopia January 2015.

3.3 **Source and Study population**

The source population was all under graduate female students who were enrolled in Hawassa University College of Medicine and Health. The study population comprised of under graduate female students aged 18 to 26 years randomly selected from different departments in Hawassa University College Medicine and Health Sciences.

3.4 Study subjects

Randomly selected female students from each department in the College of Medicine and Health Sciences.

Inclusion criteria

All undergraduate female students in university at the time of data collection and who was randomly selected to participate in the study were included.

Exclusion criteria: Those who are critically sick at the time of data collection.

3.5 Sample size determination

The single population proportion formula used to calculate the sample size for knowledge, attitude and practice of CCS. By assuming the proportion of students who are aware of CC to be 50%, adding non-response rate of 10% And Considering the assumption of a 95% confidence level, a 5% margin of error the sample size was determined as follows.

Assumptions

There is no national or local data on the prevalence of KAP toward CC and CCS among female university students. Hence, proportion 50 % is used in order to maximize the sample size

P (50 %): assumed proportions of KAP toward CC and CCS among female university students.

Where $$n = (Z \propto/2)^2 * \frac{P\,(1-p)}{d^2}$$

n= Sample size

α = Level of significance (set at 0.05)

z = The standard normal deviate with 95% CI (1.96)

p= Expected proportion of students who are aware of CCS

d= Degree of precision (0.05)

The sample size for KAP towards cervical cancer screening using the above formula and assumption was $\mathrm{n} = (1.96)^2 * 0.50\frac{(1-0.50)}{(0.05)^2} = 384$

A non-response rate of 10%, the total sample size will be: 384+ 10 %(NR) = 422 female students.

3.6. Sampling method

To obtain a representative sample, simple random sampling was applied to select study participants from the source population. . First all schools/ departments in the university identified by name.

Next the calculated sample size (422) was distributed to each School and Department in Hawassa University College of Medicine and Health Sciences using probability proportional to size (PPS). And the numbers of female students required for the study in each School and Department were determined. Sample size for each School and Department was computed as follows using the formula: **ni = Ni x no/N,**

Where:

ni = number of female students that are needed from specific school/ department in the university

Ni = total number of female students who were attending within specific school/department

no = calculated sample size and

N = total number of female students in the university

Therefore, each study subject was sampled from respective School, Department and program by simple random sampling and a total of 422 study subjects attending Hawassa University College of Medicine and Health Sciences were included in the study.

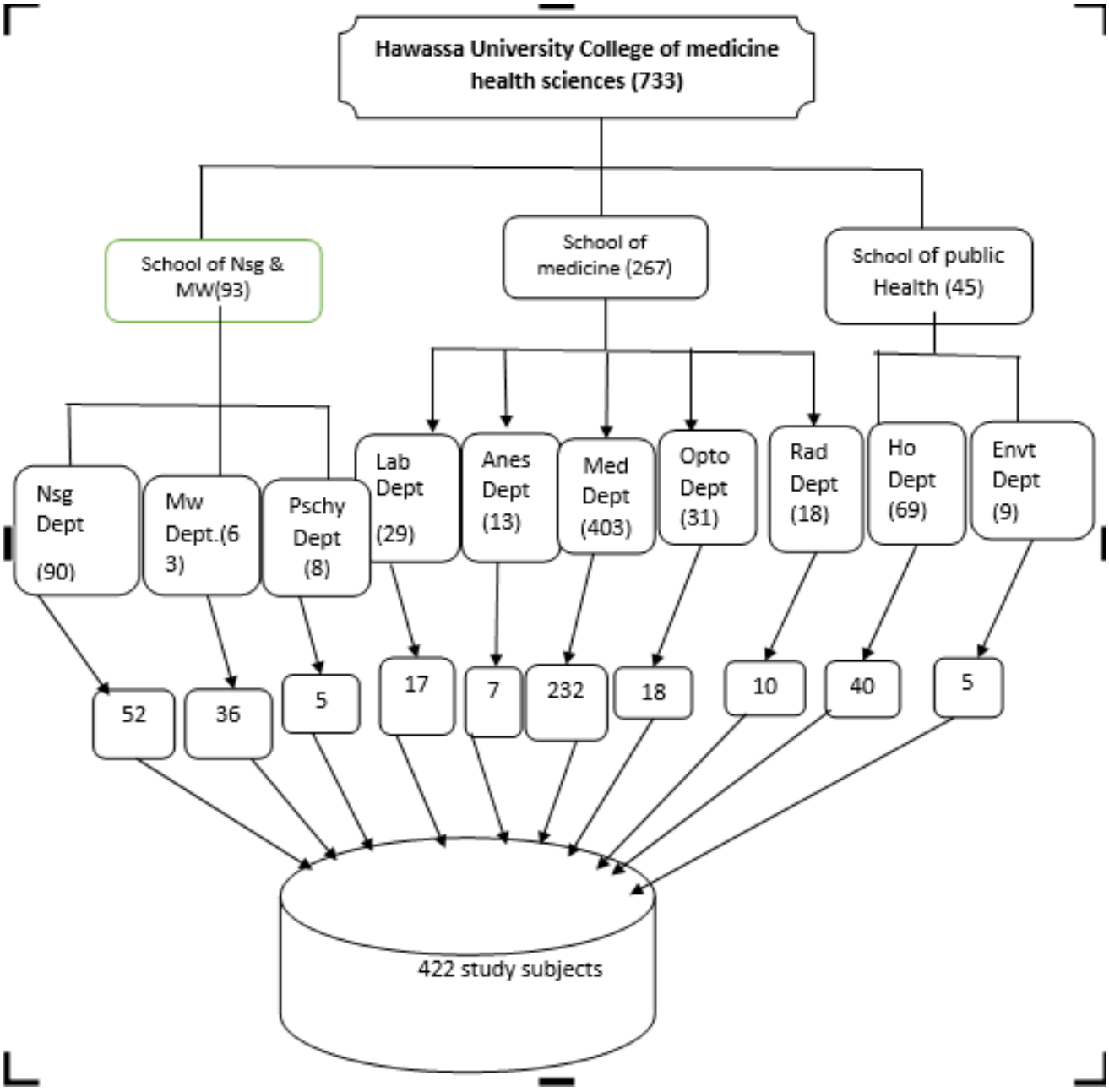

Figure 2 Schematic presentation of sampling procedure

Note: Anes to means Anesthesia, Dept to means Department, Opto to mean Ophthalmology,

Psych to mean Psychiatrics, Rad to mean Radiography, HO to mean Health officer, Med = Medicine, Envt = Environmental, MW = Midwifery and Nsg = Nursing

3.7 Data collection Methods

The data collection instrument was pre-tested and anonymous self-administered close-ended and mixed questionnaire, which was adopted and modified after reviewing different literature. The questioner will be prepared by English. It was composed of four parts. The first part contained information on the socio- demographic characteristics of the study participants. The second part used to assess knowledge of students (study participants) about cervical cancer screening; the third part was also evaluate their attitude towards cervical cancer screening while the forth part was concerned with the practice of CCS.

The data collection was facilitated by six female facilitators who were diploma midwives and three supervisors who have a first degree in Midwives / nursing with possible experience in data collection in previous similar studies. Training was given for data collectors and supervisor before the pretest on the objective of the study, the contents of the questionnaire, issue related to the confidentiality of the response and the right of the respondents. The trainees were given the responsibility to handle the whole process of the data collection.

The pretest of the instrument was carried out on 40 Students in Dilla University College of Health Sciences thus ensuring similarity in socio-demographic characteristics with the study population. After pre-test, discussions were carried and based on the experience gained through the pre-test amendment to questioner was made.

The principal investigator, the department heads and School deans were arrange data collection days prior to the data collection and gather the selected students to free rooms on the day of collection. The data were collected after informed consent was obtained from respondents. Moreover, teachers and college authorities were not involve in administering the questionnaire and also not allowed to enter into data collection room during collection, to assure privacy of participants. Additionally, to overcome information contamination data were collected from all students from selected school simultaneously. Finally data were reviewed and checked for completeness and consistency by the supervisors and principal investigator after data collection.

