ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF NURSING AND MIDWIFERY

A CROSS-SECTIONAL STUDY ON KNOWLEDGE AND PREVENTIVE PRACTICE OF FEMALE NURSES' TOWARDS CERVICAL CANCER IN THE SELECTED GOVERNMENT HOSPITALS IN ADDIS ABABA, ETHIOPIA, 2011

BY:

MIGNOTE HAILU

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This thesis by _____ is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Master of Science in adult health nursing.

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List of Acronyms

ACCP - Alliance for Cervical Cancer Prevention

AIDS - Acquired Immune Deficiency Syndrome

CSA - Central Statistical Agency of Ethiopia

DNA- Deoxy- ribonucleic acid

HIV- Human Immunodeficiency Virus

HPV-Human Papilloma Virus

LDCs - less developed countries

LEEP-Loop Electrosurgical Excision Procedure

STI - Sexually Transmitted Infection

TB -Tuberculosis

WHO -World Health Organization

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Abstract

Introduction: Cervical cancer is the first most common cancer in women in sub-Saharan Africa. In Ethiopia, the incidence of cervical cancer is high, 35.9 per 100,000 women. Low level of awareness, lack of effective screening programs to detect precancerous conditions, overshadowed by other health problems (such as acquired immune deficiency syndrome, tuberculosis and malaria) and insufficient attention to women's health are the possible factors for the observed higher incidence rate of cervical cancer in the country.

Objective: To explore the knowledge of cervical cancer, its preventive practice and associated factors among nurses in government hospitals.

Methods: A cross-sectional descriptive study was conducted on knowledge and preventive practice of female nurses towards cervical cancer, from October 2010 to May 2011 in Addis Ababa, Ethiopia. The study was conducted in 4 randomly selected government hospitals. The study subject from each hospital was selected by proportional to size allocation. A total of 275 female nurses were selected to complete self administered questionnaire by six trained data collectors and two supervisors. Data was collected on March, 2011. The questionnaires were checked for completeness, cleaned manually and entered in to SPSS windows version 16.0 for analysis.

Results: The finding of the study has indicated that hundred fifty eight (60.8%) nurses had knowledge of cervical cancer but only 57 (21.9%) reported practicing prevention of cervical cancer. Among the socio demographic and profession related factors, marital status and training has a strong and positive association on the knowledge of cervical cancer. In addition, other

variables like education, family history, unit of work and ever cared patient with cervical cancer were shown to be significant and positive predictors of knowledge of cervical cancer. Variables like age, experience, being diagnosed with cervical cancer, ever cared patient with cervical cancer and ever visited to health institution were revealed to be significant and positive predictors of preventive practice of cervical cancer.

Conclusion and recommendation: From this finding it is possible to conclude that; more than half of the respondents were Knowledgeable but preventive practice of Nurse's for cervical cancer was very poor. Consistent and frequent upgrading programs should be implemented; further research has to be done and the policy makers has to pay attention in designing strategies to strengthen nurses awareness on preventive measures.

Key words: Cervical cancer, knowledge, preventive practice

CHAPTER ONE

1. Introduction

1.1. Background

Cancer is a disease that happens when body cells don't work right. The cells divide really fast and grow out of control. These extra cells form a tumor [1]. Cervical cancer is malignant neoplasm of the cervix uteri or cervical area. It may present with vaginal bleeding, but symptoms may be absent until the cancer is in its advanced stages**.** Also, contact bleeding or (rarely) a vaginal mass, moderate pain during sexual intercourse and vaginal discharge are symptoms of cervical cancer. In advanced disease, metastases may be present in the abdomen, lungs or elsewhere [2].

Cancer of the cervix results from persistent infection with specific strains of human papilloma virus (HPV), a large family of viruses, of which other strains cause benign warts [3]. Human Papilloma Virus (HPV) is a sexually transmitted infection and the most common cause of cervical cancer. Women living with HIV are more readily infected with certain types of HPV, more likely to develop precancerous lesions, and more vulnerable to rapid development of these lesions than HIV-negative women [4].

Although cervical cancers start from cells with pre-cancerous changes (pre-cancers), only some of the women with pre-cancers of the cervix will develop cancer. The change from cervical pre-cancer to cervical cancer usually takes several years but it can happen in less than a year. For most women, pre-cancerous cells will go away without any treatment. Still, in some women pre-

cancers turn into true (invasive) cancers. Treating all pre-cancers can prevent almost all true cancers [5].

A well-proven way to prevent cervix cancer is to have testing (screening) to find pre-cancers before they can turn into invasive cancer. The Pap test (or Pap smear) is the most common way to do this. If a pre-cancer is found it can be treated, stopping cervical cancer before it really starts. Most invasive cervical cancers are found in women who have not had regular Pap tests [6].

While the Pap smear is an effective screening test, confirmation of the diagnosis of cervical cancer or pre-cancer requires a biopsy of the cervix. This is often done through colposcopy, a magnified visual inspection of the cervix aided by using a dilute acetic acid (e.g. vinegar) solution to highlight abnormal cells on the surface of the cervix. Treatment consists of surgery (including *local excision*) in early stages and chemotherapy and radiotherapy in advanced stages of the disease [2].

Causal role of infection with high risk Human Papilloma Virus (HPV) strains in cervical cancer has been targeted in the past two decades. A number of Primary and Secondary preventive approaches have been developed to prevent and treat infection with HPV. High income countries have successfully reduced the cervical cancer burden by over 70 percent using one such approach of organized cytological based pap smears. A number of preventive strategies are currently being practiced in developed countries including use of two novel prophylactic vaccines and a number of secondary preventive strategies. Most of these interventions are currently not feasible in low income countries because of the already limited health care infrastructure. At the same time it is imperative that our health care professionals are aware of

these advances and especially of those interventions which can be utilized in low-resource settings [7].

Global evidence demonstrates that the key to reduce cervical cancer morbidity and mortality is early detection coupled with timely treatment of cervical precancerous lesions. Cervical cytology often referred to as the Pap smear is perhaps the most well known of available screening methods. However, newer screening techniques such as visual inspection methods and HPV-DNA testing have also demonstrated potential for early detection in many settings. These technologies are currently being assessed by the Alliance for Cervical Cancer Prevention (ACCP) for their use in developing countries. As critical as detection is, the need for women with positive results to receive adequate and timely treatment for dysplasia, is paramount. Even in low resource settings, treatment can be offered using low morbidity outpatient procedures such as cryotherapy or Loop Electrosurgical Excision Procedure (LEEP) [8].

1.2. Statement of the problem

Cervical cancer is one of the leading causes of morbidity and mortality amongst the gynecological cancers worldwide. It is the second most common cancer worldwide in women over 15 years of age and every two minutes a woman dies of cervical cancer [7]. Sexually active women may be at risk of being affected by cervical cancer or the early stages of the disease irrespective of age and lifestyle. In today's world, cervical cancer is primarily a disease found in low-income countries. Of the nearly 500,000 new cases that occur annually, 83% are in the developing world, as are 85% of the 274,000 deaths associated with cervical cancer [9].

In less developed countries (LDCs), cervical cancer is the leading cause of cancer-related death. It is a disease of the female reproductive organs, with the burden of it borne disproportionately by women in their perimenopausal years: peak cancer incidence occurs at age 50-54. Until recently, cervical cancer could only be prevented by screening and treating all women for cancers and pre-cancers. Because the disease is often silent ("asymptomatic") until it is quite advanced, and because of broader gaps in women's health services, women die from the disease. Some seek and receive treatment late – others do not receive any treatment, and still others die without ever knowing their diagnosis. Many of these deaths are preventable, as is the physical pain, discomfort and social stigma which often come with advanced disease [6].

Cervical cancer is the most common occurring cancer among women in sub-Saharan Africa, accounting for an estimated 20% to 25% of all new cancers among women. The World Health Organization estimates the annual age-standardized cervical cancer incidence rate in Ghana as 29.3 per 100,000, whereas the mortality rate is 23.8 per 100,000. Some studies have reported that

among gynecologic cancers diagnosed at a large hospital in Ghana, cervical cancer accounts for about 60% of cases and 70% of these cases are diagnosed at an advanced stage [10].

In a study conducted in Nigeria, the estimated incidence rate of cervical cancer is 25 per 100,000 women; with an estimated 8000 new cases of cervical cancer diagnosed in the country each year. Equally high rates of cervical cancer have been reported from several African countries including Uganda, Malawi, Ethiopia and Kenya [11].

The most frequent form and leading cause of cancer mortality among Ethiopian women, cervical cancer is often at an advanced stage by the time they seek screening services. Records show that Ethiopia has a population of 20.90 million women ages 15 years and older who are at risk of developing cervical cancer [3]. Current estimates indicate that every year 7619 women are diagnosed with cervical cancer and 6081 die from the disease. Cervical cancer ranks as the 1st most frequent cancer among women in Ethiopia, and the 1st most frequent cancer among women between 15 and 44 years of age [12].

According to the Black Lion Hospital radiotherapy unit, women make up 70 per cent of the total cancer patient, among which cervical cancer contribute 35 percent followed by breast cancer (18 per cent) and head and neck cancer (13 and 14 percent) [13].

Nurses constitute the group of health workers who can provide accurate information to the public on cervical cancer. They have been chosen for this study for two reasons. One of them is that they were expected to have higher knowledge about cervical cancer than counterparts in other professions or lay women as they are health professionals. The second reason is the fact that nurses have an important role in the education of women in our country because women feel

them more closely to ask something about the symptoms and screening of sex specific cancers such as breast and gynecological cancers. Thus, they can constitute a model of health promotion for women. Hence, they have a meaningful role in the education of women despite of the absence a role on a regular education program [14].

Therefore cervical cancer is an urgent public health problem in high resource area and it is becoming an important health agenda in developing countries. So nurses can have a major influence on the behavior of our women, they need to be knowledgeable themselves about cervical cancer and the importance of early detection through screening [15].

1.3. Significance of the study

In countries like Ethiopia where there is high incidence of cervical cancer and late presentation is predominant, increasing awareness about the disease and promoting preventive practices is mandatory as low level of awareness can contribute to delayed presentation. Similarly information on the current knowledge and preventive practice is vital to design effective preventive strategies.

Cervical cancer is preventable and, in most cases, curable, if identified in its early stages. Despite the active role which health care professionals have to play in preventing and educating about cervical cancer, in Ethiopia no such study has been conducted which explores the current awareness of female nurses about cervical cancer and their preventive practice. Therefore the result of the study in these groups will help as a baseline data for further large scale studies.

Additionally the findings from this study will serve as source of information for health policy makers and program planners to design appropriate preventive programs about this important public health issue.

Since there is no established National awareness and screening program for cancer in general and for this cervical cancer in particular, this study may provide evidence for the requirement of such programs in the future as early diagnosis, referral and treatment of cervical cancer is of far greater prognostic importance than any attempts to treat the disease in its late stages.

The finding will have great implication for nursing profession because it provides information regarding the learning need of nurses that helps to improve education development for nursing staff and it will give direction for area of further research in this particular enquires.

CHAPTER TWO

2. Literature review

Worldwide, cervical cancer strikes almost half a million women every year, and is fatal in approximately half of these cases [16]. It is the most common cancer among women in developing countries with a high rate of mortality, in spite of being the most preventable and treatable form of cancer. Today it is most prevalent in areas where there is either no or very little effective screening activity. The incidence of cervical cancer is increasing in sub-Saharan Africa while slightly declined rates are observed in South Asia and Latin America over the last two decades [17].

Knowledge about cervical cancer

Having comprehensive knowledge about cervical cancer make all the differences, without this prevention is far more difficult. Moreover with effective screening, early disease can be detected, giving a far greater chance of survival.

In a study done to assess knowledge, attitudes and practices of cervical cancer among registered nurses, at Khon Kaen University, Thailand 133 volunteer were participated. Most (89.1%) of the respondents knew that there are no symptoms at the pre-invasive stage and a respective 69.8%, 77.7% and 92.4% knew that common symptoms include post coital bleeding, inter-menstrual bleeding and abnormal leukorrhea or blood-stained vaginal discharge. Again, most (81.8% and 70%) knew that the cause of cervical cancer is HPV infection and genetic predisposition, respectively. Two-thirds of respondents (67.7%) knew that eating raw food is not related to

cervical cancer. A respective 81.8 and 85.6 percent of respondents knew that first sexual intercourse at a young age and having multiple sexual partners is a risk factor, but only 40.5% knew that smoking was also a risk factor. One-half (54.9%) of respondents knew that Pap smears are needed after reaching a sexually age active and most (85.0%) that never-sexually active women should also have Pap smears after the age of 35, and nearly all (96.2%) thought that especially after menopause Pap smears are needed for everyone. All respondents answered each of the questions and both the individual and overall scores indicated a moderate level of knowledge about cervical cancer, its cause and prevention. Regarding the HPV vaccine, 66.2% would like to have it because they thought that it would prevent HPV infection (77.3%) or prevent cervical cancer (39.1%). One-third of respondents (33.8%) would not like the vaccine because they: were unsure of its efficacy (55.6%), thought they had no risk (44.4%), and were afraid of adverse side-effects (28.9%) [18].

