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Knowledge, Preventive Practice and Associated Factors of Female Nurses' Towards Cervical Cancer in the Selected Government Hospitals in Addis Ababa, Ethiopia

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Abstract

Background: Cervical cancer is the most common cancer in women in sub-Saharan Africa. In Ethiopia, the incidence of cervical cancer is high, 35.9 per 100,000 women.

Objective: To explore cervical cancer knowledge, preventive practices and associated factors among female nurses in government hospitals.

Methods: 275 nurses participated in this cross-sectional descriptive study by responding to a structured questionnaire about knowledge and preventive practices. Statistical analysis included both bivariate and regression analysis, while controlling for possible confounders.

Results: A little over half (60.8%) of nurses had knowledge of cervical cancer but only 21.9% reported practicing prevention of cervical cancer. Marital status and training about cervical cancer screening had a strong and positive association on knowledge; education, family history, unit of work and ever cared patient with cervical cancer were also significantly associated with knowledge of cervical cancer. Preventive practice of cervical cancer was significantly associated with younger age, work experience, being diagnosed with cervical cancer, and ever cared patient with cervical cancer and ever visited a health institution.

Conclusion: While at least 60% of the respondents were knowledgeable but preventive practices among nurses were low. Consistent training is required on knowledge and preventive practices of cervical cancer to combat its high morbidity and mortality in Ethiopia.

Keywords: Cervical cancer; Knowledge; Preventive practice; Ethiopia; Africa

Abbreviations: 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

Background

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 [1]. Sexually active women may be at risk for 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 [2].

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 that often come with advanced disease [3].

Women in Africa are significantly affected by cervical cancer. 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 each year. Equally high rates of cervical cancer have been reported in several African countries including Uganda, Malawi, Kenya, and Ethiopia [4].

The most frequent form and leading cause of cancer mortality

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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 [5]. Current estimates indicate that every year 7619 women are diagnosed with cervical cancer and 6081 die from the disease. Cervical cancer ranks as the most frequent cancer diagnosis among women in Ethiopia, as well as the most common cancer among women between 15 and 44 years of age [6].

The purpose of this study was to assess the knowledge, preventive practice and associated factors of female nurses' towards cervical cancer in government hospitals of Addis Ababa, Ethiopia.

According to the Black Lion Hospital radiotherapy unit in Ethiopia, 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 respectively) [7].

Nurses constitute the group of health workers who can provide accurate information to the public on cervical cancer, and were the target for this study for two reasons: a) they were expected to have higher knowledge about cervical cancer than counterparts in other professions or lay women as they are health professionals; b) nurses have an important role in the education of women in Ethiopia because women feel comfortable asking them about the symptoms and screening for gender-specific cancers such as breast and gynecological cancers. Thus, they can constitute a model of health promotion for women, and serve a meaningful role in the education. Nurses can have a major influence on the behavior of our women, but they need to be knowledgeable themselves about cervical cancer and the importance of early detection through screening, to combat this emergent public health problem.

Methods

Study setting

The study was conducted in Addis Ababa, which is the federal capital of Ethiopia. The city has 10 governmental hospitals, from which five hospitals were managed under Addis Ababa administration health bureau. The remaining hospitals were managed under ministry of health and one under Addis Ababa University.

Study design, participants and sampling procedure

A cross-sectional quantitative descriptive study design was used. Study participants were female nurses working in the government hospitals in Addis Ababa. Sample size was determined using single population proportion formula with a 95% confidence interval, a precision of 5%, and an assumed knowledge and preventive practice of cervical cancer 50%(0.5) to get a maximum sample size as there were no previous study conducted similar to this study. The calculated sample size was 250 by adding 10% non-response rate and incomplete data the final sample size became 275 female nurses. Government hospitals (Tikur Anbesa, St. Paul, Yekatit 12 and Gandhi memorial hospitals) were selected by simple random sampling technique. Proportional to size allocation was used to give equal chance to each hospital and then simple random sampling technique was utilized to reach each study unit. Data were collected using a pre-tested, structured, and self-administered questionnaire

Data management and analysis

Data entry and validation was done in EPI info version 3.5.1 statistical software. Data were then exported to SPSS windows version 16.0 where frequencies and statistical analyzes were run. The outcome variables of the study [knowledge and preventive practices] were binary categorical variables (knowledgeable, not knowledgeable and good practice, poor practice). A score less than the median were categorized as not knowledgeable and the value greater than or equal to the median was categorized as knowledgeable. Nurses who reported at least one of the preventive practices (HPV vaccination, pelvic examination and Pap smear test) for cervical cancer prevention were considered as having good practice. Bivariate analysis was used primarily to check for the association of independent variable with the dependent. Variables found to related to the outcome of knowledge and preventive practice, at p value <0.2, were entered in to multiple logistic regression model for controlling the possible effect of confounders. Odds ratios with 95%CI are reported for significant variables related to the outcomes of knowledge and preventive practice.