3.8. Data quality management

To ensure the validity of the study, appropriate size and representative type of study units were selected and maximum effort was applied to minimize chances of bias using the following strategies: Pre-testing was conducted prior to data collection process. Based on the pre-test, questions were revised and edited with necessary modification. Questionnaires were prepared in English since our study populations were educated and can read & understand the concept of the questions this will minimize the risk related with questioner translation. Data were entered using EPI info version 3.5.1 and cleaned then exported to SPSS version 20 software package by the Principal investigator. The data were cross checked and corrected prior to actual analysis. The issue of confidentiality and privacy were stressed in much depth during the training session and by using coding system.

3.9. Data analysis procedure

For data processing and analysis, SPSS version 20 was used. Data were checked for completeness and consistency, Coded data were entered into computer programs after the required cleaning was done.

Frequency distribution tables was used to describe most of the findings and graphs were also plotted for some accordingly; and other descriptive summaries were calculated. Univariate and then multivariate analysis were carried out. Odds ratio (OR) with confidence intervals and p-values was calculated and tests of association for categorical variables was made. A logistic regression test to control confounding variables and identify major factors determining utilization of cervical cancer screening services was carried out. The output of the analysis were given and odds ratio with their respective confidence intervals. P value of 0.05 was taken as level of significance.

3.10 Study variables

Dependent Variables:

- Knowledge
- Attitude and
- Practice towards cervical cancer and cervical cancer screening.

Independent variables

Socio-demographic variables such as: Age, Educational status, Religion, Income, Marital status, Ethnicity, school/Department and years of study

Obstetric factors: - gravidity, parity, still birth, abortion

Gynecologic factors: - age during 1st sexual intercourse, age at menarche, any abnormal vaginal discharge/bleeding.

3.11 Ethical considerations

Ethical clearance was obtained from Addis Ababa University College of Health Science, school of allied Health Science institutional review board (IRB) before the staring of the field work. An official letter of co-operation was written to Hawassa University, from IRB of Addis Ababa University. Hawassa University, in turn, was write an official letter of co-operation to College of Medicine and Health Sciences. Respondents were informed about the objective and purpose of the study and verbal consent was obtained from each respondent. Moreover, all the study participants were informed that they have a full right to participate or decline from participating in the study and the study participants were assured for an attainment of confidentiality for the information obtained from them.

Dissemination of results

After the research paper is completed & approved by the responsible bodies of the Addis Ababa University, it will be disseminated to the Ministry of Health, the Regional Health Bureau, Universities and other concerned bodies and will be published in recognized journal to be available for those who could benefit from the study.

Operational definitions:

Cancer: growth of abnormal cells in the tissue

Cervix: an opening of the uterus

Cervical cancer: A growth or abnormal proliferation of cells on the opening of the uterus.

Cancer screening: A procedure that is performed to identify the presence of abnormal cell in Particular tissue.

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

Knowledge: Awareness or familiarity with a cervical cancer and its screening. It was classified in to two parts and scored according to the number of questions in each part to assess the students' level of knowledge.

After the responses were summed up and a total scored was obtained for each respondent so they were categorized as knowledgeable and not knowledgeable. .

.**Knowledgeable:** referee to for those who were scored mean and above the mean considered as knowledgeable

Not knowledgeable: refers to for those scored below the mean were considered as not knowledgeable.

Attitude: Opinion, way of thinking: behavior reflecting about cervical cancer screening

Attitude: was assessed by questions on Likert's scale. And the mean score was calculated to use as a cut point

Positive attitude: Refers to for those scored the mean and the above mean

Negative attitude: refers to for those scored below the mean

Year of study: refers to the student's year of entry

RESULT

4.1 Socio-demographic characteristics of study population

Out of the total 422 female students of Hawassa university College of Medicine and Health Sciences who were invited to complete the questionnaires, 42 students returned questionnaires with incomplete and inconsistent response. After excluding incomplete and inconsistent questionnaires, the analysis was done based on the 380 remaining questionnaires making the overall response rate of 90 %.The age range of participants were 18 to 26 years with mean age of 21.5.

Majorities 202(53.2 of the respondents were in the age group 21-23 years. Regarding school allocation among those 380 respondents, 222 (58.4%),95(25%) and 63(16.6%) were from school of Medicine (which is composed of students from Medicine, Anesthesia, Radiography and Optometry department), school of Nursing and Midwifery(composed of Nursing, Midwifery and Psychiatric nurse students) and school of public health(environmental, health officer students) respectively. The year of study distribution of students were 145(38.2%) first and second, 120(31.6%) third year and the remaining 115(30.3%) were 4^{th} and above year students.

Two hundred and sixty six (70%) of the study participants were orthodox followed by protestants and Muslim religion followers 58(15.3%) and 39(10.3%) respectively. In terms of ethnic group distribution, 110(28.9%) were Amhara, 91(23.9%) were Gurage and 82(21.6%) were Oromo.

Among all respondents almost half of the students were have at least 450 monthly income/pocket money, whereas the rest 186(48.9%) of the respondents have monthly income/pocket money 451 and more. The basic socio-demographic characteristics of the study population are provided in Table1.

Table 1. Percentage distribution of the female students in Hawassa University College of Medicine and Health Sciences by selected socio-demographic characteristics, Hawassa, Ethiopia, May 2015 (n=380)

Variables	Frequency	Percentage (%)
Age group		
17-20	127	33.4
21-23	202	53.2
24-26	51	13.4
Religion		
orthodox	266	70
Protestant	58	15.3
Catholic	13	3.4
Muslim	39	10.3
Other**	4	1.1
Ethnicity		
Amhara	110	28.9
Gurage	91	23.9
Oromo	82	21.6
Tigre	35	9.2
Sidama	26	6.8
Wolayita	23	6.1
Other*	13	3.5
Income category		
<450	194	51.1
451-900	122	32.1
>901	64	16.8
Marital status		
Married?		
Yes	12	3.2
No	368	96.8

Note * hadiya (n=10) and others gamogofa (n=3) ** Adventist (n=4)

4.2 Behavioral characteristics of respondents:

Regarding substance related addiction / habits like smoking, alcohol and use of abused drug only 6(1.6%) of the respondents had habit. Among those 2(0.5) chew chat and smoke cigarette, 3(0.8%) use narcotic drug and 6(1.6%) drunk alcohol while the rest 374(98.4) were free from theses habits.

Table 2. percentage distribution of some behaviors/habits and practices among female students in Hawassa University College of Medicine and Health Sciences, Hawassa, Ethiopia, May 2015 n = 380

Variables	Frequency	Percentage (%)
Having addiction/ habit of substance usage		
Yes	6	1.6
No	374	98.4
Chewing chat		
Yes	2	0.5
No	378	99.5
Drunk alcohol		
Yes	6	1.6
No	374	98.4
Use Narcotic drug		
Yes	3	0.8
No	377	99.2
Smoking cigarette		
Yes	2	0.5
No	378	99.5

Note the maximum period of the habit the students have been used were 2 years and minimum 4 months.

4.3. Sexual and Reproductive characteristics

About 94(24.7%) of respondents had sexual partner and among those 79(20.8 %) of them had had sexual intercourse with the median age of first sexual intercourse 19 years old. Among those ever had sexual intercourse 34(43%) were started their first sexual intercourse at the age of less than 19 years followed by 24(30.4%) at age of 19, 21(26.6%) at age of 20 and above respectively. Among those large number of respondents 68(86%), those who ever had sex with only one partner. While 5(6.3%) with two partners and 3(3.8%) with three and more than three sexual partner.

Concerning marital status of respondents only a small fraction 12(3.2%) of the respondents were married and others were unmarried (Table 3). Regarding the parity and gravidity of the respondent students 8(2.1%) had been pregnant (Gravida I), 1(0.3%) gave birth (para I) and 7(1.8%) of the respondents practiced abortion (Table 3).