A cross-sectional survey conducted among nurses to assess awareness of cervical cancer risk factors and screening behavior in the rural area of Izmir, a city located in the western region of Turkey states that a total of 97 nurses were included in the study group. Of the nurses, 69.1% (67) said that they had talked about cancer and cancer prevention with their families or friends; 60.8% (59) believed that their occupation was important for cancer prevention; 11.3% of the nurses had a history of cancer in their families. Of the 97 nurses, 69.1% (67) reported smoking, 72.2% (70) reported early age at first sexual intercourse, 81.4% (79) reported multiple sexual partners and 87.6% (85) reported history of sexually transmitted disease were risk factors of cervical cancer. Forty-five (46.4%) nurses knew all the risk factors of cervical cancer. Fourteen (14.4%) nurses believed that they had a higher risk in development of cervical cancer. When nurses were asked about symptoms of cervical cancer, most of the nurses knew pain in pelvic

region (70.4%), pain during sexual intercourse (79.6%), vaginal bloody discharge (82%). The researcher asked about Pap smear test as a screening method; 80.4% (78) believed that it should be done yearly, 92.8% (90) believed that it was so difficult procedure, but 70.1% (68) did not know that it should be done 3 years after the onset of sexual life. In addition, 63.9% (62) did not know that if the repeated Pap smear tests were normal, it could be done every 2–3 years [14].

According to the study conducted on awareness of breast and cervical cancer risk factors and screening behaviors among nurses working in Pamukkale University Hospital in Denizli in rural region of Turkey 125 nurses were included, 76% (95) reported smoking, 56% (70) reported early age at first sexual intercourse, 71.2% (89) reported multiple sexual partners and 83.2% (104) reported history of sexually transmitted disease were risk factors of cervical cancer. Forty-nine (79.2%) nurses knew all the risk factors of cervical cancer. Sixteen (12.8%) nurses believed that they had a higher risk in development of cervical cancer. When nurses were asked about symptoms of cervical cancer, most of the nurses knew pain in pelvic region (75.2%), pain during sexual intercourse (82.4%), vaginal bloody discharge (88%). They asked about Pap smear test as a screening method; 84.8% (106) believed that it should be done yearly, 94.4% (118) believed that it was so difficult procedure, but 76.8% (96) did not know that it should be done 3 years after the onset of sexual life. In addition, 66.4% (83) did not know that if the repeated Pap smear tests were normal, it could be done every 2–3 years. Of the nurses, 50.4% (63) did not have Pap smear [19].

A cross-sectional survey conducted on knowledge and practice of breast and cervical cancer screening among nurses in teaching hospitals of Shiraz – Iran revealed that from the total of 270 nurses participated in the study 36% of the nurses had good knowledge, 40% had fair knowledge

while 24% nurses had poor knowledge about early detection and facts related to cervical cancer [20].

According to the research conducted on Knowledge, attitude and practices related to prevention of cancer of the cervix among female health workers in Ibadan a total of 205 female doctors, nurses and hospital maids in three hospitals were included knowledge about the condition was high among doctors, surprisingly inadequate among nurses and predictably poor among hospital maids (due possibly to lack of formal paramedical training) [21].

As study was done in Nnewi, South Eastern Nigeria to assess knowledge, attitude and practice of cervical cancer screening (Pap smear) among female nurses, 144 nurses were participated in the study. 112 (80%) had practiced for more than 5 years including 15 (10.7%) who had practiced for more than 21 years. Only 26 (18.6%) had practiced for 5 years or less. Of those 122 (87%) was aware of the existence of screening services. Generally knowledge of cervical cancer screening services among female nurses in Nnewi is high while uptake rate is terribly poor [22].

A cross-sectional survey done towards knowledge, attitude and practice of cervical smear as a screening procedure for cervical cancer in Ilorin, Nigeria includes 483 female health workers. Out of these, 405(83.9%) were nurses, 31(6.4%) were doctors, 23(4.8%) were medical laboratory scientists and 12(2.5%) were pharmacist [18]. Of those 337(69.8%) knew about Pap smear as a screening procedure for cervical cancer while 146(30.2%) had no such knowledge. About half of those with knowledge of screening (49.9%) think that screening should commence at age 35 year and above while only 35(10.4%) think that it should commence at age less than 20 years [23].

A cross-sectional population based study conducted on 611 women in UThungulu district of KwaZulu-Natal, South Africa to determine the level of knowledge and practices on risk factors for cervical cancer and Pap smear revealed that 64% of the women gave correct answers to one or more risk factors where as only 2% knew all the risk factors. Smoking (35%), early onset of sexual activity (24%), and multiple sexual partners (19%) were commonly known as risk factors compared to others. More than half (57%) knew that cancer of the cervix can be prevented. Nearly half (49%) of the respondents mentioned ever heard of Pap smear test [24].

A community based study done in Hong Kong from September 2002 to August 2003 to evaluate the effectiveness of a community-based health promotion campaign undertaken to increase knowledge about and uptake of cervical screening among Hong Kong Chinese women demonstrated that 92% women knew that cervical cancer could be cured if detected early [25].

Few studies have been conducted about breast and cervical cancer in Ethiopia and non on knowledge and early detection measures. In a study conducted by Emmanuela Gakidou and his colleagues to examine cervical cancer screening coverage in 57 countries, Ethiopia and Bangladesh were found to be with less than 1% effective cervical cancer screening coverage. The findings also showed that 90% of women in Ethiopia have never had a pelvic exam [26].

Preventive practice of nurses towards cervical cancer

Effective prevention of cervical cancer requires both early diagnosis in symptomatic patients and screening of asymptomatic patients at risk. A major component of any cancer early detection program is education to promote early diagnosis and ensure compliance with screening programs [27].

In Thailand study the respondents were asked regarding current practices toward preventing cervical cancer, 18% practiced abstinence, 20.3% required condom use, 52.6% had a single partner, and 56.4% underwent Pap smears every year. Intended future practices for cervical cancer prevention included abstinence (6%), condom use (30.8%), single partner (69.2%), annual Pap smear (86.5%), and HPV vaccine (23.3%) [18].

In the study of Shiraz – Iran that was conducted on knowledge and practice of breast and cervical cancer screening among nurses from the total of 270 nurses participated in the study, 30% reported having a pap-smear test [20].

In the Izmeir study concerning practice of the nurses, 53.6% (52) did not have Pap smear when they asked about the reasons of not performing Pap smear test they said that because of virginity (67.3%), forgetting (21.2%) and feeling embarrassed (11.5%). However, 71.8% of nurses believed that Pap smear decreases mortality of cervical cancer [14].

In the study of Pamukkale University Hospital in Denizli in rural region of Turkey regarding practice the respondents said that reasons of not performing Pap smear test were virginity (31.2%), forgetting (39.1%) and feeling embarrassed (29.7%). However, 75.2% of nurses believed that Pap smear decreases mortality of cervical cancer [19].

In the Nnewi, South Eastern Nigerian study of those participants although 9.3% had lost relations to cancer of the cervix, only 8 (5.7%) had ever undergone a pap smear. Among reasons for not screening 52 (37.1%) had no reason, while 35 (25%) felt they were not likely candidates for carcinoma of the cervix. A further 26 (18.6%) claimed ignorance of the procedure while 21 (15%) attributed fear of the outcome as reason for not screening [22].

Determinants of knowledge and preventive practice of cervical cancer

Many studies have shown that the socio-demographic characteristics of female nurses had an influence on the level of knowledge and preventive practices of cervical cancer. Demographic variables such as nurses' age, marital status, level of education, are influential on having pap testing [28].

In Thailand study age had a significant inverse association with knowledge ($p<0.05$) (the younger the respondent the greater knowledge level). Other factors, such as marital status and education, were not associated with the knowledge level score [21].

In the study of Pamukkale University Hospital in Denizli in rural region of Turkey there were no significant differences between knowledge or attitudes about breast and cervical cancer risk factors or symptoms and screening methods regarding age, marital status, and years of experience [15].

In the Izmeir study there were no significant differences between knowledge or attitudes about cervical cancer risk factors or symptoms and screening methods regarding age, marital status, years of experience ($p>0.05$), a statistically significant relationship was determined between having received a pap test and having a history of cancer in their family ($p<0.05$) [13].

In the Ibadan study, however, 93.2% of respondents have never had Pap smears performed. The poor utilization of the test was independent of respondent's profession, marital status or hospital. Therefore, there is a need to intensify campaign towards prevention of cervical cancer even among health workers [21].

In a study conducted to assess the knowledge, attitudes, and assumption of cervical cancer by women living in Maroua, the capital of the Far North Province of Cameroon, women who were knowledgeable about cervical cancer were more likely to be married, literate and with salaried occupation (P-value <0.001) [29].

Very few women in sub-Saharan Africa are ever screened for cervical cancer. Low levels of awareness and poor knowledge of cervical cancer coupled with unavailability and inaccessibility of cervical cancer screening services are responsible for the low practice of screening in the region [30].

The purpose of this study is to describe the levels of knowledge and preventive practice of nurses about cervical cancer.

2.1. Conceptual framework

To assess knowledge and preventive practices of female nurses' towards cervical cancer is relevant. To do so points regarding cervical cancer, its symptoms, risk factors, screening and preventive methods together with the factors that has created the awareness on the issue of knowledge and preventive practice of cervical cancer. In addition the study will discover associated factors that influence nurses' knowledge and preventive practices towards cervical cancer.

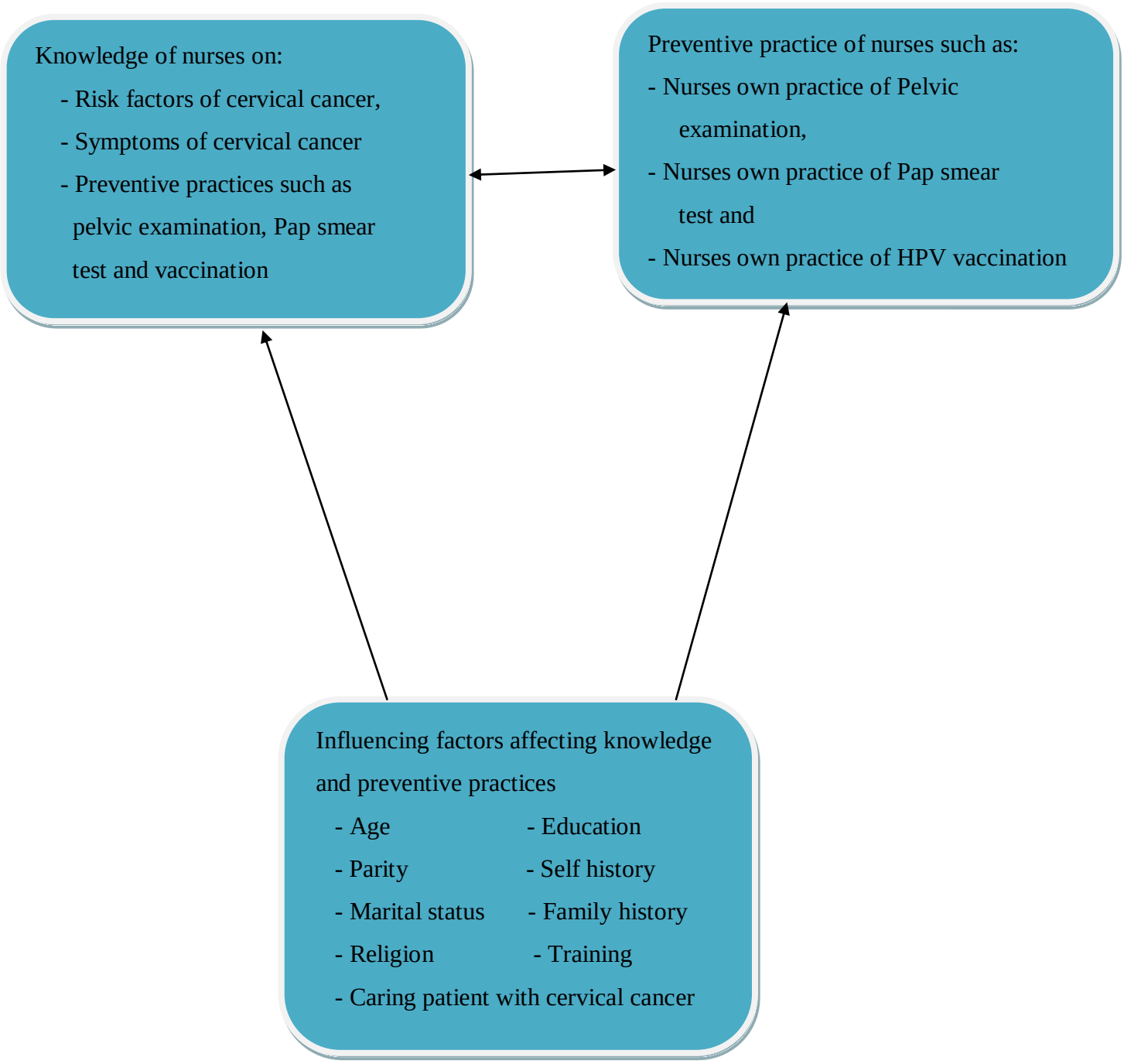


Figure 1: Self- developed conceptual framework

CHAPTER THREE

3. Objectives

3.1. General objective

i. To assess the knowledge and preventive practice of female nurses towards cervical cancer in Addis Ababa government hospitals.