Ethical considerations

We obtained ethical approval from Addis Ababa University College of Health Sciences Department of Nursing and Midwifery research review committee. Written informed consent was obtained from the respondents, clearly stating potential risks and benefits of the study and seeking their voluntary participation.

Results

Response rate

Out of the 275 questionnaires 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 missing data, for a final analytic sample size of (response rate of 94.5%). The majority of the respondents 120 (46.2%) were from Tikur Anbesa hospital, 60(23%) and from St. Paul's 54 (21%), and the smallest number 26 (10%) were from Gandhi memorial hospital.

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, 46.5% were aged between 20-25 years with a mean age of 28.9 years (SD ± 7.8 years) and 59.6% were single. Respondents were predominantly of the Orthodox Christian faith (66.5%) followed by Protestants (20.4%). Over half of the respondents were diploma holders (53.5%) and 46.5% were reported a college degree and higher educational level. The highest sample size was from the medical ward (22.7%), and surgical ward (17.7%). The majority had less than 5 years work experience (66.9%). Over half of the respondents were of nulliparous (68.5%) (Table 1).

History of cervical cancer and other related factors

Personal history of cervical cancer was reported in 12.7% of the respondent. Thirty one (11.9%) had been treated with any of the three treatment modalities (surgery, radiation therapy or chemotherapy); 53 % of the respondents also knew someone with cervical cancer and 6% had a history of cervical cancer in their families. Nearly half of the respondents (47.7%) had cared for someone with a Cervical Cancer diagnosis (Table 2).

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

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	.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

Table 1: Respondents' Socio-Demographic Characteristics in Government Hospitals of Addis Ababa, Ethiopia, March 2011.

in Addis Ababa ranges from 0-15. The mean score of knowledge test was 7.9 (SD=2.6). The median score was 8 and 158 nurses scored 8 and above (Figure 1).

Source of information for cervical cancer

Nurses were asked about the source of information regarding cervical cancer and they revealed that regular courses in nursing were the predominant source (75.4%) followed by health professionals/ work/colleague (47.0%), books/magazines (40%), radio/television (30.8%), training (20%), and friends/relatives (14.6%).

Knowledge on risk factors of cervical cancer

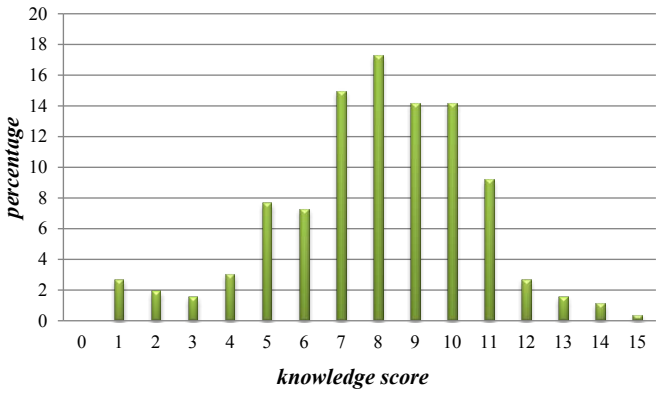
A series of questions regarding risk factors, main symptoms, treatment options and prevention and early detection measures of cervical cancer were asked to evaluate the respondents' knowledge of cervical cancer. Only 36.9% of respondents were aware that cervical cancer is the leading cause of cancer death in developing countries, 35.8% agreed it was the second leading cause preceded by breast cancer, while 20.8% reported they don't know. Well over half the sample (83.8%) reported that there were risk factors for cervical cancer. A small percent (3.1%) of those who were aware of cervical cancer did not know whether there were risk factors or not and 13.1% stated there were no risk factors for cervical cancer.

Regarding the knowledge of specific risk factors, 53.5% of the respondents knew that having multiple sexual partners is a risk factor followed by sexually transmitted infections (47.3%) and early onset of sexual activity (45.4%). In general, only 25.8% of the respondents were able to identify all the possible risk factors for cervical cancer and

Diagnosed for Cervical Cancer	Number	Percent
Yes	33	12.7
No	227	87.3
Get any treatment		
Yes	31	11.9
No	2	.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

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.



N=260, Median=8

Figure 1: Distribution of knowledge score of respondents in the selected government hospitals in Addis Ababa, Ethiopia, March 2011.