Table 3Percentage distribution of sexual and reproductive history of female students in Hawassa University College of Medicine and Health Sciences, Hawassa, Ethiopia 2015. n= 380

Variables	Frequency	Percentage (%)
Had sexual partner		
Yes	94	24.7
No	286	75.3
Had sexual intercourse		
Yes	79	20.8
No	301	79.2
Ageof1stintercoruse(n=79		
17-18	34	43
19	24	30.4
>=20	21	26.6
Number of sexual partner you had intercourse before(n=79)		
One	68	86.1
Two	5	6.3
Three	3	3.8
More than three	3	3.8
Have you been pregnant before		
Yes	8	2.1
No	372	97.9

Out of 380 respondents only 8 participants had been pregnant once in a life time. Among those who had been pregnant only one participant gave birth and 7 of them were practiced abortion once**.**

4.4. Knowledge about cervical cancer and risk factors

292(76.8%) of respondents had heard about cervical cancer but about 88(23.2%) were not heard nothing about cervical cancer. Of those who had heard of cervical cancer, a higher proportion of students knew about causes, symptoms, and its prevention. Among those who had heard about cervical cancer majority of the respondents were in the age range of 21- 23 years.

However the respondent's knowledge on cervical cancer screening was not that much. The most widely and consistently responded screening method was Pap smear. About 202(53.2%) of the student knew Pap smear and only 178(21.6%) knew about VIA and responded as screening method of cervical cancer. Most of the questions asked about cervical cancer, its risk factors, symptoms, prevention and screening were answered correctly by the students. So more than half of the respondents knew about risk factors, symptoms, prevention and treatment methods.

The overall respondent's knowledge towards cervical cancer and its screening were categorized as Knowledgeable and not Knowledgeable using the mean score of the respondents on the knowledge part questions. Almost 216 (56.8%) of the student were Knowledgeable .and 164(43.2%) were not. But the cervical cancer screening practice among those female students of Hawassa University were poor which were no one had practiced.

Regarding their source of information about cervical cancer teachers, news media like TV, radio, books and health worker were the major source of information reported by the students. The least responded source were family (table7).

The respondent's level of knowledge towards cervical cancer screening were categorized as good, satisfactory and poor knowledge based on their score on the knowledge part questions out of 33. The maximum score expected were 33 and 0 minimum score.

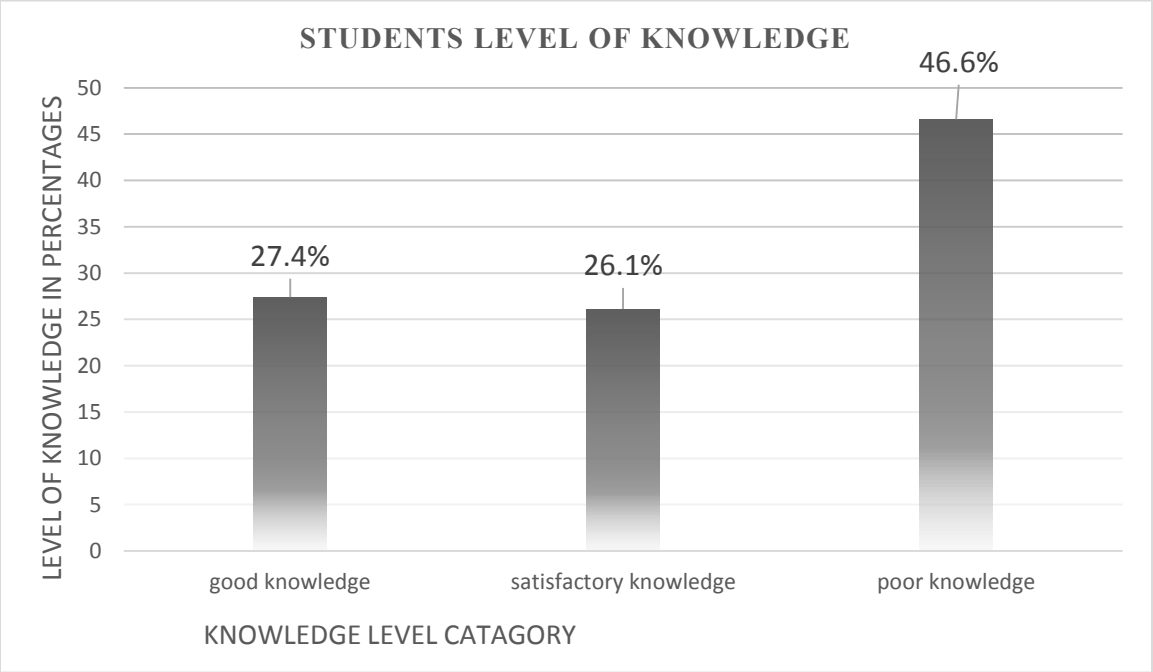

Figure 3 The level of respondent's knowledge

The respondent's level of knowledge in the graph shows that

1. 104(27.4%) students with good knowledge those who answered >= 65% of the knowledge questions.
2. 99(26.1%) students with satisfactory knowledge those answered >=50% <65% of questions
3. 177(46.6%) of the students with poor knowledge those answered below 50% of questions.

So as we can see from the above figure there were inadequacy of knowledge among the students regarding cervical cancer and its screening as well.

As indicated in table 4 below table the respondents knowledge on treatment of cervical cancer among all participants 184 (48.4%) of respondents were reported surgical treatment as option for cervical cancer. While 170(44.7%), 117(30.8%) of the respondents identified chemotherapy and radiotherapy respectively

Table 4.Percentage distribution of female student`s knowledge towards cervical cancer, risk factor/causes, prevention, screening and its treatment in Hawassa University College of Medicine and Health Sciences, Hawassa Ethiopia2015 n= 380

Variables	Number	Percentage (%)
Heard about cervical cancer?		
Yes	292	76.8
No	88	23.2
Do you know causes of Cervical Ca?		
Yes	258	67.9
No	122	32.1
If yes which one among these?		
Initiation of intercourse at Early age	180	47.4
Having Multiple sexual partner	189	49.7
	124	32.6
Having intercourse with person who have cervical Ca		
Sexual transmitted infection(STI	150	39.5
HIV infection	149	39.2
Human papilloma virus(HPV)	189	49.7
Old age	51	13.4
Have ever heard about cervical smear		
Yes	202	53.2
No	178	46.8
Prevention methods		
Do you know how to prevent cervical cancer?		
Yes	265	69.7
No	115	30.3
If yes how?		
Avoiding multiple sexual partner	211	55.5
Avoiding HPV infection	214	56.3
Vaccination against HPV	195	51.3
Do you know how to treat cervical Ca?		
Yes	260	68.4
No	120	31.6
If yes which one among these		
Surgery	184	48.4
Chemotherapy	170	44.7
Radiotherapy	117	30.8

Table 5 *Symptoms of cervical cancer*

Variables	Frequency	Percentage (%)
Do you know symptoms of cervical cancer?		
Yes	258	67.9
No	122	32.1
Which one among these?		
Vaginal bleeding b/n periods	200	52.6
Bleeding after intercourse	170	44.7
Foul smelling vaginal discharge	152	40
Painful coitus	176	46.3
Postmenopausal bleeding	103	27.1
Weight loss	97	25.5

Note N= 380

The most common symptom of cervical cancer indicated was vaginal bleeding between periods (52.6%), followed by painful coitus (46.3%), bleeding after intercourse (44.7%) and foul smelling vaginal discharge (40%). Least identified were Postmenopausal bleeding (27.1%) and weight loss (25.5%).