3.2. Specific objective

i. To determine the level of knowledge of female nurses towards cervical cancer.

ii. To investigate the preventive practices of female nurses towards cervical cancer.

iii. To determine the factors associated with the knowledge and preventive practice for cervical cancers

CHAPTER FOUR

4. Methodology

4.1. Study area and period

The study was conducted in Addis Ababa which is the federal capital of Ethiopia from October 2010 to May 2011. Addis Ababa lies at an altitude of 7,546 feet (2,300 meters), located at 9°1′48″N 38°44′24″E. It covers a total area of 54,000 hectares. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), Addis Ababa has a total population of 2,739,551, of whom 1,305,387 are men and 1,434,164 women; all of the population is urban inhabitants [31]. The city has 10 governmental hospitals, from which five hospitals are managed under Addis Ababa administration health bureau. The remaining hospitals are managed under ministry of health and one under Addis Ababa University.

Tikur Anbesa Hospital is a University referral hospital located at the center of Addis Ababa and has a total of 477 nurses from which 330 are female. It provides services for all sorts of patients coming from every direction of the country.

St. Paul Hospital is located to the west of Addis Ababa, which is also one of Ethiopia's referral hospital, providing both inpatient and outpatient services to people from all over the country. It has 239 nurses from which 174 are females.

Yekatit 12 Hospital is a referral hospital having a total of 195 nurses from which 156 are female. It functions through a referral system but accepts emergency cases without referral. Most cases in Yekatit 12 are from Addis Ababa and demand from other areas can only be met occasionally.

Gandhi memorial hospital is located around 2km far from Tikur Anbesa hospital which serves as referral hospital for Obstetrics and gynecology cases specifically. It has a total of 99 nurses from which 70 are female. All hospitals are believed to be the largest hospitals with wide range of services and with update medical technology and they serve as training center for medical professionals from public university and private college.

4.2. Study design

A cross-sectional descriptive study design was conducted to assess the knowledge and preventive practices of female nurses towards cervical cancer in the selected hospitals.

4.3. Population and Sampling

4.3.1. Source population

Source populations were all female nurses working in Addis Ababa.

4.3.2. Study population

Employed female nurses working in the government hospitals in Addis Ababa

4.3.3. Study subject

Randomly selected employed female nurses working in the selected government hospitals, in Addis Ababa.

4.3.4. Inclusion criteria

Employed female nurses who were working in the selected government hospitals during the data collection period were participated in the study.

4.3.5. Exclusion criteria

Employed female nurses who were not volunteer

4.3.6. Sample size determination

Sample size was determined using the formula for single population proportion.

$$n = (z_{\alpha/2})^2 . \frac{P(1-P)}{d^2}$$

$$n = (1.96)^2 . \frac{0.5(1-0.5)}{(0.05)\ 2}$$

$$n = 384$$

Where **n** = desired sample size

Z α/2 = critical value at 95% confidence interval (1.96)

P= assumed prevalence of cervical cancer = 50 %(0.5) to get a maximum sample size as there was no previous study conducted similar to this study

d= margin of error between the sample and the population 5 % (0.05)

Final sample estimation will be obtained using correction formula:

$$n_f = \frac{n}{1+\left[\frac{n}{N}\right]}$$

$$= n_f = \frac{384}{1+\left[\frac{384}{730}\right]}$$

$$= \underline{250}$$

Where $\mathbf{n_f}$ = desired sample size (population < 10,000)

n= the desired sample size (population > 10,000)

N= the estimate of the population size

Adding 10% non-response rate and incomplete lost questionnaire, the total sample size required for this study is found to be 275 female nurses.

4.3.7. Sampling technique

To select the study areas from the total government hospitals found in Addis Ababa simple random sampling technique was used. The study subject again was selected by proportional to size allocation to give equal chance to each hospital and then simple random sampling technique was utilized.

Proportional allocation of the study subjects to each study hospitals are as follows:

Tikur Anbesa hospital = 330/ 730 (275) = 124

St. Paul hospital = 174/ 730 (275) = 66

Yekatit 12 hospital = 156/ 730 (275) = 59

Gandhi memorial hospital = 70/730 (275) = 26

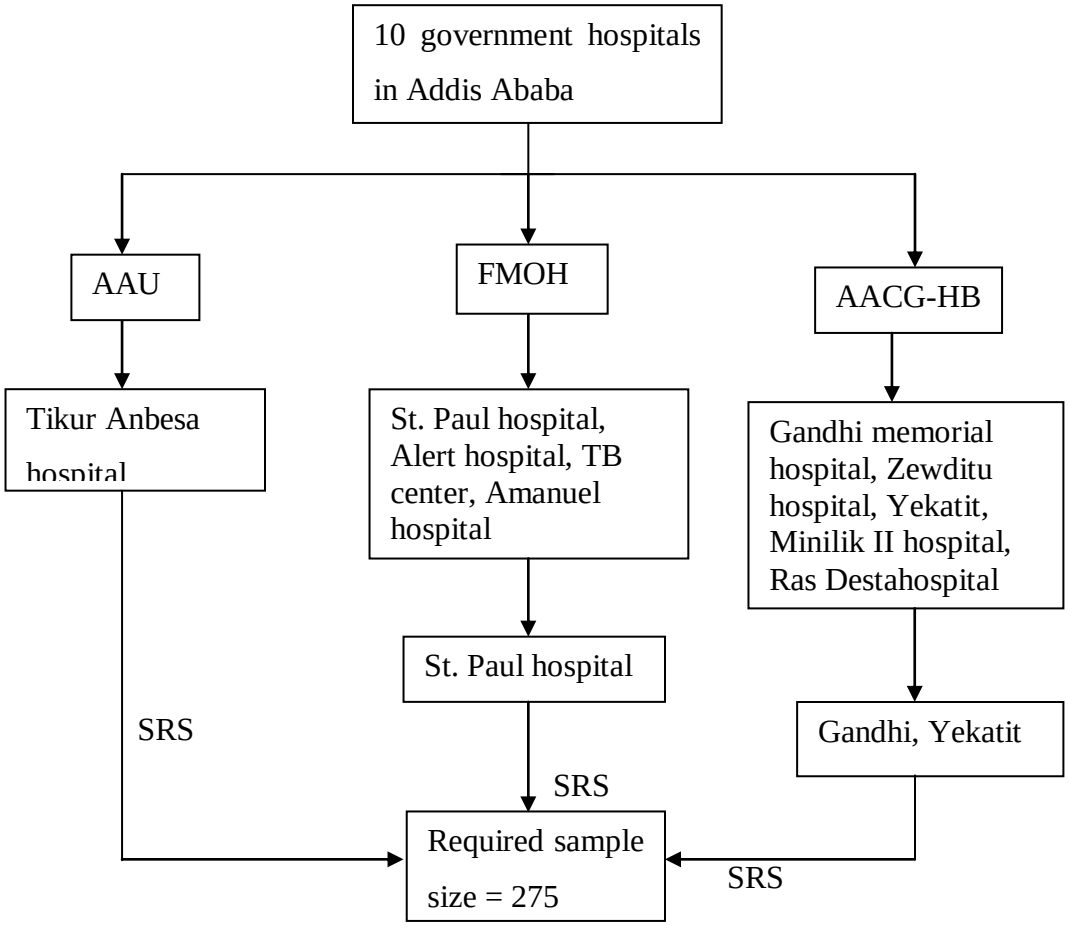


Figure 2: Diagrammatic presentation of sampling procedure of the study area and participants

4.4. Variables

Dependent variables

- Knowledge of nurses
- Preventive practices of nurses

Independent variables

- Age,
- Religion,
- Marital status,
- Years of service,
- Educational status of nurses,
- Unit of work,
- Training
- Parity
- Family history
- Self history
- Ever cared patient with cervical cancer
- Ever visit to health institution

4.5. Operational definitions

Knowledge: if respondents score for the knowledge questions of cervical cancer is:

≥ Median value = Knowledgeable

< Median value = Not knowledgeable

Preventive practice of nurses: nurses' who had undergone through at least one of the preventive practices (HPV vaccination, pelvic examination and Pap smear test) for cervical cancer prevention.

Self history: person that has been diagnosed for cervical cancer in the past.

Family history: history of cervical cancer in family to determine if the patient might be predisposed to cervical cancer.

Training: refers to the acquisition of knowledge, skills, and competencies as a result of the teaching of practical skills and knowledge that relate to specific to cervical cancer

Educational status of nurses: level of education and skill obtained within the nursing profession, usually referred to diploma, degree, masters etc.

4.6. Data collection tools and procedures

A structured self-administered questionnaire comprising of 41 items that address the objective of the study was developed and adopted from other related studies. The questionnaire was prepared in English. Two trained degree holder supervisors and six diploma level data collectors who are not health professional were participated in the data collection process. Half day intensive training was given to the data collectors and supervisors on how to conduct the data collection. The data collection was conducted on March, 2011.

4.7. Pre-test

To ensure the validity and reliability of the data collection tool, the questionnaire was pretested on a similar population in Zewditu memorial hospital on 10% of the study subjects two weeks earlier to the actual data collection time and appropriate modifications of some questions were made based on findings from the pretest.

4.8. Data quality Assurance

To ensure the quality of data, properly designed data collection tool was prepared; training was given to data collectors and supervisors. Questionnaires were reviewed for completeness and logical consistency after data collection time. It was checked for completeness by immediate supervisor. After checking all questionnaires for consistency and completeness, the supervisor submit the filled questionnaires to the principal investigator. The principal investigator was in the area for any help. Additionally in order to maintain the quality of the data, the principal investigator rechecked the completed questionnaires. And continuous follow-up and supervision was made by supervisors and the principal investigator throughout the data collection period.

4.9. Data processing and analysis

The returned questionnaires have been checked for completeness, cleaned manually and entered in to EPI info version 3.5.1 statistical software and then transferred to SPSS windows version 16.0 for further analysis. Frequencies and cross tabulations were used to summarize descriptive statistics of the data and tables and graphs was used for data presentation. Bivariate analysis was used primarily to check which variables have association with the dependent variable individually. Variables found to have association with the dependent variables were then entered in to Multiple Logistic regression model for controlling the possible effect of confounders and finally the variables which have significant association was identified on the basis of OR, with 95%CI and p-value .

To obtain a summary measure of respondents' Knowledge of cervical cancer, each knowledge question was coded as a (0, 1) binary variable where category 0 represents incorrect response for that particular knowledge question and category 1 represents correct response for that particular knowledge question. The sum of female nurses' Knowledge of cervical cancer, then, was obtained by adding the responses given for each question. The median value was used to categorize nurses as knowledgeable or not knowledgeable about cervical cancer. Accordingly, the sum value less than the median was categorized as not knowledgeable and the value greater than or equal to the median was categorized as knowledgeable.

4.10. Ethical Consideration

Before commencing the study, ethical clearance was obtained from Addis Ababa University College of Health Sciences Department of Nursing and Midwifery research review committee. Furthermore an official letter was written to the selected governmental hospitals to get their permission and cooperation for the study. Persons who are not health professionals were recruited as data collectors to reduce biases. The purpose of the investigation was explained to the participants and a written informed consent was obtained. All study participants were told that they have the right to withdraw from the investigation at any time and that all information was kept strictly confidential. Respondents were not asked to write their names.

4.11. Dissemination of result

The finding of the study will be forwarded to Addis Ababa University College of health science, department of nursing and midwifery, Addis Ababa health bureau, FMOH and studied hospitals for further strategies and promotion of nurses' knowledge and preventive practice towards cervical cancer as well as to those governmental and nongovernmental organizations that potentially could benefit from the study. An attempt will be made to present the findings in different conferences and workshops and will be sent to publication on scientific journal.

CHAPTER FIVE

5. RESULTS

5.1. Response Coverage

Out of the 275questionnaires distributed to female nurses working in the selected hospitals during the study period, 266 agreed to participate in the study but six of the questionnaires were excluded from the study because of incompleteness and 260 were completed yielding a response rate of 94.5%. Majority 120(46.2%) of the respondents were from Tikur Anbesa hospital and the smallest number 26 (10%) were from Ghandi memorial hospital (Figure-3).