59.6% of the respondents knew that the most common cause of cervical cancer is Human Papilloma Virus.

Knowledge on symptoms of cervical cancer

Regarding the respondents' knowledge of the main symptoms of cervical cancer, 51.2% respondents mentioned bleeding after intercourse, 48.1% pain during sexual intercourse, 41.5% offensive vaginal discharge, 37.3% abnormal bleeding between periods while 13.1% of the respondents stated that cervical cancer has no symptoms.

Knowledge on preventive measures and treatment options

Just under half the sample (46.9%) respondents correctly identified colposcopy as investigation of abnormal cells, with 27.3% being unsure. In relation to Pap smear, 86.5% of nurses had heard about the test. Only 28.5% of the respondents reported at age 21or within three years of the first time of sexual intercourse as when a woman start being tested; 28.5% gave an incorrect answer for the recommended frequency of Pap smear test such as every 10 years and 22 (8.5%) was uncertain.

Majority (78.8%) of nurses knew that cervical cancer can be prevented if appropriate measures are taken, while 14.2% stated that cervical cancer cannot be prevented and 6.9% claimed they did know anything about prevention of cervical cancer. Regular medical checkup (screening) was mentioned by majority of the respondents 72.3% as a helpful prevention measure, and 91.5% also knew that cervical cancer can be treated. When the respondents were asked about treatment options, 37.7%) mentioned surgery, 29.6% chemotherapy, 9.2% radiation therapy; 15.4% said treatment according to the stage. The majority (83.8%) agreed that cervical cancer can be cured if detected early.

Preventive practice of female nurses towards cervical cancer

Pelvic examination: The majority (78.5%) nurses had visited a health institution, but only 32.3% of them had under gone pelvic examination for different reasons and 22.7% of these nurses had the examination two or more times in their life time. Only 8.5% reported that they underwent pelvic examination for the purpose of cervical cancer screening, none had done so regularly (Figure 2).

Pap smear test and HPV vaccine: Regarding Pap smear test, of those who had heard about the test, only 14.6% had the test. Half (50%) of these nurses had the test once in their life, 31.6% had two times and only 18.4% had undergone three times and above. Among those, who knew about Pap smear test (n=225), 61% did not do the test mainly because of personal factors such as virginity, fear of the test, cultural or religious and not being ill. Factors related to health care workers, partners of the individuals and access to health facilities also were reasons not having a test.

Amazingly while more than half of the respondents knew HPV is a cause for cervical cancer only 6.9% had gone for HPV vaccine. Nurses were also asked what they do if they developed pain or bleeding after intercourse; (86.2% reported that they would visit health institutions, 18.8% religious places; 1.9% preferred traditional medicine.

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 a 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). Those with someone affected with cervical cancer in the family was 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) (Table 3).

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; AOR=2.595, 95%CI=.958-7.030, 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) (Table 4).

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). But self-history of cervical cancer was shown to increase preventive practice by 8 fold (AOR=8.440, 95%CI=3.276-21.746). Marital status was not found to be significantly associated with preventive practice when adjusted for possible confounders. Religion, education, parity and positive family history were not significantly associated with practice of preventive measures for cervical cancer (Table 5).

Nurses who ever taken care of a cervical cancer diagnosed patient and who ever visited a 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; AOR=4.203, 95%C=1.390-12.708), 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 6).

Discussion

In this study, 53.5% of the respondents knew that multiple sexual partners, sexually transmitted infections 47.3%, early onset of sexual

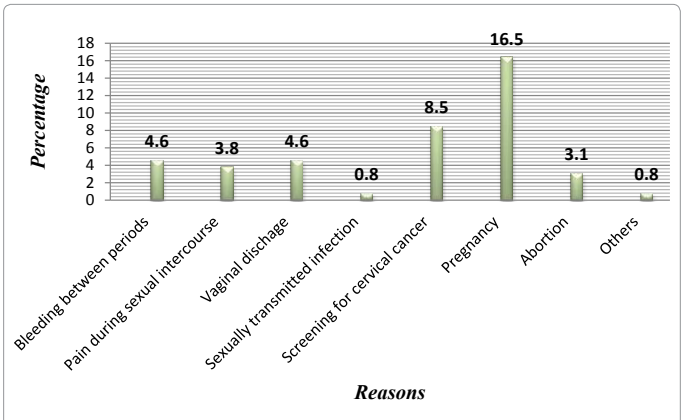


Figure 2: Reasons to undergo pelvic examination among female nurses in the selected government hospitals in Addis Ababa, Ethiopia, March 2011.