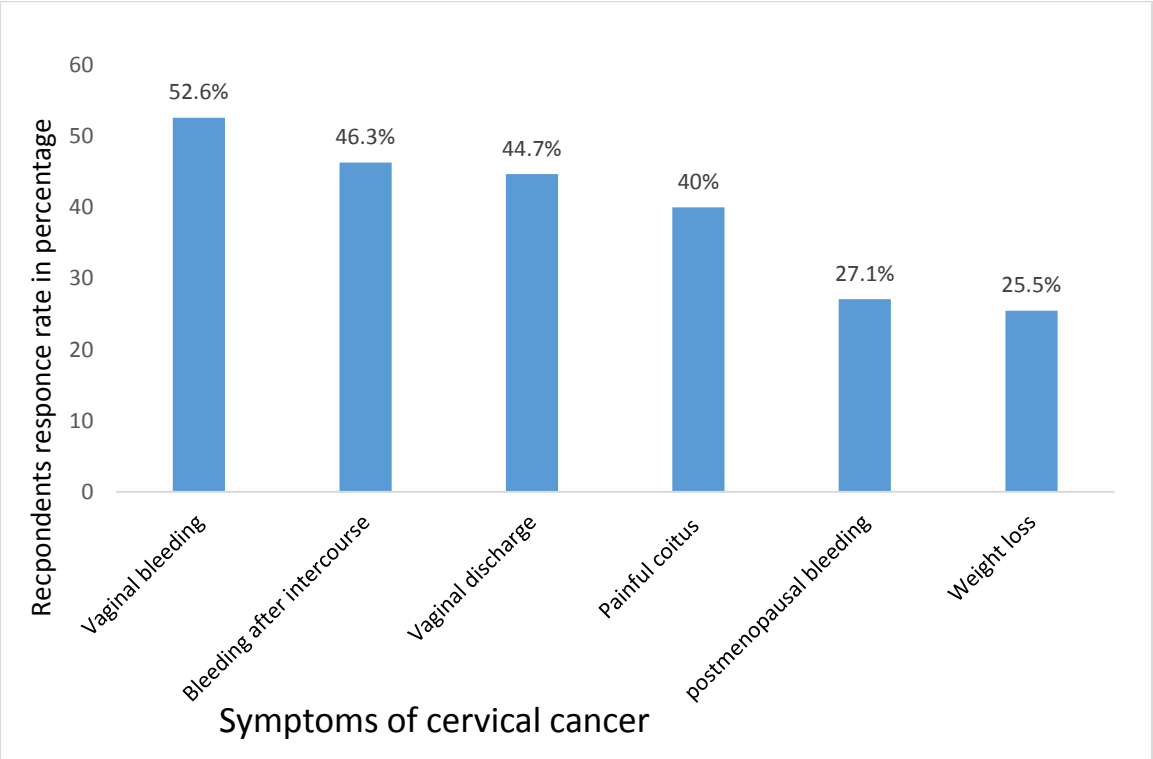

Figure 4 Symptoms of cervical cancer reported by the respondents in percentage

Vaginal bleeding, painful coitus, bleeding after intercourse and vaginal discharge were the most commonly reported symptoms of cervical cancer screening while postmenopausal bleeding and weight loss were the least reported symptoms by the respondents.

Table 6 Source of information for cervical cancer screening

Variables	Frequency (N= 380)	Percentage (%)
Source of information		
Heard from News media (TV, Radio...)		
Yes	116	30.5
No	264	69.5
Read From posters?		
Yes	53	13.9
No	327	86.1
Heard from health workers?		
Yes	87	22.9
No	293	77.1
Heard from family?		
Yes	37	9.7
No	343	90.3
Heard from religious leaders?		
Yes	4	1.1
No	376	98.9
Heard from teacher?		
Yes	211	55.5
No	169	55.5
Read from books?		
Yes	99	26.1
No	281	73.9

4.5. Attitudes of respondents toward cervical cancer screening

A total of six questions put on Likert's scale to assess the attitude of participants towards cervical cancer screening. 210(55.3%) the respondents had positive attitude towards cervical cancer screening. while the rest 170(44.7%) had negative attitude. Of those who had positive attitude124 (59%) students were from school of medicine, 51(24.2%) students were from school of nursing and midwifery and the rest 16.8% from school of public health.

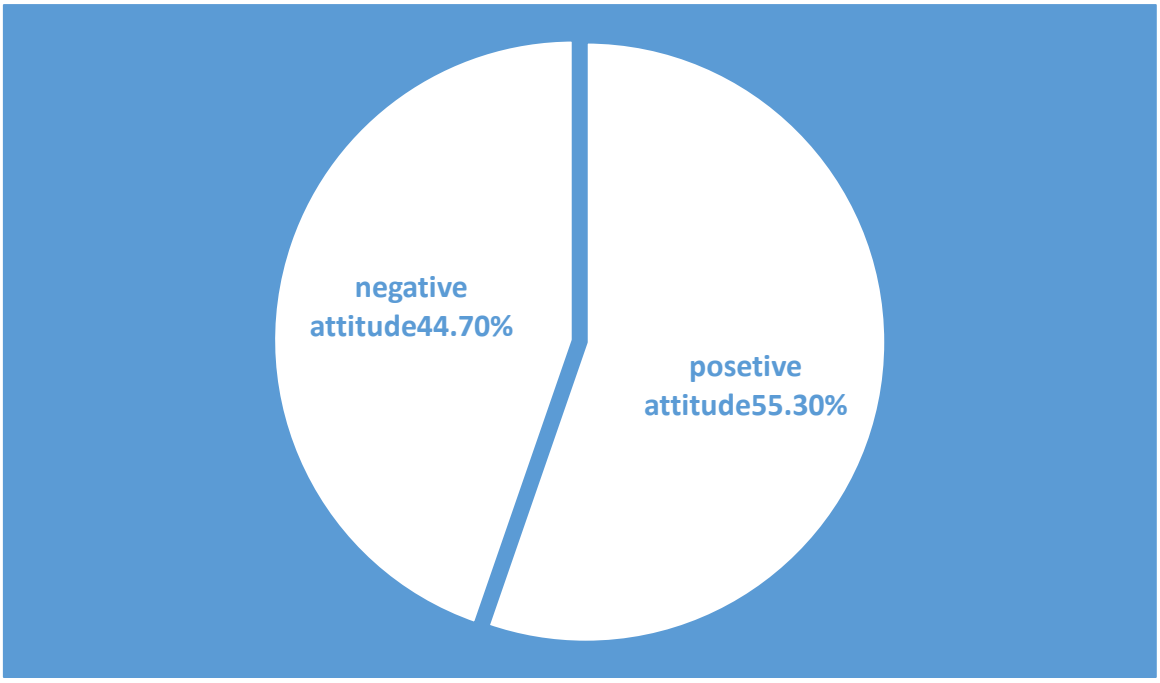

Figure 5 attitudes of respondents towards cervical cancer screening in percentage

Based on the respondents score on the attitude part question, 55.3% of respondents who scored mean and above the mean had positive attitude towards cervical cancer screening. While 44.3% of them who scored below the mean had negative attitude. The minimum and maximum scored on the attitude questions by the respondents were 7 and 30 respectively.

Table 7 Distribution of female student`s Attitude towards cervical cancer screening by age, school and year of study in Hawassa University College of Medicine and Health Sciences, Hawassa Ethiopia2015

Variables	Positive attitude(n=210	Negative attitude(n=170)
Schools		
school of Nursing and Midwifery	51	44
School of Medicine	124	98
School of Public health	35	28
Respondents Age group		
17- 20	93	34
21 -23	95	107
24 -26	22	29
Year of study		
<= 2nd year	112	33
3rd year	67	53
>= 4th year	31	84

Note (n= 210) among those respondents who had positive attitude towards cervical cancer screening and (n=170) for those negative attitude.

4.6 Knowledge of the respondents on cervical cancer screening:

Pap smear was the more commonly identified methods of cervical cancer screening which was responded by 195(51.3%) of the students. While visual inspection of cervix with acetic acid (VIA) was responded by only 82(21.6%) of the students who had awareness on this method of cervical cancer screening. In addition to this the practice of screening among female students in Hawassa University was very poor.

This may indicate that practice of screening awareness is lower and absence/shortage of screening services in the area as well in the country. It may also related to the students personal factors not to be tested for cervical cancer, like fear of results and procedures.

4.7 Association for predictors of knowledge and attitude toward cervical cancer screening

Socio-demographic characteristics of respondents in relation to knowledge towards cervical cancer screening were analyzed using bivariate logistic regression. A significant difference on the knowledge of respondents among different group of age, year of study/educational level, school and income of the respondents was detected with bivariate logistic regression analysis (Table9). A group of respondents with age group 21-23 years (OR=11.47; 95%CI 6.69 – 19.64) 11 times more likely to be knowledgeable than students with age group 17- 20 years. And 24 and above years (OR= 19; 95%CI 8.20-44.20) over 19 times more likely to be knowledgeable as compared to students with age group 17-20 years old. This might be related to the students experiences gained through time in the university and also their clinical exposure.