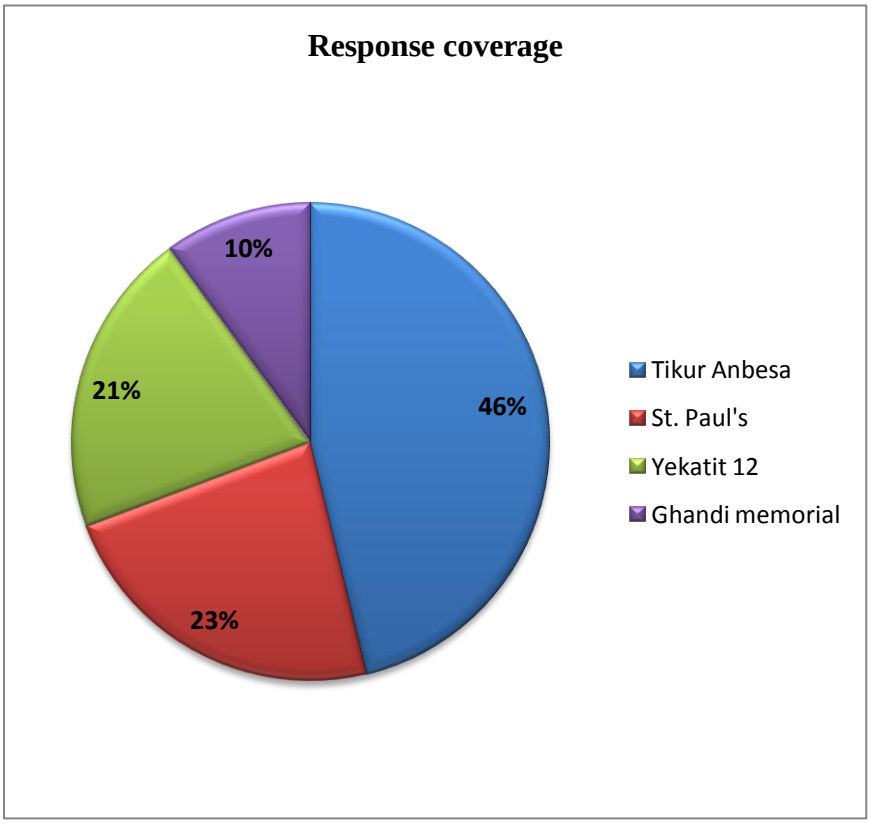


Figure 3: The response coverage of respondents by place of work in selected hospitals in Addis Ababa, Ethiopia, March 2011

5.2. Socio-Demographic Characteristics of the Study Subjects

The age range of the study subjects were 20-58 years. Of the nurses who took part in the study, 121 (46.5%) were aged between 20-25 years with a mean age of 28.9 years (SD ±7.8 years) and 155 (59.6%) were single. Respondents were predominantly of the Orthodox faith 173 (66.5%) followed by protestant 53 (20.4%). More than half 139 (53.5%) of the respondents were diploma holders and 121 (46.5%) were with degree and above educational level. Respondents from medical ward were 59 (22.7%), 46 (17.7%) surgical ward, 57 (21.9%) gynecology, 31 (11.9%) ICU, 24 (9.2%) pediatrics, 18 (6.9%) oncology and 25 (9.6%) were from other units. The majority of the respondents 174 (66.9%) had less than 5 years work experience. Most of the respondents 178(68.5%) were of nuli- parous and 12(4.6%) were grandmultiparous (parity 5 and above) (Table-1).

Table 1: Respondents' socio-demographic characteristics in government hospitals of Addis Ababa, Ethiopia, March 2011

Variables	Frequency	Percentage
Age		
20 – 25	121	46.5
26 – 30	67	25.8
31 – 35	22	8.5
36 – 40	25	9.6
41 – 45	10	3.8
45 and above	15	5.8
Mean age	28.9	
Marital status		
Single	155	59.6
Married/live with partner	96	36.9
Divorced	2	0.8
Widowed	4	1.5
Separated	3	1.2
Religion		
Orthodox	173	66.5
Muslim	23	8.8
Protestant	53	20.4
Catholic	5	1.9
Others	6	2.3
Educational level in nursing		
Diploma	139	53.5
Degree and above	121	46.5
Unit of work		
Medical ward	59	22.7
Surgical ward	46	17.7
Gynecology	57	21.9
ICU	31	11.9
Pediatrics	24	9.2
Oncology	18	6.9
Others	25	9.6
Parity		
0	178	68.5
1- 4	70	26.9
5 and above	12	4.6
Year of service		
Less than 5 years	174	66.9
5 – 10 years	43	16.5
10 –15 years	13	5.0
16 – 20 years	13	5.0
21and above years	17	6.5

In about 33 (12.7%) of the sample it was indicated that they had a personal history of cervical cancer. Of those, 31 (11.9 %) had treated with any of the three treatment modalities (surgery, radiation therapy or chemotherapy). One hundred thirty eight (53.1%) of the respondents also know someone who has cervical cancer and 16 (6.2%) of the nurses had a history of cervical cancer in their families. More than half of the respondents136 (52.3%) did not involve in nursing patients with cervical cancer and the remaining 124 (47.7%) had nursed (table 2).

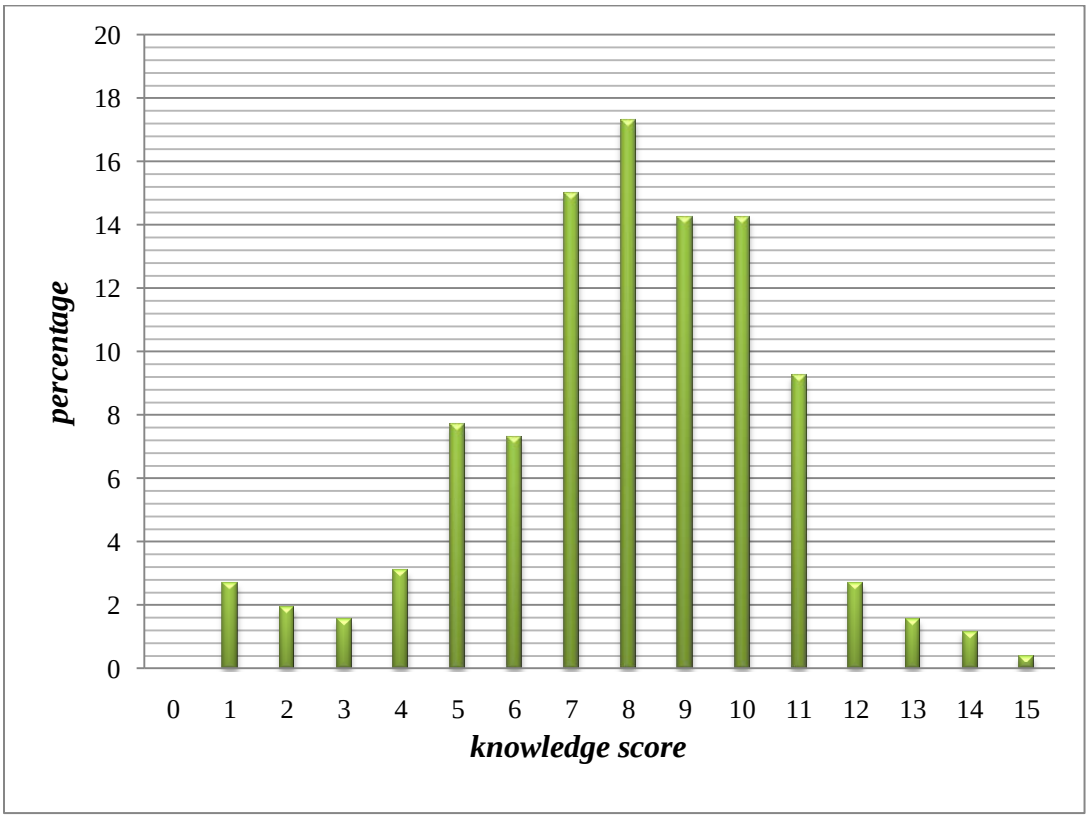
Table 2: Distribution of study subjects by history of cervical cancer and other related factors in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

Diagnosed for cervical cancer	Number	Percent
Yes	33	12.7
No	227	87.3
Get any treatment		
Yes	31	11.9
No	2	0.8
Type of treatment did you get		
Surgery	18	6.9
Radiation therapy	14	5.4
Chemotherapy	22	8.5
Do you know anyone diagnosed with cervical cancer?		
Yes	138	53.1
No	122	46.9
Relation with your family		
Family member	16	6.2
Relative	46	17.2
Friend	36	13.8
Others	38	14.6
Have you ever take care of a patient with cervical cancer?		
Yes	124	47.7
No	136	52.3

*Percent may exceed 100% as multiple answers are possible

5.3. Knowledge of female nurses' on cervical cancer

Distribution of knowledge score on cervical cancer risk factors, main presenting symptoms, treatment options and preventive measures amongst female nurses' working in the selected government hospitals in Addis Ababa ranges from 0-15. The mean score of knowledge test was 7.9 with SD 2.6. The median score was 8 and 158 nurses scored 8 and above (Figure-4). The median score was computed to distinguish the respondents comprehensive cervical cancer knowledge, hundred fifty eight (60.8%) of the total 260 respondents were knowledgeable with median and above median score while 102 (39.2%) were not knowledgeable.

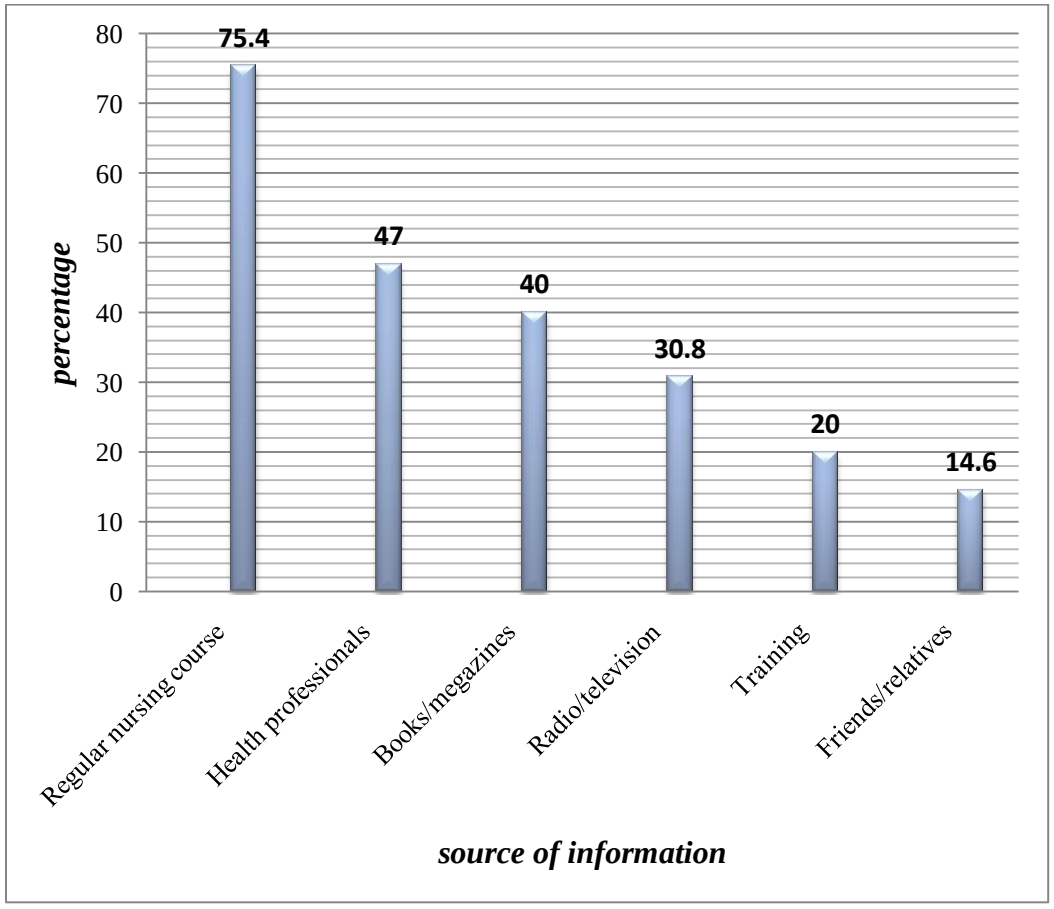


N=260, Median=8

Figure 4: Distribution of knowledge score of respondents in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

5.3.1. Source of information for cervical cancer

Nurses were asked about the source of information regarding cervical cancer and they revealed that regular course in nursing was the predominant source 196 (75.4%) followed by health professionals/work colleague 124(47.0%), books/magazines 104(40%), radio/television 80(30.8%), training 52 (20%) and friends/relatives 38(14.6%) (Figure-5).

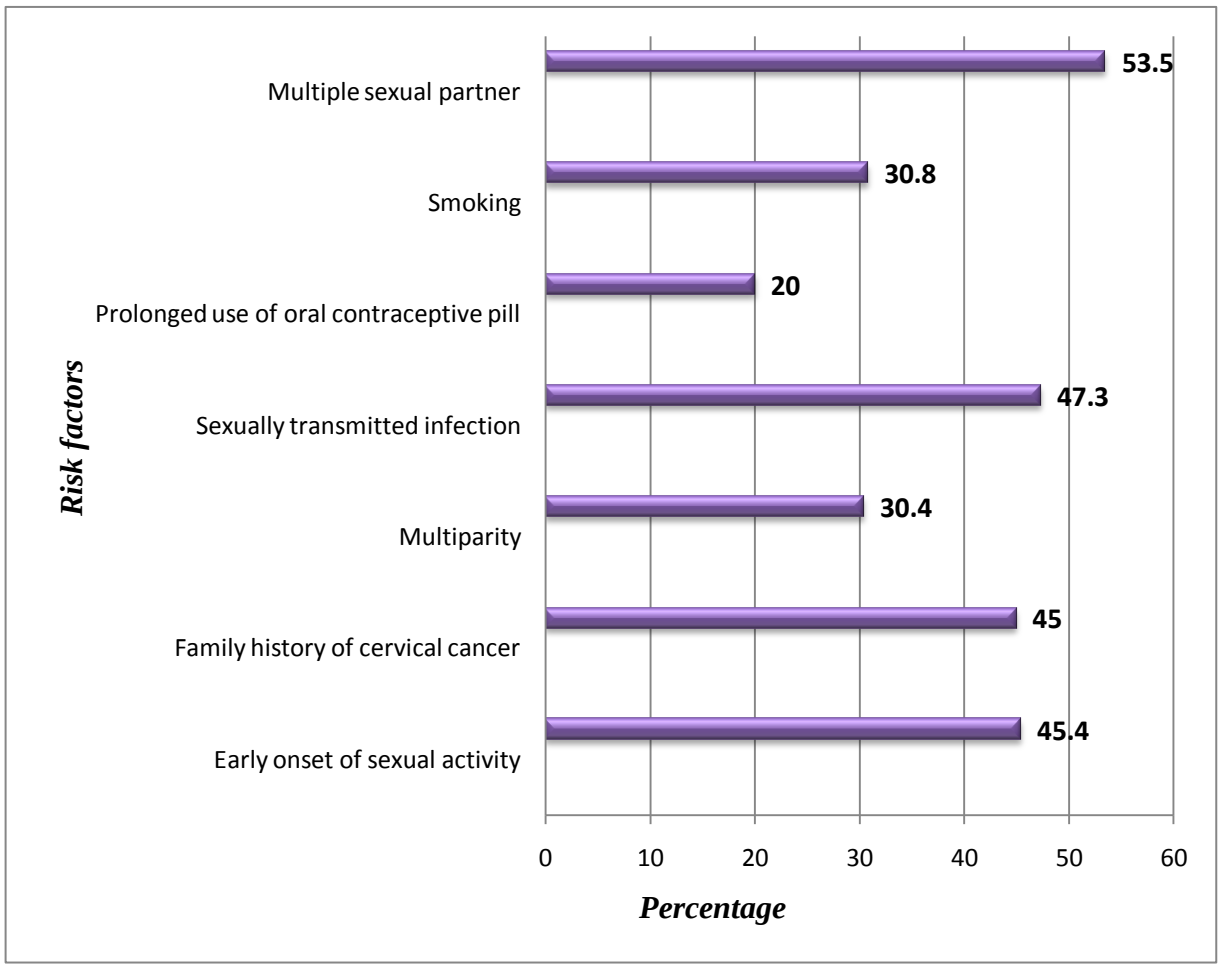


*Percent may exceed 100% as multiple answers are possible

Figure 5: Sources of information about cervical cancer among female nurses in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