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		21(8.1%)	.181(.022-1.476)		
40-49	25(9.6%)	6(2.3%)	.149(.017-1.288)	**	
50+	18(6.9%) 8(3.1%)	1(.4%)	.375(.39-3.649)		
Marital status					
Unmarried	91(35.0%)	73(28.1%)	1.853(1.087-3.160)	1.482(.796-2.759)	.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) *	.014
Parity					
0	102(39.2%)	76(29.2%)			
1-4		22(8.5%)	1.626(.905-2.920)	**	
5+	48(18.5%) 8(3.1%)	4(1.5%)	1.490(.433-5.131)		
Being diagnosed for cervical cancer					
Yes	18(6.9%)	15(5.8%)	.746(.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) *	.000
No	66(25.4%)	77(29.6%)	1.00		

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

Table 3: 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)			
Unit of work Pediatrics	14(5.4%)	17(6.5%)	1.00	1.00	
ICU	11(4.2%)	13(5.0%)	1.027(.352-2.996)	.684(.211-2.216)	.527
Medical	34(13.1%)	25(9.6%)	1.651(.688-3.968)	1.589(.616-4.099)	.338
Surgical	28(10.8%)	18(6.9%)	1.889(.751-4.752)	1.353(.497-3.683)	.554
Gynecology	40(15.4%)	17(6.5%)	2.857(1.154-7.076)	2.595(.958-7.030)	.061
Oncology Others	16(6.2%) 15(5.8%)	2(.8%) 10(3.8%)	9.714(1.901-49.646) 1,821(.626-5.299)	8.167(1.438-46.398) * 1.096(.335-3.589)	.018 .880
Experience					
0-5	20(7.7%)	23(8.8%)	1.00		
6-10	22(8.5%)	15(5.8%)	.546(.272-1.097)		
11-20	38(14.6%)	15(5.8%)	.921(.436-1.945)	**	
>20	78(30.0%)	49(18.8%)	1.591(.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) *	.007
No	66(25.4%)	70(26.9%)	1.00		
Training					
Yes	39(15.0%)	13(5.0%)	2.244(1.131-4.452)		.021
No	119(45.8%)	89(34.2%)	1.00		
Ever visited health institution					
Yes	125(48.1%)	79(30.4%)	1.103(.604-2.014)	**	
No	33(12.7%)	23(8.8%)	1.00		

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

Table 4: Profession Related Factors Affecting Knowledge of Female Nurses' About 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			
Age					
20-29	30(11.5%)	151(58.1%)	1.00	1.00	
30-39	10(3.8%)	36(13.8%)	.715(.321-1.596)	.448(.154-1.301)	.140
40-49	13(5.0%)	11(4.2%)	.168(.069-0.411)	.123(.036-0.420) *	.001
50+	4(1.5%)	5(1.9%)	.248(.063-0.979)	.246(.043-1.409)	.115
Marital status					
Unmarried	27(10.4%)	137(52.7%)	2.306(1.269-4.191)	1.145(.501-2.615)	.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%)	.678(.218-2.106)		
Protestant	9(3.5%)	44(16.9%)	1.029(.282-3.757)	**	
Catholic	2(.8%)	3(1.2%)	.316(.039-2.550)		
Others	1(.4%)	5(1.9%)	1.053(.095-11.633)		
Education					
Diploma	30(11.5%)	109(41.9%)	.958(.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%)	.569(.299-1.081)	**	
5+	4(1.5%)	8(3.1%)	.455(.129-1.602)		
Being diagnosed					
Yes	19(7.3%)	14(5.4%)	6.750(3.115-14.627)	8.440(3.276-21.746) *	.000
No	38(14.6%)	189(72.7%)	1.00		
Family history					
Yes	25(9.6%)	92(35.4%)	1.061(.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

Table 5: Socio-Demographic Correlates of Cervical Cancer Preventive Practice of 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			
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)	.252(.042-1.512)	.132
Medical	16(6.2%)	43(16.5%)	1.280(.497-3.299)	.542(.810-3.410)	.499
Surgical	7(2.7%)	39(15.0%)	2.653(.881-7.986)	.401(.730-2.207)	.294
Gynecology	14(5.4%)	43(16.5%)	1.463(.557-3.838)	.629(.106-3.722)	.609
Oncology	2(.8%)	16(6.2%)	3.810(.730-19.869)	.516(.095-2.792)	.443
Others	6(2.3%)	19(7.3%)	1.508(.460-4.943)	1.570(.171-14.373)	.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) *	.024
11-20	7(2.7%)	46(17.7%)	2.848(1.019-7.957)	7.010(1.923-25.553) *	.003
>20	33(12.7%)	94(36.2%)	1.234(.576-2.645)	4.667(1.522-14.312) *	.007
Ever cared patient with cervical cancer					
Yes	38(14.6%)	86(33.1%)			
No	19(7.3%)	117(45.0%)	2.721(1.468-5.043)	2.412(1.153-5.046) *	.019
Training					
Yes	16(6.2%)	36(13.8%)	1.810(.916-3.576)	**	
No	41(15.8%)	167(64.2%)	1.00		
Ever visited health institution					
Yes	52(20.0%)	152(58.5%)			
No	5(1.9%)	51(19.6%)	3.489(1.322-9.214)	4.203(1.390-12.708) *	.011
Knowledgeable about cervical cancer					
Yes	36(13.8%)	122(46.9%)	1.138(.620-2.089)	**	
No	21(8.1%) 57(21.9%)	81(31.2%) 203(78.1%)	1.00		