In addition year three students (OR= 47.86; 95%CI 22.85 – 100.24) 47 times more likely to be knowledgeable than 1st and 2nd year students. And those year four and above students 96 times more likely to be knowledgeable as compared to 1st and 2nd year students (OR= 96; 95% CI 41.31-223.05). This might be due to deference in their educational level gained from different medical courses. More over school of Nursing and Midwifery (OR= 2; 95% CI 0.63 – 6.35), school of Medicine (OR = 1.20; 95% CI 0.31- 4.60). And income of the respondents were identified as having significant association with knowledge of respondents towards cervical cancer screening.

Regarding the attitude of the students toward cervical cancer screening the bivariate logistic regression analysis showed that there is significant relationship between age, year of study, religion, knowledge on importance/benefits of cervical cancer screening, knowledge about cervical cancer and knowledge about HPV of respondents with attitude towards cervical cancer screening. This analysis showed as age of 17 – 20 years (OR= 3.60; 95% CI 1.82 – 7.11) and age of 21 -23 years (OR= 1.17; 95%CI 0.63 – 2.17) that is as age increase the attitude decrease.

In addition year three students (OR=0.37; 95% CI 0.21 – 0.63), year four and above (OR= 0.10; 95% CI 0.06 – 0.19) as the educational level increase the attitude decrease. Religion protestant(OR= 2.52;95% CI 1.36 – 4.66), Muslim(OR=2.35;95% CI 1.14 – 4.84) and catholic(OR= 1.04;95% CI 0.14 – 7.53), knowledge on benefits of cervical cancer screening(OR= 0.18;95% CI 0.11 – 0.29),knowledge about cervical cancer(OR= 0.34;95% CI 0.20 – 0.59) and knowledge on HPV(OR= 0.31;95% CI 0.20 – 0.47) as the knowledge of students increased their attitude toward screening decreased(Table10).

Table 8 Bivariate and Multiple logistic regression of determinant factors of knowledge towards cervical cancer screening among female students in Hawassa University College of Medicine and Health Sciences, Hawassa Ethiopia2015

variables		knowledge		Crude OR [95% CI]	Adjusted OR [95% CI]
		Knowledgeable	Not-knowledgeable		
Age	21 - 23	149	53	11.47[6.69-19.64]*	1.07 [0.41-2.75]
	24- 26	42	9	19[8.20-44.2]	1.20 [0.28-5.05]
	17 -20	25	102	-	-
Income	<450	102	92	0.46 [0.25- 0.85]	1.00 [0.35-2.81]
	451 -900	69	53	0.55[0.28 – 1.04]*	0.90 [0.31-2.59]
	>901	45	19	-	-
Year of study	3rd year	99	21	47.86[22.85-100.24*	**48.83 [19.13-124.63]****
	>=4 year	104	11	96.00[41.31-223.05]*	**98.29 [31.67-305.03]****
	<=2nd year	13	132	-	-
School	Nursing & midwifery	32	63	2 [0.63-6.35]	2.26 [0.82-6.20]
	Medicine	152	70	1.2 [0.31-4.6]	**3.56 [1.56-8.10]****
	Public health	32	31	-	-

Note ** means there is significant association between knowledge of the student towards cervical cancer screening and the indicated variables.

4.8. Multivariate analysis for predictors of knowledge toward cervical cancer screening

Multivariate Logistic regression analysis was also performed to examine the association between Socio-demographic, characteristics of participants and certain variables in relation to knowledge towards cervical cancer screening. In bivariate logistic regression, age, year of study, school and income of the respondents were significantly associated with the students' knowledge towards cervical cancer screening. However in multivariate analysis indicated that only year of study and schools were significantly associated with the respondent's knowledge towards cervical cancer screening. Year three students (OR=48.83; 95%CI 19.13 -124.63) and ≥ year four students (OR= 98.29; 95% CI 31.67-305.03) more likely to be knowledgeable as compared to first and second year students. In addition to this school of medicine (OR= 3.56; 95% CI [1.56- 8.10] were more likely to be knowledgeable than school of public health (Table9).

Table 9 Bivariate and Multiple logistic regression of determinant factors of attitude towards cervical cancer screening among female students in Hawassa University College of Medicine and Health Sciences, Hawassa Ethiopia2015

variables		Attitude		Crude OR [95% CI]	Adjusted OR [95% CI]
		Positive attitude	Negative attitude		
Age	17 - 20	93	34	3.60[1.82-7.11]*	0.38 [0.14 -1.05]
	21- 23	95	107	1.17[0.63-2.17]	0.48 [0.22-1.04]
	24 -26	22	29	-	-
Year of study	3rd year	67	53	0.37[0.21-0.63]*	**0.31 [0.13 -0.75]****
	>=4 year	31	84	0.10[0.06-0.19]*	**0.06 [0.02-0.17]****
	<=2nd year	112	33	-	-
religon	Protestant	41	17	2.52 [1.36-4.66]*	**2.78 [1.37-5.64]****
	Muslim	27	12	2.35 [1.14-4.84]*	**3.29 [1.44 -7.54]****
	catholic	10	3	1.04[0.14- 7.53]*	**10.97[2.50 - 48.19]****
	orthodox	130	136	1	1
Knowledge on benefits of CCa screening	Right	83	132	0.18[0.11-0.29]*	**0.37 [0.21-0.66]****
	Wrong	127	38	-	-
Heard about CCa	Had heard	145	147	0.34[0.20 – 0.59]	0.70[0.34 -1.42]
	Never heard	65	23	-	-
HPV as Causes	know	78	111	0.31[0.20 – 0.47]	1.13[0.57- 2.23]
	Not know	132	59	-	-

Note ** means that there is a significant association between the attitude of the students towards cervical cancer screening and the indicated variables.

4.9 Multivariate analysis for predictors of attitude of the students toward cervical cancer screening

Multivariate Logistic regression analysis was also performed to examine the association between Socio-demographic, characteristics of participants and their attitude towards cervical cancer screening. Therefore multivariate analysis were done and indicated that year of study such as being year three student (AOR= 0.31; 95% CI 0.13- 0.75) and year four-six (AOR = 0.06;95% CI 0.02-0.17), protestant religion(AOR =2.78;95% CI 1.37- 5.64), Muslim(AOR= 3.29;95% CI 1.44 -7.54), catholic(AOR= 10.97;95% CI 2.50 - 48.19) and knowledge on importance/benefits of cervical cancer screening(AOR= 0.37**;** 95% CI 0.21- 0.66) were significantly associated with the student's attitude towards cervical cancer screening(Table9).

As the year of study and knowledge of the respondents increase their attitude towards cervical cancer screening were decreasing. This might related with different personal factors of the respondents. In addition students who were followers of protestant, Muslim and catholic were more likely to have positive attitude towards cervical cancer screening than those orthodox religion followers. This might be due to difference in believe, cultures and the way of teaching people in their specific religion place by religious leaders even though this may need further studies.

4.10 Discussion

This study was conducted to assess the knowledge, attitude, practice of cervical cancer screening and its associated factors among female students in Hawassa University College of Medicine and Health Sciences.

The findings from this research showed that majority 292(76.8%) of the female students in Hawassa University College of Medicine and Health Sciences had heard about cervical cancer. which is somehow lower when compared with similar study done in Ukraine among female medical students of Crimea State Medical University where 80 % of the respondents had heard about cervical cancer (35). This gap might due to deference in nature of the population, prevalence of the disease, availability of the services and information on cervical cancer screening. But only 202(53.3%) of the respondents were heard about cervical cancer screening, and almost near to half 183(48.2%) of the respondent were not knew whether there is screening procedures to detect early stages of cervical cancer. This might be an indication that there may inaccessibility of screening services in the country.

The knowledge of participants on risk factors for cervical cancer indicated that 67.9% of respondents had had knowledge on the risk factors. And among these risk factors having multiple sexual partners, initiation of sexual intercourse at early age and Human papilloma virus were mainly reported risk factors for cervical cancer by 49.7% and 47.4% of respondents respectively. Which indicated that lower than previous similar study done in Ukraine among female medical students of Crimea State Medical University (35) and other similar research which were done among female university graduates of Bhutan in South Africa (36). Similar findings reported that higher knowledge about risk factors of cervical cancer was HPV (37).

Knowledge of the students on symptoms of cervical cancer 258(67.9%) of them know the symptoms. and vaginal bleeding between periods, pain full coitus and bleeding after intercourse reported by 52.6%, 46.3% and 44.7% of respondents respectively. This finding is almost similar with other which done in Malaysia (37).