5.3.2. Knowledge on risk factors of cervical cancer

A series of questions regarding risk factors, main symptoms, treatment options and prevention and early detection measures of cervical cancer were asked to evaluate the respondents' knowledge of cervical cancer. Only 96 (36.9%) of respondents were aware that cervical cancer is the leading cause of cancer death in developing countries, 93 (35.8%) of them agreed as second leading cause preceded by breast cancer, 54 (20.8%) referred as they don't know and the remaining 17 (6.5%) considered cervical cancer as the least cause of cancer death. Majority of the respondents 218(83.8%) were reported that there is risk factor for cervical cancer, 8 (3.1%) of those who were aware of cervical cancer don't know whether there are risk factors or not and 34(13.1%) stated there is no risk factor for cervical cancer. Regarding the knowledge of specific risk factors, 139(53.5%) of the respondents new that multiple sexual partner is a risk factor for the development of cervical cancer followed by sexually transmitted infections 123 (47.3%) and early onset of sexual activity 118 (45.4%) (Figure 6). In general, 67(25.8%) of the respondents were able to identify all the possible risk factors for cervical cancer and 155 (59.6%) of the respondents knew that the most common cause of cervical cancer is Human papiloma virus.



*Percent may exceed 100% as multiple answers are possible

Figure 6: Respondent's knowledge of risk factors for cervical cancer in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

5.3.3. Knowledge on symptoms of cervical cancer

Regarding the respondents' knowledge of the main symptoms of cervical cancer, 133 (51.2%) and 125 (48.1%) of the respondents were able to mention bleeding and pain during sexual intercourse as symptoms of cervical cancer respectively but 34(13.1%) of the respondents stated that has no symptom (Table 3).

Table 3: Knowledge of female nurses' about main presenting symptoms of cervical cancer in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

Symptoms	Number	Percent
Pain during sexual intercourse	125	48.1
Bleeding after intercourse	133	51.2
Post menopausal bleeding	76	29.2
Excessive vaginal discharge	98	37.7
Offensive vaginal discharge	108	41.5
Abnormal bleeding between periods	97	37.3
Has no symptom	34	13.1

*Percent may exceed 100% as multiple answers are possible

5.3.4. Knowledge on preventive measures and treatment options

Table 4 summarizes respondents' answers to questions about colposcopy and Pap smear test. One hundred twenty two (46.9%) respondents correctly identified colposcopy as investigation of abnormal cells, with a further 71 (27.3%) being unsure. In relation to Pap smear, 225 (86.5%) of the 260 nurse had heard about the test. For the question when should a woman start the test, only 74 (28.5%) of the respondents reported at age 21or within three years of the first time of sexual intercourse. Seventy four (28.5%) of them gave incorrect answer for the recommended frequency of Pap smear test such as every 10 years and 22 (8.5%) was uncertain.

Table 4: Respondents' knowledge of colposcopy and Pap smear test in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

What is colposcopy?	**Number**	**Percent**
Treatment for uterine cancer	19	7.3
Investigation of abnormal cells, biopsies	122	46.9
Same as Pap smear	18	6.9
Test for cancer	30	11.5
Don't know	71	27.3
Ever heard about Pap smear test		
Yes	225	86.5
No	35	13.5
A women start Pap smear test		
At the age of 28 years and above	130	50
After every sexual intercourse	8	3.1
At age 21, or within 3 years of the first time you have sex	74	28.5
After menopause only	20	7.7
Recommended frequency for a Pap test		
Annually	136	52.3
Every 3-5 years	72	27.7
Every 10 years	2	0.8
Don't know	22	8.5

Two hundred five (78.8%) of the respondents knew that cervical cancer can be prevented if appropriate measures are taken, 37(14.2%) stated that cervical cancer cannot be prevented and 18(6.9%) claimed they don't know anything about prevention of cervical cancer. Regular medical checkup (screening) was mentioned by majority of the respondents 188(72.3%) as a helpful prevention measure; 238(91.5%) of the respondents also knew that cervical cancer can be treated (Table 5).

Table 5: Knowledge of female nurses' about Prevention measures and treatment options of cervical cancer in the selected hospitals of Addis Ababa, Ethiopia, March 2011

Prevention measures	Number	Percent
Regular medical checkup/screening	188	72.3
Vaccine for HPV	49	18.8
Delaying sexual debut	39	15
Being faithful to sexual partner	92	35.4
Consistent condom use	48	18.5
Others	2	0.8
Can cervical cancer be prevented?		
Yes	205	78.8
No	37	14.2
Don't know	18	6.9
Can cervical cancer be treated?		
Yes	238	91.5
No	8	3.1
Don't know	14	5.4
Treatment options		
Surgery	98	37.7
Radiation therapy	24	9.2
Chemotherapy	40	15.4
Treat according to the stage	77	29.6
Others	3	1.2

*Percent may exceed 100% as multiple answers are possible

Majority 218(83.8%) of the study subjects agreed that cervical cancer can be cured if detected early, 8.8% reported cannot be cured and 3.1% of them claimed they do not know (Figure 7).

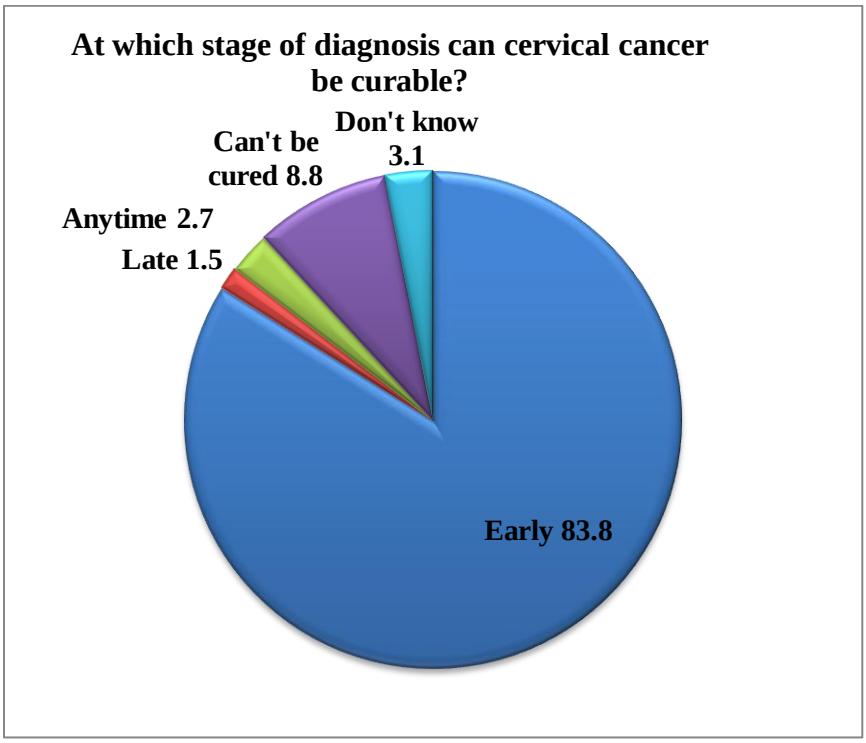


Figure 7: Knowledge of female nurses on curability and Stage of the disease in the selected hospitals in Addis Ababa, Ethiopia, March 2011

5.4. Preventive practice of female nurses towards cervical cancer

5.4.1. Pelvic examination

Majority 204(78.5%) of the nurse had ever visit to health institution. Only 84(32.3%) of them had under gone pelvic examination for different reasons and 59(22.7%) of these nurses had the examination two or more times in their life time. Only 22(8.5%) of the participants reported that they underwent pelvic examination for the purpose of cervical cancer screening and none of these nurse reported its regularity (Figure 8).

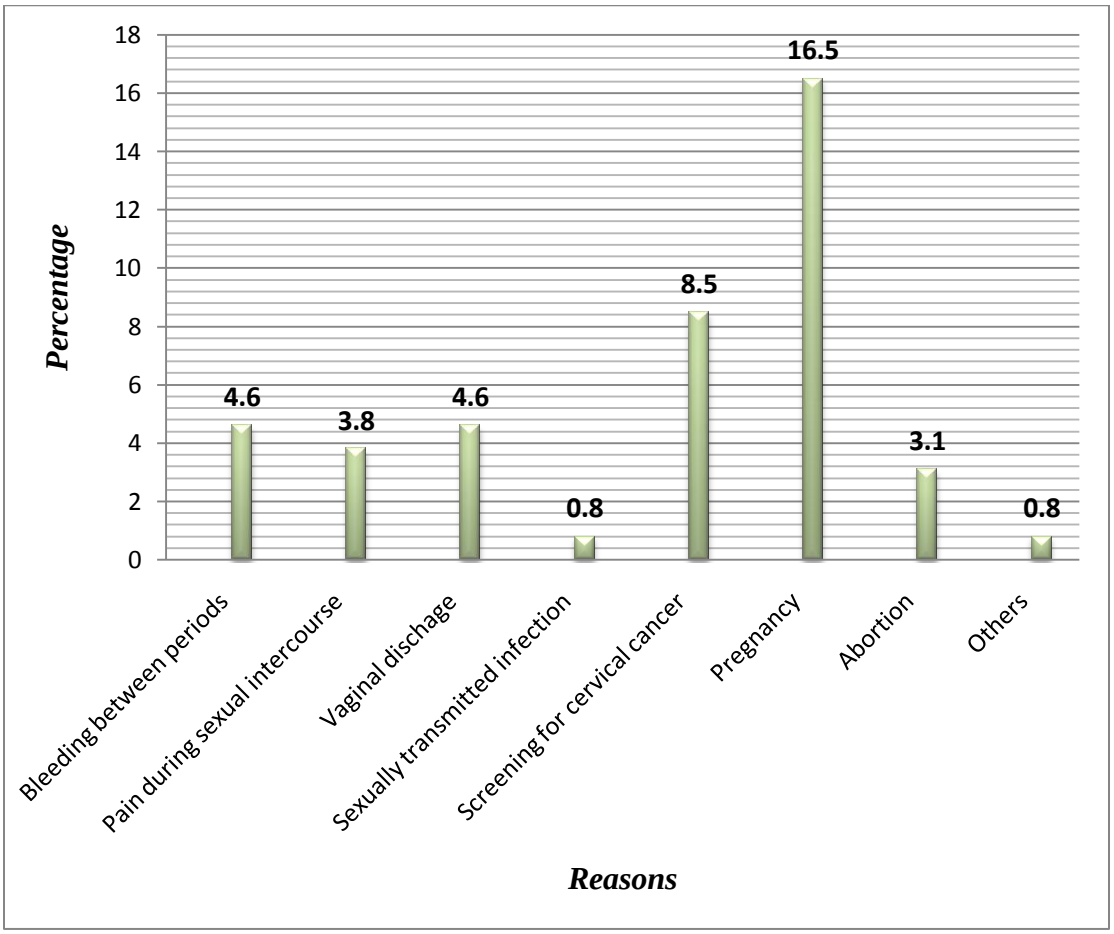


Figure 8: Reasons to undergo pelvic examination among female nurses in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

5.4.2. Pap smear test and HPV vaccine

Regarding pap smear test, of those who had heard about the test, only 38(14.6%) had the test. Half 19(50%) of these nurse had the test once in their life, 12 (31.6%) had two times and only 7(18.4%) had undergone three times and above. Among those, who knew about Pap smear test (n=225), 161(61%) did not do the test mainly because of personal factors such as virginity, fear of the test, cultural or religious and were not ill. Factors related to health care workers, partners of the individuals and access to health facilities were contributed 79 (30.4%) (Table 6).

Table 6: Reasons given by the respondents for not doing Pap test in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

Reasons given for not doing Pap smear test	Number	Percent
Virginity	42	16.2
Fear of the procedure	54	20.8
Cultural / Religious reason	13	5.0
I'm not ill so it's not necessary	52	20.0
Not suggested by my doctor or a nurse	42	16.2
Discouraged by partner or others	7	2.7
No access to a clinic where Pap smear is done	30	11.5
Other reasons	21	8.1

*Percent may exceed 100% as multiple answers are possible

Amazingly more than half of the respondents knew HPV is cause for cervical cancer only 6.9% had gone for HPV vaccine. Nurses were also asked what they do if they develop pain or bleeding after intercourse, 224(86.2%) reported that they will visit health institutions, 49(18.8%) religious places, 5(1.9%) preferred traditional medicine and only 2(0.8%) claimed that they will ignore the condition (Table 7).

Table 7: Distribution of respondents by their practice of HPV vaccine in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

Ever vaccinated for Human Papiloma Virus (HPV)	**Number**	**Percent**
Yes	18	6.9
No	242	93.1
What do you do if you develop an abnormal vaginal bleeding or bleeding after intercourse?		
Visit health facilities	224	86.2
Go to religious places/holly Water	49	18.8
Use herbal/traditional medicine	5	1.9
Ignore the symptoms and wait	2	0.8
Don't know	11	4.2

The finding of the study has also indicated that hundred fifty eight (60.8%) respondents had knowledge of cervical cancer but only 57 (21.9%) reported practicing prevention of cervical cancer (Figure 9).

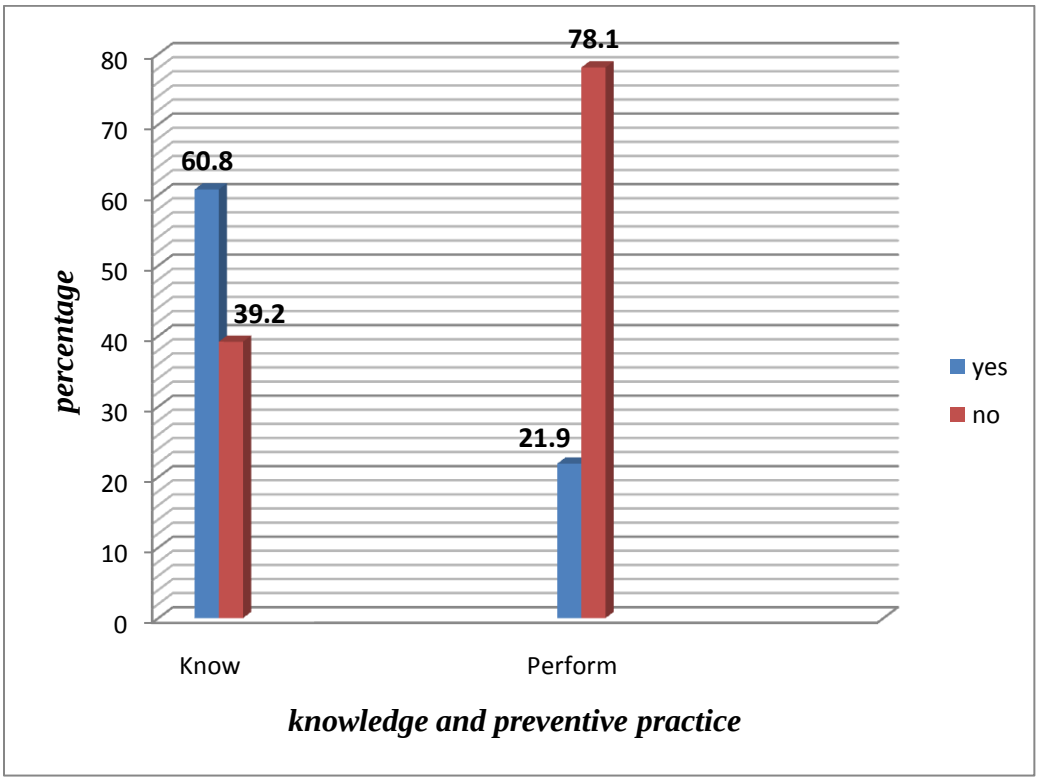


Figure 9: Study subjects knowledge and preventive practice in the selected government hospitals in Addis Ababa, Ethiopia, March 2011

5.5. Factors affecting knowledge of cervical cancer

When we see the factors that affect the respondents' knowledge of cervical cancer, there was a significant difference on the knowledge of respondents among marital status, educational level, unit of work, family history, being trained about cervical cancer and ever takes care of patient with cervical cancer. But only education, family history, unit of work and ever takes care of patient with cervical cancer were shown to be significant predictors of knowledge when adjusted with other socio demographic variables. Nurses with degree and above education were 2 times more likely to be knowledgeable than their diploma counterparts [AOR=2.081, 95%CI (1.158-3.737), P=0.014]. Having someone affected with cervical cancer in the family is more likely to increase knowledge of cervical cancer by 3.8 times than not having positive family history [AOR=3.859, 95%CI (2.123-7.010), P<0.001]. Unmarried nurses were shown to be knowledgeable about cervical cancer than the married ones though it was not statistically significant when adjusted for possible confounders {COR=1.853, 95%CI (1.087-3.160), p=0.023}. Other socio demographic variables like age, parity, and self history of cervical cancer were not found significantly associated with knowledge of cervical cancer (Table 8).

Table 8: Socio-demographic correlates of cervical cancer knowledge of female nurses' about cervical cancer in government hospitals of Addis Ababa, Ethiopia, March 2011

Variables	Knowledge of cervical cancer, N=260		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	Yes (≥8)	No (≤7)			
Age					
20-29	107(41.2%)	74(28.5%)	1.00		
30-39	25(9.6%)	21(8.1%)	0.181(0.022-1.476)		
40-49	18(6.9%)	6(2.3%)	0.149(0.017-1.288)	**	
50+	8(3.1%)	1(.4%)	0.375(0.39-3.649)		
Marital status					
Unmarried	91(35.0%)	73(28.1%)	1.853(1.087-3.160)	1.482(0.796-2.759)	0.214
Married	67(25.8%)	29(11.2%)	1.00	1.00	
Educational level					
Diploma	75(28.8%)	64(24.6%)	1.00		
Degree and above	83(31.9%)	38(14.6%)	1.864(1.121-3.099)	2.081(1.158-3.737) *	0.014
Parity					
0	102(39.2%)	76(29.2%)			
1-4	48(18.5%)	22(8.5%)	1.626(0.905-2.920)	**	
5+	8(3.1%)	4(1.5%)	1.490(0.433-5.131)		
Being diagnosed for cervical cancer					
Yes	18(6.9%)	15(5.8%)	0.746(0.357-1.556)	**	
No	140(53.8%)	87(33.5%)	1.00		
Family history					
Yes	92(35.4%)	25(9.6%)	4.293(2.475-7.448)	3.859(2.125-7.010) *	0.000
No	66(25.4%)	77(29.6%)	1.00		

* Statistically significant

** Insignificant variables in the crude analysis were omitted from the multivariate analysis

Female nurses working in oncology and gynecology unit were 8 and 2.6 times more likely to be knowledgeable about cervical cancer than nurses working in pediatric unit [AOR=8.167, 95%CI (1.438-46.398), P=0.018 and AOR=2.595, 95%CI (0.958-7.030), P=0.061 respectively]. Nurses who ever taken care of a patient with cervical cancer were 2 times more likely to be knowledgeable than those who hadn't nursed [AOR=2.255, 95%CI (1.255-4.052), P=0.007]. Being trained about cervical cancer was significantly associated with knowledge of cervical cancer when analyzed with simple logistic regression {COR=2.244, 95%CI (1.131-4.452), P=0.021}. However, the other variables like work experience and ever visited to health institution were not found significantly associated with knowledge of cervical cancer (Table 9).

Table 9: Profession related factors affecting knowledge of female nurses' about cervical cancer in government hospitals of Addis Ababa, Ethiopia, March 2011

Variables	Knowledge of cervical cancer, N=260		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	Yes (≥8)	No (≤7)			
Unit of work					
Pediatrics	14(5.4%)	17(6.5%)	1.00	1.00	
ICU	11(4.2%)	13(5.0%)	1.027(0.352-2.996)	0.684(0.211-2.216)	0.527
Medical	34(13.1%)	25(9.6%)	1.651(0.688-3.968)	1.589(0.616-4.099)	0.338
Surgical	28(10.8%)	18(6.9%)	1.889(0.751-4.752)	1.353(0.497-3.683)	0.554
Gynecology	40(15.4%)	17(6.5%)	2.857(1.154-7.076)	2.595(0.958-7.030)	0.061
Oncology	16(6.2%)	2(.8%)	9.714(1.901-49.646)	8.167(1.438-46.398) *	0.018
Others	15(5.8%)	10(3.8%)	1,821(0.626-5.299)	1.096(0.335-3.589)	0.880
Experience					
0-5	20(7.7%)	23(8.8%)	1.00		
6-10	22(8.5%)	15(5.8%)	0.546(0.272-1.097)		
11-20	38(14.6%)	15(5.8%)	0.921(0.436-1.945)	**	
>20	78(30.0%)	49(18.8%)	1.591(0.793-3.193)		
Ever cared patient with cervical cancer					
Yes	92(35.4%)	32(12.3%)	3.049(1.805-5.151)	2.255(1.255-4.052) *	0.007
No	66(25.4%)	70(26.9%)	1.00		
Training					
Yes	39(15.0%)	13(5.0%)	2.244(1.131-4.452)		0.021
No	119(45.8%)	89(34.2%)	1.00		
Ever visited health institution	125(48.1%)	79(30.4%)	1.103(0.604-2.014)	**	
Yes	33(12.7%)	23(8.8%)	1.00		
No					

* Statistically significant

** Insignificant variables in the crude analysis were omitted from the multivariate analysis

5.6. Factors affecting preventive practice of cervical cancer

Practicing preventive measures of cervical cancer like pelvic exam, Pap smear and HPV vaccine was found to be significantly associated with female nurses' work experience, age, marital status, self history of cervical cancer, unit of work, ever take care of patient with cervical cancer and ever visit to health institution. Nurses aged 40-49 years were less likely to practice preventive measures for cervical cancer than those aged 20-29 years [AOR= 0.123, 95%CI (0.036-0.4209), P=.001]. But self history of cervical cancer was shown to increase preventive practice by 8 fold [AOR=8.440, 95%CI (3.276-21.746), P<.001]. Marital status was not found to be significantly associated with preventive practice when adjusted for possible confounders. Religion, education, parity and positive family history was not significantly associated with practice of preventive measures for cervical cancer (Table 10).

Table 10: Socio-demographic correlates of cervical cancer preventive practice of cervical female nurses' in government hospitals of Addis Ababa, Ethiopia, March 2011

Variables	Preventive practice of cervical cancer		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	Yes	No			
Age					
20-29	30(11.5%)	151(58.1%)	1.00	1.00	
30-39	10(3.8%)	36(13.8%)	0.715(0.321-1.596)	0.448(0.154-1.301)	0.140
40-49	13(5.0%)	11(4.2%)	0.168(0.069-0.411)	0.123(0.036-0.420) *	0.001
50+	4(1.5%)	5(1.9%)	0.248(0.063-0.979)	0.246(0.043-1.409)	0.115
Marital status					
Unmarried	27(10.4%)	137(52.7%)	2.306(1.269-4.191)	1.145(0.501-2.615)	0.748
Married	30(11.5%)	66(25.4%)	1.00		
Religion					
Muslim	4(1.5%)	19(7.3%)	1.00		
Orthodox	41(15.8%)	132(50.8%)	0.678(0.218-2.106)		
Protestant	9(3.5%)	44(16.9%)	1.029(0.282-3.757)	**	
Catholic	2(.8%)	3(1.2%)	0.316(0.039-2.550)		
Others	1(.4%)	5(1.9%)	1.053(0.095-11.633)		
Education					
Diploma	30(11.5%)	109(41.9%)	0.958(0.532-1.726)	**	
Degree and above	27(10.4%)	94(36.2%)	1.00		
Parity					
0	33(12.7%)	145(55.8%)	1.00		
1-4	20(7.7%)	50(19.2%)	0.569(0.299-1.081)		
5+	4(1.5%)	8(3.1%)	0.455(0.129-1.602)	**	
Being diagnosed					
Yes	19(7.3%)	14(5.4%)	6.750(3.115-14.627)	8.440(3.276-21.746) *	0.000
No	38(14.6%)	189(72.7%)	1.00		
Family history					
Yes	25(9.6%)	92(35.4%)	1.061(0.587-1.917)	**	
No	32(12.3%)	111(42.7%)	1.00		

* Statistically significant

** Insignificant variables in the crude analysis were omitted from the multivariate analysis

Nurses who ever taken care of a cervical cancer diagnosed patient and who ever visited health institution were 2 and 4 times more likely to practice preventive measures than those who didn't practice [AOR=2.412, 95%CI (1.153-5.046), P=0.019, and AOR=4.203, 95%CI (1.390-12.708) P=0.011 respectively]. Professional experience was also found to be significantly associated with preventive practice. Other independent variables like ever being trained about cervical cancer and having knowledge of cervical cancer were not found to be significantly associated with preventive practice (Table 11).