Concerning methods of prevention almost more than half of the participants had knowledge and avoiding human papilloma virus infection and multiple sexual partner and vaccination against HPV were the most commonly reported means of prevention by the participant students.

On the other hand regarding the sexual activity information indicates that 79(20%) respondents were had sexual intercourse and among those ever had intercourse 68(86.1%) had intercourse with only one partner, 6.3% with two partners and the remaining 7.6% were had intercourse with three and more partners. These figures are less than other similar study done in other African and sub-Saharan African female students. A study done in South Africa among female university students indicated that 28% respondents had multiple sexual partner. On other study done among undergraduate students in Nigeria found that 54%were sexually active and 43% had multiple sex partners, study done in South Africa Mangosuthu (38). This is may be due to differences in the population's exposure to technology, culture and also the participant's residency area.

Regarding the source of information about cervical cancer for the student's, majority of the students indicated that (55.5%) of participants teachers, (30.5%) news media like TV, radio and (22.9%) of participants health worker were their source of information for knowledge on cervical cancer and its screening. Which is somehow comparable with findings in study done in Addis Ababa among women who visited selected hospitals (39). This figure may also indicated that health workers and media were not done well and has to contribute more on the education and information on CCS.

According to this study there a significant association between year of study and knowledge of the respondents towards cervical cancer screening, year three students (AOR=48.83; 95%CI 19.13 - 124.63) and ≥ year four students (AOR= 98.29; 95% CI 31.67-305.03). Sample from those year three students in the university were over forty eight times (AOR=48.83) more likely to be knowledgeable about cervical cancer as compared to first and second year students. Moreover those students in 4th 5th and 6th years of study were over ninety eight times (AOR= 98.29; 95% CI 31.67-305.03) knew more about cervical cancer screening than first and second year students. In addition students from school of medicine (OR= 3.56 [1.56-8.10] were more likely to be knowledgeable on cervical cancer than those from school of public health. This may indicate the student's level of exposure to medical courses that may influences their knowledge level towards cervical cancer screening.

The attitude of the female student in this study founded that only 210(55.3%) of the students had positive attitude. Which is much lower than similar study done among reproductive health clients in Addis Ababa MCH selected hospitals (39). And the remaining 170(44.7%) of the female students had negative attitude towards prevention and screening of cervical cancer.

Of those students about 37.1% of the participant students agree on that having smear test is important to detect cervical cancer and the rest 4.7%, 27.3% were not agree and neutral respectively. Only 23.3% of the students agreed up on importance of national screening program in the future and about 56% disagree on this issue.

May be due to lack of cervical cancer control policy, strategies and programs in the country. As a result low coverage given by mass media and other concerned bodies. It may also due to inadequate knowledge about the disease process and outcome.

The findings of this study indicated that there were a significant difference on the attitude of respondents towards cervical cancer screening among different year of study/educational level, religion, and knowledge on importance/benefits of screening with multivariate logistic regression analysis. Year three students (AOR= 0.31) less likely to have positive attitude towards cervical cancer screening than first and second year students. In addition year four-six students (AOR=0.06) less likely to have positive attitude towards cervical cancer screening when compared with first and second year students. This might be due to ignorance of the senior students about cervical cancer as they stay longer and other personal factors**.**

Furthermore those protestant religion follower students were almost three times (AOR =2.78) more likely to have positive attitude towards cervical cancer screening than those orthodox religion followers. On the other hand those Muslim religion follower students were over three times (AOR = 3.29) and those Catholic religion follower students were over ten times (AOR =10.97) more likely to have positive attitude towards cervical cancer screening as compared to those orthodox religion follower students. Moreover those students had knowledge on importance/benefits of cervical cancer screening were (AOR= 0.37**;** 95% CI 0.21- 0.66) less likely to have positive attitude as compared to students those who had no knowledge on the benefits of cervical cancer screening. This might also due to personal factors like fear of the test procedures and negligence of those students who had knowledge of cervical cancer and its screening benefits.

As we can see from the result of this study all participants had poor practice of cervical cancer screening. Surprisingly no one in the study participants had done screening of cervical cancer. Even

the knowledge of the respondents on cervical cancer screening and screening methods were not that much. This might indicate that inaccessibility of screening services to the students in the institution as well at the national level. It may also related to the respondent's inadequate knowledge on the benefits of screening.

4.11 Limitations and strengths of the study of the study

Limitation of the study

Primarily the findings of this study may not be generalized to all university students of Ethiopia as the socio-cultural situations around the different universities in Ethiopia vary greatly and those private universities were not included in this study. Secondly, since the survey involved a sensitive matter there may be subject to social desirability bias.

Strength of the study

The study has tried to identify the knowledge, attitude, practice of cervical cancer screening and its associated factors. Including students from departments/schools, the whole years of study based on their proportion and applying simple random sampling technique to have representative sample of the source population is one of the major strength of this study. By ensuring privacy during the completion of the questionnaire and using the anonymous self-administered survey, an attempt was made to minimize social desirable bias.

4.12. Conclusion:

- ☞ More than half of the respondents knew about risk factors and symptoms of cervical cancer and most of the students heard about cervical cancer.
- ☞ But majority of the respondents were not heard weather there is screening methods for early detection of cervical cancer and there were poor practice of screening.
- ☞ Only 21.6% of the participants knew VIA and 51.3% responded Pap smear.
- ☞ The poor screening practice may indicate that inadequate knowledge on screening methods and benefits of screening. It may also indicate inaccessibility/ shortage of screening services and in that area as well at the country level.
- ☞ This study also showed that low level of attitude towards cervical cancer screening among the students.

In general most of the students were not identified screening methods properly which indicated inadequate knowledge on screening methods. The study suggests that no screening practiced among the students and most of them had negative attitude toward screening practice. The study also revealed that field of study, year of study/ educational level were significantly associated with knowledge of the students. Knowledge on benefit of screening, religion and year of study were significantly associated with attitude toward screening. Therefore accessibility of the screening services need to be considered at the national and regional level

4.13 Recommendations:

Based on the findings and discussion about this study, more should be done on awareness creation about cervical cancer screening and establishing national screening programs.

1. Establishing accessible screening program, Bothe at national and regional level as well in higher institution in order to target students to cervical cancer screening for Ministry of health.
2. Developing policies on health educations and promotions targeting on prevention of cervical cancer in higher institutions in order to target students to create awareness and changing their attitude on cervical cancer screening and prevention.
3. Further study should be conducted at the community and national level to target all females and other findings.

Reference

1. AU,REPORT ON ADRRESSSING CANCER CHALLEGES IN AFRICA, Addis Ababa, Ethiopia, 2013)
2. Professor David J Kerr, Professor of Cancer Medicine, Professor Alison N Fiander, 2009, AFROX Towards Prevention of Cervical Cancer in Africa page 26-27
3. Ahmedin Jemal, DVM; Freddie Bray; David Forman; Meg O'Brien; Jacques Ferlay, BS2; Melissa Center; and D. Maxwell Parkin, Cancer Burden in Africa and Opportunities for Prevention, review article, 2012)
4. Z.Iliyasu, I.S Anubakar, M.H.Aliyu &H.S. Galadananci 2010, Cervical cancer risk perception and predictors of human papillioma virus vaccine acceptance among female university students in northern Nigeria,J. of obstetrics & Gynecology Vol.30(8): 817-862
5. MAREE J.E., LUX.M WRIGHT S.C.D 2011 combining breast & cervical screening in attempt to increase cervical cancer screening up take. An intervention study in a South African context, European Journal of Cancer care.
6. Franco EL. 2010, Persistent HPV Infection and Cervical Cancer Risk: Is the Scientific Rationale for Changing the Screening Paradigm Enough? Journal of the National Cancer Institute, 102(19):1451–1453.
7. Lataifeh, Z. Amarin &Y.Khader (2009), A Survey of knowledge and attitude of Jordanian obstetricians and gynecologists to cervical cancer screening, European Journal of Cancer Care vol. 14 (2):389-97
8. WHO/ICO HPV information center, 2010, Human papilloma virus and related cancers, summary report update.
9. Jaypee brothers, 2006 Taber`s cyclopedic Medical Dictionary, 20th Editition, vol 2,first Indian Edition, page 1582
10. Katherine B.Roland, Ashwinisoman,Vicki BBenard, & Mona Saraiya, 2011, Human papillomavirus and popaniicoloaou tests screening interval recommendations in the united states, General Gynecology, vol 205:447,el-8
11. B.M.Audu, A.U.EL-Nafaty ,1M.Khalil and J.A.Otubu, 1999, knowledge and attitude to cervical cancer screening among women in Maiduguri, Nigeria, Journal of obstentics andGynacology, Vo 19 No3, 295-297.

12. Frehiwot Getahun 1, Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia
13. Chen, L. M., et al. "Endometrial cancer: epidemiology, risk factors, clinical features,diagnosis, and screening." (2011).
14. Omigbodun, O.A. Ayinde and A.O. 2003 knowledge attitude and practices related to prevention of cancer of the cervix among female health workers in Ibadan, European Journal of Cancer Care vol. 16 (2):395-412
15. Lisa D.letine a,b,o,Scott G.Chudnoffa,kathleen Taylor C, Michel Banganized, Erika Banks, 2006, cervical cancer and its screening (5), 345 -352
16. Alan DeCherney, Lauren Nathan, T. Murphy Goodwin, Neri Laufer: CURRENT Diagnosis & Treatment Obstetrics & Gynecology, Tenth Edition (LANGE CURRENT Series) [Print Replica] [Kindle Edition] September 1, 2012
17. H. Human papilloma vinus and related casancers, summary report update2010.
18. Waktola EA, Mihret W, Bekele L: HPV and burden of cervical cancer in east Africa, Gynecol Oncol 2005, 99(3 Suppl 1):S201–S202
19. WHO/ICO: uman papiloma virus and related cancers in Ethiopia. In Summary report; 2009
20. Z.Philips, M.avis & D.K.Whynes, 2005 knowledge of cervical cancer & screening among women in east central England, International Journal of Gynecological cancer volume 15, page 639-645.
21. Gakidou E, Nordhagen S, Obermeyer Z (2008). Coverage of cervical cancer screening in 57 countries: low average Levels and large inequalities. *PLoS Med*, **5**, e132 doi:10.1371/ journal.pmed.0050132
22. Li-Wei Wu, Lan-Ping Lin, Si-Fan Chen, Shang-Wei Hsu, Ching-Hui Loh, Chia-Ling Wu, Jin-Ding Lin, 2011, Knowledge and attitudes regarding cervical cancer screening among women with physical disabilities living in the community. Nov 22;33 (2):376-381
23. Maha Abdelrahman Amin, 2008, Knowledge, Beliefs, Attitudes and Perceptions About Breast and Cervical Cancer and Screening Among Arabic Speaking Immigrant Women in Halifax, Nova Scotia.
24. Ahmedin Jemal, Freddie Bray, Melissa M. Center,Jacques, Ferlay, Elizabeth Ward,David Forman,2011, Global cancer statistics, A Cancer Journal for Clinicians Volume 61, 2, pages 69–90.
25. Ali F, Kuelker R, Wassie B. Understanding cervical cancer in the context of developing countries. Ann Trop Med public health 2012; 5:3-15.
26. G. NDOH, "National Department of Health Strategic Plan 2010/11-2012/13."
27. Hacer Gulen Savas, Lale Taskin, Determining Nurse-Midwives' Knowledge of the Pap-Smear Test and their Rate of Being Tested in Turkey, *Asian Pacific Journal of Cancer Prevention, Vol 12, 2011*)
28. American College of Obstetricians and Gynecologists2009, Cervical Cytology, Screening, 114(6):1409-1420.
29. Diane R Brown, Rula M Wilson, Makini A S Boothe, Caroline E S Harris, 2011, cervical cancer screening among ethnically diverse black women: knowledge, attitudes, beliefs, and practices. J Natl Med Assoc. ;103 (8):719-28

30. Oche M. O., Kaoje A. U., Gana G and Ango J. T., Cancer of the cervix and cervical screening: Current knowledge, attitude and practices of female health workers in Sokoto, Nigeria, International Journal of Medicine and Medical Sciences, 2013
31. Catherine McCarey, David Pirek, Pierre Marie Tebeu, Michel Boulvain, Anderson Sama Doh and Patrick Petignat, Awareness of HPV and cervical cancer prevention among Cameroonian healthcare workers, BMC, women's health, 2011, 11:45)
32. Urasa M, Darj E, Knowledge of cervical cancer and screening practices of nurses at a regional hospital in Tanzania, *African Health Sciences* 2011; 11(1): 48 - 57)
33. Nguyen Toan Tran, Richard Taylor, Song Il Choe, Hae Suk Pyo, Ok Suk Kim, Hyon Chol So, Knowledge, Attitude and Practice (KAP) Concerning Cervical Cancer and Screening among Rural and Urban Female Healthcare Practitioners in the Democratic People's Republic of Korea Asian Pacific J Cancer Prev,2011, 12, 3023-3028)
34. Boris K Tchounga, Antoine Jaquet, Patrick A Coffie, Apollinaire Horo, Catherine Sauvaget, Innocent Adoubi, Privat Guie, François Dabis, Annie J Sasco and Didier K Ekouevi, Cervical cancer prevention in reproductive health services: knowledge, attitudes and practices of midwives in Côte d'Ivoire, West Africa, BMC, health service research, 2014.
35. Ogunfowora Olumide Taiwo, Victory I. Wilcox, Olajumoke Alice Ogunji. "Knowledge and Attitude of Female Medical Students of Crimea State Medical University, Ukraine to Cervical Cancer and Examination". Int J Sci Stud. 2014;2(3):15-24.
36. Dhendup and Ts hering: Cervical cancer knowledge and screening behaviors among female university graduates of year 2012 attending national graduate orientation program, Bhutan.
37. Redhwan Ahmed Al-Naggar1, WY Low2*, Zaleha Md Isa3, Knowledge and Barriers Towards Cervical Cancer Screening Among Young Women in Malaysia, Asian Pacific Journal of Cancer Prevention, Vol 11, 2010
38. Muhammad Ehsanul Hoque, ervical Cancer Awareness and Preventive Behaviour among Female University Students in South Africa sian Pacific J Cancer Prev, 11, 127-130
39. Hirut Gemeda (BScMW) :Assessment of knowledge, attitude and practice towards screening on cervical cancer among women of age groups 15 - 69 in selected MCH hospitals of Addis Ababa town June 2012

Annex. Questionnaire

Addis Ababa University School of Allied Health Sciences College of Health Science

Department of Nursing and Midwifery Postgraduate Program

Questionnaire to Assess the Knowledge, Attitudes, Practice of Cervical Cancer Screening and its associated factors among female students in Hawassa University College of Medicine and Health Sciences Hawassa Ethiopia

To be filled by female students of Hawassa University College of Medicine and Health Sciences.

Thank you for allowing us to share your precious time and for your willingness to participate in this study. The objectives of this study to assess the Knowledge, Attitudes, practice and Associated factors towards Cervical Cancer Screening among female students in Hawassa University College of Medicine and Health Sciences and you are chosen to participate in this study. The choice is made randomly using a lottery method.

The purpose of this study is to generate information on Knowledge Attitudes, Practice towards Cervical Cancer screening among female students. In order to attain effectively the goal, we are asking you for your generous help. We would like to assure you that privacy will be strictly be maintained throughout. There is no need to put your name or roll number on the format. No individual response will be reported. It is your full right to participate or refuse in the study. If you don't want to participate in the study you can put the format on the table upside down. But your honest participation will have a great contribution. So please take a few minute to answer this question. If there is anything that require clarification please don't hesitate to ask the facilitator for clarification.

Do you wish to participate in the study?

☐ Yes, I want to participate in the study (please go to the next page)

☐ No, I don't want to participate.

THANK YOU VERY MUCH!!

Part one:

I: SOCIO-DEMOGRAPHIC INFORMATION OF RESPONDENTS

Instruction: please, encircle the number listed before the option to indicate your response and fill the blank spaces for theses without option.