Table 11: Profession related factors affecting female nurses' preventive practice of cervical cancer in government hospitals of Addis Ababa, Ethiopia, March 2011

Variables	Preventive practice of cervical cancer		Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
	Yes	No			
Unit of work					
Pediatrics	10(3.8%)	21(8.1%)	1.00	1.00	
ICU	2(.8%)	22(8.5%)	5.238(1.025-26.780)	0.252(0.042-1.512)	0.132
Medical	16(6.2%)	43(16.5%)	1.280(0.497-3.299)	0.542(0.810-3.410)	0.499
Surgical	7(2.7%)	39(15.0%)	2.653(0.881-7.986)	0.401(0.730-2.207)	0.294
Gynecology	14(5.4%)	43(16.5%)	1.463(0.557-3.838)	0.629(0.106-3.722)	0.609
Oncology	2(.8%)	16(6.2%)	3.810(0.730-19.869)	0.516(0.095-2.792)	0.443
Others	6(2.3%)	19(7.3%)	1.508(0.460-4.943)	1.570(0.171-14.373)	0.690
Experience					
0-5	13(5.0%)	30(11.5%)	1.00	1.00	
6-10	4(1.5%)	33(12.7%)	3.575(1.050-12.168)	4.712(1.226-18.110) *	0.024
11-20	7(2.7%)	46(17.7%)	2.848(1.019-7.957)	7.010(1.923-25.553) *	0.003
>20	33(12.7%)	94(36.2%)	1.234(0.576-2.645)	4.667(1.522-14.312) *	0.007
Ever cared patient with cervical cancer	38(14.6%)	86(33.1%)			
Yes	19(7.3%)	117(45.0%)	2.721(1.468-5.043)	2.412(1.153-5.046) *	0.019
No					
Training					
Yes	16(6.2%)	36(13.8%)	1.810(0.916-3.576)	**	
No	41(15.8%)	167(64.2%)	1.00		
Ever visited health institution	52(20.0%)	152(58.5%)			
Yes	5(1.9%)	51(19.6%)	3.489(1.322-9.214)	4.203(1.390-12.708) *	0.011
No					
Knowledgeable about cervical cancer	36(13.8%)	122(46.9%)	1.138(0.620-2.089)	**	
Yes	21(8.1%)	81(31.2%)	1.00		
No	57(21.9%)	203(78.1%)			

* Statistically significant

** Insignificant variables in the crude analysis were omitted from the multivariate analysis

CHAPTER SIX

6. Discussion

This study investigated the knowledge and preventive practice of cervical cancers, and associated factors among female nurses' in government hospitals in Addis Ababa. Female nurses' knowledge of cervical cancer was analyzed by considering knowledge of risk factors, symptoms, treatment options and prevention and early detection measures. The impact of socio demographic variables and other variables like knowing someone affected with the disease and ever visit to health institution on the knowledge and early detection measures of cervical cancer was treated in the study.

The result of this study on risk factors for the development of cervical cancer showed that, 139(53.5%) of the respondents new that multiple sexual partner, sexually transmitted infections 123 (47.3%), early onset of sexual activity 118 (45.4%) and smoking 80(30.8%) were risk factors. In general, 67(25.8%) of the respondents were able to identify all the risk factors for cervical cancer. An enormous difference had occurred when compared with a study done to assess knowledge, attitudes and practices of cervical cancer among registered nurses, at Khon Kaen University, Thailand where 81.8 and 85.6 percent of respondents knew that first sexual intercourse at a young age and having multiple sexual partners is a risk factor, but only 40.5% knew that smoking was also a risk factor. Results of another cross-sectional survey conducted among nurses to assess awareness of cervical cancer risk factors and screening behavior in the rural area of Izmir, a city located in the western region of Turkey states that of the 97 nurses, 69.1% (67) reported smoking, 72.2% (70) reported early age at first sexual intercourse, 81.4% (79) reported multiple sexual partners and 87.6% (85) reported history of sexually transmitted

disease were risk factors of cervical cancer. Forty-five (46.4%) nurses knew all the risk factors of cervical cancer. The difference in here lies mainly because the disease as known was considered to be the disease of the developed one's much attention has been given to this disease in which it has impact in increasing the knowledge of the nurses regarding risk factors of cervical cancer.

This study revealed that 155 (59.6%) of the respondents knew the most common cause of cervical cancer is Human papiloma virus (HPV). When compared with a study done to assess knowledge, attitudes and practices of cervical cancer among registered nurses, at Khon Kaen University, most (81.8% and 70%) knew that the cause of cervical cancer is HPV infection and genetic predisposition, respectively [18]. As been explained earlier the gap appeared due to the emphasis given to cervical cancer.

Regarding the respondents' knowledge of the symptoms of cervical cancer, 133 (51.2%), 125 (48.1%), 98 (37.7%), and 108 (41.5%) of the respondents were able to mention bleeding, pain during sexual intercourse, excessive vaginal discharge and offensive vaginal discharge as symptoms of cervical cancer respectively. With difference to the percentage only the symptoms mentioned in the study at Khon Kaen University, Thailand a respective 69.8%, 77.7% and 92.4% knew that common symptoms include post coital bleeding, inter-menstrual bleeding and abnormal leukorrhea or blood-stained vaginal discharge. According to the study conducted on awareness of breast and cervical cancer risk factors and screening behaviors among nurses working in Pamukkale University Hospital in Denizli in rural region of Turkey about symptoms of cervical cancer, most of the nurses knew pain in pelvic region (75.2%), pain during sexual intercourse (82.4%), vaginal bloody discharge (88%). This may be due to inadequate training that updates the nurses knowledge on cervical cancer, the nursing curricula covers a lesser

portion on cervical cancer and less exposure of nurses with cervical cancer patients in this country, let them have deficit in knowing main presenting symptoms as the collected data revealed only 47.7% of them had contact patient with cervical cancer and 20% had training on cervical cancer.

Prevention and early detection are keys to the reduction of incidence and progression of many chronic diseases including cancer [32]. Majority 205 (78.8%) of those who were aware of cervical cancer knew that cervical cancer can be prevented and 218 (83.4%) knew it will be cured if detected early. This finding is higher than the findings of the study in South Africa in which 57% of the respondents knew that cervical cancer can be prevented [24]. This difference can be explained by the difference in the background of the study participants and the time gap as better attention has given to cancer these days. But the result is consistent with the finding of the study conducted in Hong Kong where 92% of women knew that cervical cancer can be cured if detected early [25]. But 15% of the respondents believe that cervical cancer cannot be cured, this may be an indication of the presence of misconception about the disease in this community and may hinder prevention efforts.

In many studies, different socio demographic variables have shown to affect the knowledge of cervical cancer. In this study, nurses who have history of cervical cancer in their family and with degree and above education were 3.8 times and 2 times more knowledgeable than the other groups of nurses.

A Pap test and pelvic examination are recommended as important parts of a woman's routine health care because they can detect abnormalities that may lead to invasive cancer of the cervix. These abnormalities can be treated before cancer develops. In some countries annual pelvic

examination is regarded as an important routine ‘health-check’ [33]. However this study revealed that only few nurses 84(32.3%) had under gone pelvic exam in their life time. Though having this exam may increase the chance of early detection of the disease especially for low resource countries; only 22 (8.5%) of these nurses reported screening as the reason for their pelvic exam. The finding is consistent with the findings of the study conducted by Emmanuela Gakidou and his colleagues to examine cervical cancer screening coverage in 57 countries, where 90% of women in Ethiopia have never had a pelvic examination [26]. This low finding may be associated with the low health care utilization and health care seeking behavior and the cultural influence that most women are not comfortable to undergo pelvic examination even when it is required. Having had pelvic examination was associated with factors like age, marital status, self history of cervical cancer, unit of work, nursing experience, ever cared patient with cervical cancer and ever visits to health institution.

Most invasive cancers of the cervix can be prevented if women have Pap tests regularly. The general recommendation for Pap smear is women should have Pap smear once a year 3 years after the initiation of sexual intercourse [16]. The finding of this study has indicated even if 225 (86.5%) of the sample population had heard about Pap smear test only 38(14.6%) had practiced which is consistent with a study done in Nnewi, South Eastern Nigeria to assess knowledge, attitude and practice of cervical cancer screening (Pap smear) among female nurses, where knowledge of cervical cancer screening services is high while uptake rate is terribly poor [22]. However this result is inconsistent with the study in Shiraz – Iran that was conducted on knowledge and practice of breast and cervical cancer screening among nurses from the total of 270 nurses participated in the study, 30% reported having a pap-smear test [20].

In addition, with a study of Izmeir concerning practice of the nurses, 53.6% (52) did not have Pap smear. Also specific to knowing about Pap test and practicing it as mentioned in a study at Pamukkale, 50.4% (63) of the nurses who knew about Pap smear did not have the test [19]. The difference is not surprising because Pap smear is widely available as a screening tool in Shiraz – Iran, Izmeir and Turkey and there is also national pap smear policy where as Pap test is available only in some health institutions in Ethiopia.

Regarding when a woman should start Pap test 186 (71.5%) of the respondents did not know at age 21or within three years of the first time of sexual intercourse. Hundred thirty six (52.3%) of them gave correct answer for the recommended frequency of Pap smear test which is annually with great difference to the study of Pamukkale; 84.8% (106) of the respondents believed that it should be done yearly, but 76.8% (96) did not know that it should be done 3 years after the onset of sexual life. Even though similarity has been seen in this study with that of Pamukkale regarding starting age of Pap test a great difference lie with frequency of the test which is indicative that respondents of this study does not have deep know how other than information and this could be due to unavailability of the test widely.

In this study 225 of the respondents knew about the test but did not engage themselves in doing the test mainly because of virginity 42 (16.2%), fear of the test54 (20.8%), cultural or religious13(5%) not being ill 52 (20%), discouraged by partners 7 (2.7%) , inaccessibility of health facilities 30(11.5%) and others like ignorance 21 (8.1%). Slight difference with the study in Nnewi, 52 (37.1%) of the respondents had no reason, while 35 (25%) felt they were not likely candidates for carcinoma of the cervix, further 26 (18.6%) claimed ignorance of the procedure while 21 (15%) attributed fear of the outcome as reason for not screening [22]. Similar study at Pamukkale, the reasons of not performing Pap smear test was virginity (31.2%).

CHAPTER SEVEN

7. Strength and limitations of the study

7.1. Strengths of the study

- Since there is no similar study conducted in the country, it can contribute a lot as baseline information for future studies.

7.2. Limitation of the study

- Lack of study done on this area in the country made literature review difficult
- The error inherent the method of data collection (self administered questionnaire) may have introduce some response bias
- This study is done on female nurses hence they have professional advantage towards their own health status. Therefore the result found in this study couldn't represent the whole female population of the nation.

CHAPTER EIGHT

8. Conclusion

- `From this finding it is possible to conclude that; more than half of the respondents were Knowledgeable but nurse's practice of preventive measures for cervical cancer was very poor.
- Though majority of the nurses were aware of the disease, their practice of preventive measures (pelvic exam, Pap smear test and HPV vaccine) of cervical cancer was very poor in this study. In support very few nurses' had under gone pelvic examination in their lifetime and almost none had the examination for detection of cervical cancer. The practice of Pap smear was also very poor, even some of the nurses were not aware of the test. Amazingly more than half of the respondents knew HPV is cause for cervical cancer only 6.9% had gone for HPV vaccine.
- Among the socio demographic and profession related factors, marital status and training has a strong and positive association on the knowledge of cervical cancer. In addition, other variables like education, family history, unit of work and ever cared patient with cervical cancer were shown to be significant and positive predictors of knowledge of cervical cancer.
- Practice of preventive measures was not significantly associated with knowledge of cervical cancer rather marital status and unit of work did. Variables like age, experience, being diagnosed with cervical cancer, ever cared patient with cervical cancer and ever visited to health institution were revealed to be significant and positive predictors of preventive practice of cervical cancer.

CHAPTER NINE

9. Recommendation

- The results of this study highlight relevant information about awareness of cervical risk factors and cancer screening in health professions. It is possible to recommend that course of nursing in its curriculum some changes must be made on its preventive measures.
- There is a need to further enlighten this group who are expected to play a major role in mobilizing the local communities so that nurses keep on playing their role in saving themselves and their clients at early stage of the disease thus reduces the morbidity and mortality associated with invasive cervical cancer.
- Educational pamphlets, notices and hospital announcements are useful in increasing knowledge and practice of the nurses; governmental (MOH) and nongovernmental organization like ECA (Ethiopian cancer association) should take part in.
- MOH should work with other organizations to avail cost effective screening services to the public at all health care settings.
- Media should not only deal about awareness but also need to provide comprehensive information about cervical cancers as it can reach many people.
- Training should be given as it can bring an overwhelming change to the knowledge and practice of the nurses towards cervical cancer.
- Further research has to be done since this study has its own limitations

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11. ANNEXES

Annex I: Information sheet

Good morning/ Good afternoon

Information Sheet prepared for female nurses who are going to participate in research project, a cross-sectional study on knowledge and preventive practice of female nurses towards cervical cancer in government hospitals in Addis Ababa, Ethiopia.

Name of Principal investigator: Mignote Hailu

Name of the organization: Addis Ababa University College of Health Sciences Department of Nursing and Midwifery.

Name of the Sponsor: Addis Ababa University

Introduction

This information sheet is prepared to explain the study you are being asked to join. Please listen carefully and ask any questions about the study before you agree to join. You may ask questions at any time after joining the study. The investigator include final year MSN graduate student from the department of nursing, college of health science, Addis Ababa university, and one advisor from the Addis Ababa university.

Purpose of Research Project

The purpose of this research is to assess the knowledge of cervical cancer, its preventive practice and associated factors among female nurses in government hospitals in Addis Ababa. The study will be helpful in determining the current level of knowledge of female nurses about cervical cancer and the measures taken by female nurses to prevent the disease early and contribute much to design appropriate intervention strategies. It also will serve as a springboard for subsequent studies in the country.

Procedure

To assess the knowledge of cervical cancer, its preventive measures and associated factors among female nurses in Addis Ababa government hospitals, we invite you to take part in this project. If you are willing to participate in this project, you need to understand and sign the agreement form. Then after, you will receive the questionnaire by the data collector to give your response. You do not need to write your name on the questionnaire and all your responses and

the results obtained will be kept confidentially by using coding system whereby no one will have access to your response.

Risk/ Discomfort

By participating in this research project, you may feel that it has some discomfort especially on wasting time about **35** minutes. We hope you will participate in the study for the sake of the benefit of the research result. There is no risk in participating in this research project.

Benefits

If you participate in this research project, there may not be direct benefit to you but your participation is likely to help us in assessing the knowledge of cervical cancer and its preventive practices. Ultimately, this will help us to work on awareness creation interventions.

Incentives

You will not be provided any incentives or payment to take part in this project.

Confidentiality:

The information collected from this research project will be kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. And it will not be revealed to anyone except the principal investigator and will be kept locked with key.

Right to refuse or withdraw:

You have full right to refuse from participating in this research. You can choose not to respond to some or all questions if you do not want to give your response. You have also the full right to withdraw from this study at any time you wish, without losing any of your right.

Annex II: Consent form

In signing this document, I am giving my consent to participate in the study titled "*A cross-sectional study on knowledge and preventive practice of female nurses towards cervical cancer in government hospitals, Addis Ababa.*"

I have been informed that the purpose of this study is to assess nurses' knowledge and preventive practice towards cervical cancer in Addis Ababa government hospitals. I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me. I understood that participation in this study does not involve risks.

I understood that Mignote Hailu is the contact person if I have questions about the study or about my rights as a study participant.

Address of the principal investigator:

Mignote Hailu

Mobile number: +251 0912013006/0920157447; E-mail: **hmignote@yahoo.com**

Address of Addis Ababa University, Faculty of Medicine, Institutional Review Board:

Telephone number: 0115538734 E-mail: **aaumfirb@yahoo.com**

Date_____ Time started: _____ Time finished: _____

Results of self administered questionnaire

1. Completed
2. Respondent not available
3. Refused
4. Partially completed

Identification

Questionnaire No. _____Supervisor's name _____ signature _____

Annex III. Questionnaire

Addis Ababa University

College of Health Science

Department of Nursing and Midwifery

A cross sectional study to assess nurses' knowledge and preventive practice towards cervical cancer

This questionnaire has 3 parts: Part I socio demographic characteristics; part II nurses' knowledge towards cervical cancer and part III nurses' preventive practice towards cervical cancer.

Instruction: Please read each item carefully and give your honest response to each item. If you overlook any item without response, it will affect the study. So, please check that you have given response to all items.

I thank you for your genuine responses and cooperation.

Part I: Socio-demographic characteristics

Indicate your response by marking (x) on the space provided accordingly.

No.	Questions	Response	Code
101	Age	---------- Years	
102	Marital status	A. Single ☐ B. Married/live with partner ☐ C. Divorced ☐ D. Widowed ☐ E. Separated ☐	
103	Religion	A. Orthodox ☐ B. Muslim ☐ C. Protestant ☐ D. Catholic ☐ E. Others (specify)_____	
104	Educational level in nursing	A. Diploma ☐ B. Degree ☐ C. Masters ☐	

		D. Other (specify) ☐	
105	Unit of work	A. Medical ward ☐ B. Surgical ward ☐ C. Gynecology ☐ D. Pediatrics ☐ E. ICU ☐ F. Others (specify) _____	
106	Parity (including those who are not alive)	_____ in number	
107	Year of service in nursing	_____ completed years	
108	Nursing position	A. Staff ☐ B. Head ☐ C. Public health nurse ☐ D. Other specify _____	
109	Have you ever take care of a patient with cervical cancer?	A. Yes ☐ B. No ☐	

Part II: Questions related to cervical cancer

2.1. Cervical cancer knowledge related questions

No.	Questions	Response	Code
201	What was your source of information about cervical cancer? (More than one answer is possible)	A. Regular nursing course ☐ B. Health professionals ☐ C. Radio/Television ☐ D. Books/magazines ☐ E. Training ☐ F. Friends/relatives ☐ G. Others (specify) _____	
202	Cervical cancer in developing country is:	A. Leading cause of cancer death ☐ B. The 2nd leading cause preceded by breast cancer ☐ C. The least cause of cancer death ☐ D. I don't know ☐	
203	Have you ever been diagnosed for cervical cancer?	A. Yes ☐ B. No ☐	
204	If your answer for question no. 203 is yes, did you get any treatment?	A. Yes ☐ B. No ☐	
205	If your answer for question no. 204 is yes, what type of treatment did you get?	A. Surgery ☐ B. Radiation therapy ☐ C. Chemotherapy ☐ D. Others (specify)_____	

206	Do you know anyone diagnosed with cervical cancer?	A. Yes ☐ B. No ☐	
207	If your answer for question no. 206 is yes, what is the relation with your family?	A. Family member ☐ B. Relative ☐ C. Friend ☐ D. Other (specify)_____	
208	Are there risk factors that make women vulnerable for cervical cancer?	A. Yes ☐ B. No ☐ C. I don't know ☐	
209	If your answer for question no. 208 is yes, are these the risk factors for cervical cancer? (Choose all that apply)	A. Early onset of sexual activity ☐ B. Family history of cervical cancer ☐ C. Multi parity ☐ D. Sexually transmitted infection ☐ E. Prolong use of oral contraceptives ☐ F. Smoking ☐ G. Multiple sexual partners ☐ H. I don't know ☐ I. Others (specify)_____	
210	The commonest cause for cervical cancer?	A. Smoking ☐ B. Oral contraceptive ☐ C. Human Papiloma Virus (HPV) ☐ D. Early menarche ☐ E. Others (specify) _____	
211	Which of the following are the early symptoms for cervical cancer? (Choose all that apply)	A. Pain during sexual intercourse ☐ A. Bleeding after intercourse ☐ B. Post-menopausal bleeding ☐ C. Excessive vaginal bloody discharge ☐ D. Offensive vaginal discharge ☐ E. Abnormal bleeding between periods ☐ F. Has no symptom/ pain ☐	
212	The disease could early be detected if	A. Have regular medical checkups (screening) ☐ B. Visit a health worker when feel sick ☐ C. Not detected early ☐ D. Others (specify)_____	
213	Have you ever heard about Pap smear test?	A. Yes ☐ B. No ☐	
214	When should a woman get pap smear test for cervical cancer?	A. At the age of 28 years and above ☐ B. After every sexual intercourse ☐ C. At age 21, or within three years of the first time you have sex ☐	

		D. After menopause only ☐	
215	What is the recommended frequency for a pap smear test?	A. Annually ☐ B. Every 3- 5 years ☐ C. Every 10 years ☐ D. I don't know ☐	
216	Can cervical cancer be prevented?	A. Yes ☐ B. No ☐ C. I don't know ☐	
217	If your answer for question no. 216 is yes, what are the measures to prevent the disease? (Choose all that apply)	A. Regular screening (medical checkup) ☐ B. Vaccine (for cervical cancer) ☐ C. Delaying sexual debut ☐ D. Being faithful to sexual partner ☐ E. Use of condom during sexual Intercourse ☐ F. Others (specify)_____	
218	Can cervical cancer be treated?	A. Yes ☐ B. No ☐ C. I don't know ☐	
219	If your answer for question no. 218 is yes, which one of the following is the best treatment for cervical cancer?	A. Surgery ☐ B. Radiation therapy ☐ C. Chemotherapy ☐ D. Treat according to the stage of the disease ☐ E. Others (specify)_____	
220	At which stage of diagnosis is cervical cancer curable?	A. Early ☐ B. Late ☐ C. Any time ☐ D. Can't be cured ☐ E. I don't know ☐	
221	What is colposcopy?	A. Treatment for cervical cancer ☐ B. Investigation of abnormal cells, biopsies ☐ C. Same as pap smear ☐ D. Test for cancer ☐ E. I don' know ☐	
2.2. Questions related to preventive practice of cervical cancer			
222	What do you do if you develop an abnormal vaginal bleeding or bleeding after intercourse?	A. Visit health facilities ☐ B. Go to religious places/holly Water ☐ C. Use herbal/traditional medicine ☐ D. Ignore the symptoms and	

		Wait ☐ E. I don' know ☐	
223	Have you ever had a pelvic exam?	A. Yes ☐ B. No ☐	
224	If your answer for Q no. 223 is yes, what was the reason for the last pelvic exam?	A. Bleeding between periods ☐ B. Pain during sexual intercourse ☐ C. Vaginal discharge ☐ D. Sexually transmitted infection ☐ E. Screening for cervical cancer ☐ F. Pregnancy ☐ G. Abortion ☐ H. Others (specify)_____	
225	Was it specifically for cervical cancer?	A. Yes ☐ B. No ☐ C. I don't know ☐	
226	How many times did you ever have a pelvic exam?	A. One times ☐ B. Two times ☐ C. Three and above ☐	
227	Have you ever had a pap smear?	A. Yes ☐ B. No ☐	
228	If your answer for question no. 227 is No what was the reason?	A. Virginity ☐ B. Fear of the procedure ☐ C. Cultural / Religious reason ☐ D. I'm not ill so it's not necessary ☐ E. Not suggested by my doctor ☐ F. Discouraged by partner or others ☐ G. No access to a clinic where Pap smear is done ☐ F. Other, specify_____	
229	If your answer for question no. 227 is yes how many times did you ever have a pap smear?	A. One times ☐ B. Two times ☐ C. Three and above ☐	
230	Have you ever visited a health institution?	A. Yes ☐ B. No ☐	
231	Have you ever vaccinated for Human Papiloma Virus (HPV)?	A. Yes ☐ B. No ☐	

Annex IV: Biography of principal investigator

I. Personal Information

Name	:	Mignote Hailu Gebrie
Date of Birth	:	July 21, 1986 G.C.
Sex	:	Female
Place of Birth	:	Dessie
Nationality	:	Ethiopian
Marital Status	:	Single

II. Language Fluency

Language:	Writing	Speaking	Reading	Listening
Amharic:	*Excellent*	*Excellent*	*Excellent*	*Excellent*
English:	*Excellent*	*Excellent*	*Excellent*	*Excellent*

III. Present Address

Addis Ababa, S/City – *Gulele* Kebele: *15* H. No. 009

Tel. (Mobile): +251 912013006 (Residence): +251111240007

E-mail: hmignote@yahoo.com

IV. Educational Background

Higher education

- Years 2009/10- 2010/11: MSc fellow in Adult health Nursing in Addis Ababa University
- Years 2004/05-2006/07 : BSc Degree in Nursing, Addis Ababa University

High-school

- Years 2002/03-2003/ 04 : Hotie Secondary and Preparatory School
- Years 2000/01-2001/02: Catholic Missionary School

Elementary

- Years 1992/93-1999/2000 : Memher Akalewold Public School

V. Work Experience

- Years 2006/07- 2008/09- Gondar University College of Health Science as Teaching Staff

VI. Trainings and Skills

In 2006 I have been trained on teaching methodology (Pedagogy) by charter center in collaboration with University of Gondar in Gorgora for 5 days.

In February 18-22, 2008 I have been participated in a Student performance assessment methodology workshop for Nursing and Midwifery Faculty organized by Jhpiego Ethiopia in collaboration with the Ministry of Health (MOH) and the Ministry of Education (MOE).

In September 22-26, 2008 I have been trained on HIV AIDS knowledge update on PMTCT and ART course for Medical Faculty of Gondar University organized by Jhpiego Ethiopia in collaboration with the Ministry of Health (MOH) and the Ministry of Education (MOE).

In June 16-20, 2008 I have been trained on HIV AIDS knowledge update on IP and PITC by Jhpiego Ethiopia in collaboration with the Ministry of Health (MOH) and the Ministry of Education (MOE).

In 2009 I have also been trained on International English Language Testing System (IELTS).

I have been taken basic computer skills, research and computational skills

VII. Hobbies

Reading different spiritual books and magazines, discussing on different topics with peers and Watching Movie Theater.

Engaging in health related research institutes, teaching in higher education and reading nursing related books

VIII. References

Sr. Frehiwot Getahun, Department Head of Nursing, College of Health Sciences, Gondar University, Cell phone: + 251913717299; email: fran_get@yahoo.com

Ato Asrat Demessie Director of Department of Nursing and Midwifery, College of Health Sciences, Addis Ababa University, Cell phone:+251911201135; email:asrat_dem@yahoo.com

Annex V: Declaration

I, the undersigned, declare that this thesis is my original work in the partial fulfillment for the requirement of Masters Degree in adult health nursing, has not been presented for a degree in any other university. All sources of materials used for this thesis and all people and institutions who gave support for this work have been duly acknowledged.

Name of student: Mignote Hailu

Signature: _____ Date _____

Place of submission: Department of nursing and midwifery, College of medicine and Health Sciences, Addis Ababa University.

Date of Submission: _____

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

Name of advisor: Mesfin Abebe (BSc, MPH and Lecturer, PhD fellow)

Signature: _____

Date _____