No	Questions	Response/ option
101	Age	_____ in complete years
102	Religion	1. Orthodox 2. Protestant 3. Muslim 4. Catholic 5. Others(specify)_____
103	Ethnicity	1. Oromo 2. Tigre 3. Gurage 4. Sidama 5. Wolayta 6. Other (specify)----------
104	What is your department?	1. Midwife 2. Medicine 3. Nursing 4. Psychiatric nurse 5. Ophthalmology 6. Health officer 7. Anesthesia 8. Radiography 9. Environmental 10. Laboratory department
105	What is your Year of study?	1. First year 2. Second year 3. Third year 4. Forth year
106	Do you have sexual partner?	1. Yes 2. No ---------if no skip to Q 109
107	If you have partner what is your Partner's educational level	1. Cannot read and write 2. Able to read and write 3. Primary (1-8) 4. Secondary (9-12) 5. College and above
108	Your partner's Field of study?	_____

109	Are you married?	1. Yes 2. No
110	Do you get monthly income?	1. Yes 2. No--------skip to Q 1012
111	If your answer is yes for Q1010, How much you get?	_____
112	Do you smoke cigarette / use any substance?	1. Yes 2. No ----if no skip to Q 201
113	If your answer is yes for Q 1012 Which substance do you use? (**more than one answer is possible**)	1. Chat 2. Alcohols 3. Marijuana 4. Narcotic drug 5. Smoking cigarette 6. Other(specify)----------
114	For how many years did you used it?	_____in complete years

II: REPRODUCTIVE HISTORY OF RESPONDENTS

Instruction: please, encircle the number listed before the option to indicate your response and fill the blank spaces for theses without option.

No	**Questions**	**Response/ option**
201	At what age you have seen your first menstruation?	_____ age in complete years
202	Have you ever had sexual intercourse?	1. Yes 2. No -----if no skip to part tow Q
203	If yes at what age you first had sexual intercourse?	_____age in complete years
204	How many people in total have you ever had sexual intercourse?	1. With one person 2. With two people 3. With three people 4. With four people 5. With five or more people 6. I don't know
205	Have you been pregnant before?	1. Yes 2. No -----if no skip to Q 2011
206	If yes how many times have you been pregnant?	_____
207	Have you ever given birth before?	1. Yes 2. No------ if no skip to Q 209
208	If yes how many times?	_____
209	Have you ever practiced abortion?	1. Yes 2. No----- if no skip to Q 2011

210	If yes how many times you practiced?	_____
211	Have you ever used modern contraceptive?	1. Yes 2. No------if no skip to part tow Q
212	If yes which type of modern contraceptive you were used? (**more than one answer is possible**)	1. Combined oral contraceptives(COC) 2. Progestin only pills (POP) 3. Injectable 4. Implants 5. Intra uterine contraceptive device (IUCD) 6. Others(specify):
213	For how long	_____

Part two

KNOWLEDGE ASSESSMENT TOOL ON CERVICAL CANCER

Instruction: please, encircle the number listed before the option to indicate your response and <u>fill the blank spaces for theses without option</u>.

No	**Questions**	**Response/ option**
301	Which problems of the female genital tract do you know? (**more than one answer is possible**)	1. Leucorrhoea 2. infections or sexually transmitted diseases 3. cancer of the uterine cervix 4. ovarian cysts 5. uterine tumour or myoma 6. If any other(specify)-------- 7. I don't know
302	Have you ever heard about cancer of the uterine cervix?	1. Yes 2. No -------if no skip to Q 309
303	If yes where did you hear about it? (**more than one answer is possible**)	1. News Media 2. Brochures, posters and other printed 3. Health workers 4. Family 5. Religious leaders 6. Teachers 7. Other (specify)----------
304	What are the causes of cervical cancer? (**more than one answer is possible**)	1. Any sexual partners 2. Early initiation of sexual intercourse 3. Having multiple sexual partner 4. Partner having sex with cervical cancer female 5. Sexually transmitted diseases 6. HIV infection 7. Human Papilloma virus 8. Old age 9. Others (specify)_____ 10. I don't know
		1. Vaginal bleeding 2. Post coital bleeding 3. Vaginal foul smelling discharges 4. Painful coitus 5. Post-menopausal bleeding

305	What are the symptoms of cancer of the cervix? **(more than one answer is possible**)	6. Weight loss 7. Others (specify)---------- 8. I Don't know
306	How can cervical cancer be treated?	1. Surgery 2. Chemotherapy 3. Radiotherapy 4. Others (specify)---------- 5. I don't know
307	What will be the outcome of cervical cancer if not treated early?	1. Metastasis 2. Chronic illness 3. Self-cure 4. Bleeding 5. Death 6. If others (specify)---------- 7. I don't know
308	How can cervical cancer be prevented? (**more than one answer is possible)**	1. Avoid multiple sexual partners 2. Avoid Human papilloma virus infection 3. Use condoms 4. Vaccination 5. Others(specify) ---------- 6. I don't know
309	Have you ever heard about cervical smears?	1. Yes 2. No
310	Are there screening procedures to detect early stages of cervical cancer (premalignant cervical lesion)?	1. Yes 2. No ----- if no skip to Q 3016 3. I don't know
311	If yes what are these procedures?	1. Visual inspection of cervix with acetic acid 2. Pap Smear 3. Other(specify)-----

		4. Don't know
312	From whom you have heard these procedures?	1. News media like TV, Radio-- 2. From teacher 3. Reading from books 4. Others(specify) ----
313	Who should be screened?	1.Women of 25 years and above 2. Prostitutes 3. Elderly women 4. Others (specify if any)------- 5. I don't know
314	How frequent is screening for early stages (premalignant cervical lesion done)?	1. every year 2. once in two years 3. Once every three years 4. Once every 5 years 5. Any other
315	How expensive do you think cancer of the cervix screening?	1. It is free of charge 2. It is reasonably priced 3. It is somewhat/moderately expensive 4. It is very expensive 5. don't know
316	At what age are women most likely to have cervical cancer?	_____
317	Why these screenings are done for women?	1. To check cervix/early change of cancer in cervix 2. To check infections passed through sex 3. To check infections passed through blood transfusion 4. Others (specify)---------- 5. Do not know

Part three: ATTITUDE ASSESSMENT TOOL ON CERVICAL CANCER SCREENINGS

Instruction: please, encircle the number listed before the option to indicate your response

No	Questions	Response/ option
401	Consulting a medical doctor I s important in case of vaginal bleeding between periods is important.	1. Strongly disagree 2. Disagree 3. Neutral 4. Strongly agree 5. Agree
402	It is important to consult a medical doctor regularly for screening of cervical cancer.	1. Strongly disagree 2. Disagree 3. Neutral **4.** Strongly agree **5.** Agree
403	Having a smear test is not as such important to detect cervical cancer.	1. Strongly agree 2. Agree 3. Neutral 4. Strongly disagree 5. Disagree
404	It will be important to made available national cervical cancer screening program in the future.	1. Strongly disagree 2. Disagree 3. Neutral 4. Strongly agree 5. Agree
405	It is important to take vaccine against human papilloma virus if available.	1. Strongly disagree 2. Disagree 3. Neutral 4. Strongly agree 5. Agree

PART FOUR

ASSESSMENT TOOLS ON PRACTICE CERVICAL CANER SCREENINGS

Instruction please, encircle the number listed before the option to indicate your response and <u>fill the blank spaces for theses without option</u>.

No	**Questions**	**Response/ option**
501	Have you ever had any gynaecological examination before?	1. Yes 2. No --if no skip to Q 505
502	If yes when was your last gynaecological examination?	1. Less than two years 2. More than three years 3. In the last four years 4. Not at all
503	Have you ever got a Papanicolaou test (Pap) smear test?	1. Yes 2. No
504	If yes for Q 503	How many times?---------
505	Do you use chemicals of plants for your intimate care?	1. Yes 2. No

DECLARATION

I, the undersigned, declared that this thesis is my original work and has not been presented for a degree in this or any other university, and all source materials used for the thesis have been fully acknowledged.

Name of the student: Shimeles Tsegaye

Signature: _____

Place: Addis Ababa

Date of submission: _____

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

Advisor Name: Mr. Daniel Mengistu (Assistant professor)

Signature _____

Date _____