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

Table 6: Profession Related Factors Affecting Female Nurses' Preventive Practice of Cervical Cancer in Government Hospitals Of Addis Ababa, Ethiopia, March 2011.

activity 45.4% and smoking 30.8% were risk factors for cervical cancer. In general, 67(25.8%) of the respondents were able to identify all the risk factors for cervical cancer. These results contrast sharply with a Thailand study 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 [8,9]. Results of another cross-sectional survey conducted in the rural area of Izmir, Turkey states that of the 97 nurses, 69.1% reported smoking, 72.2% early age at first sexual intercourse, 81.4% multiple sexual partners and 87.6% history of sexually transmitted disease were risk factors of cervical cancer. Forty-five (46.4%) nurses knew all the risk factors of cervical cancer [8]. The difference in here lies mainly because cervical cancer, considered more prevalent in developed countries has received attention, which probably impacted 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 in Thailand, most (81.8% and 70%) knew that the cause of cervical cancer is HPV infection and genetic predisposition, respectively [9]. 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, 51.2%, 48.1%, 98 37.7%, and 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. According to the study conducted in rural Turkey, most of the nurses knew pain in pelvic region (75.2%), pain during sexual intercourse (82.4%), vaginal bloody discharge (88%) [10]. This may be due to inadequate training in Ethiopia that updates the nurses' knowledge on cervical cancer, less coverage on cervical cancer in the nursing curricula, and less exposure of nurse to cervical cancer patients in this country.

Prevention and early detection are keys to the reduction of incidence and progression of many chronic diseases including cancer [11]. 78.8% of those who were aware of cervical cancer knew that cervical cancer can be prevented and 83.4% knew it could be cured if detected early. The result is consistent with findings of the study conducted in Hong Kong where 92% of women knew that cervical cancer can be cured if detected early [12]. But our results are higher than the findings of the study in South Africa in which only 57% of the respondents knew that cervical cancer can be prevented [13]. This difference may be attributed to can be explained by the dissimilarity in the background of the study participants and the time gap as better attention has given to cancer these days.

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' [14]. However our study revealed that only few nurses (32.3%) had under gone pelvic exam in their life-time. Although having this exam may increase the chance of early detection of the disease especially for low resource countries, only 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 Gakidou et al. [15] who examined cervical cancer screening coverage in 57 countries, and reported that 90% of women in Ethiopia have never had a pelvic examination. The findings of our 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. These low numbers may be associated with the low health care utilization and health care seeking behavior, and the cultural influence where most women are not comfortable undergoing pelvic examination even when it is required.

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]. In our study although 86.5% of the sample population had heard about Pap smear test only 14.6% had had it, which is consistent with a study done in South Eastern Nigeria, where knowledge of cervical cancer screening services is high while uptake rate is terribly poor [17]. However this result is inconsistent with other studies where 30% reported having a pap-smear test (Iran) [18].

In addition, with a study of Izmeir concerning practice of the nurses, 53.6% did not have a Pap smear. Also specific to knowing about Pap test and practicing it as mentioned in a study at Pamukkale, 50.4% of the nurses who knew about Pap smear did not have the test [10]. 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 a national pap smear policy whereas Pap test is available only in some health institutions in Ethiopia.

Knowledge about when to initiate Pap testing at age 21 or within 3 years of first sexual intercourse was also low in our study. Hundred thirty six (52.3%) of them gave correct answer for the recommended frequency of Pap smear test, which is annually, compared to the study in Pamukkale, where 84.8% of the respondents believed that it should be done yearly, but 76.8% did not know that it should be done 3 years after the onset of sexual activity [10]. Respondents in our study may have scored lower because of lack of education about the test widespread unavailability of the test.

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

Conclusion

In conclusion knowledge of female nurses working in the selected government hospitals was high but their practice of preventive measures (pelvic exam, Pap smear test and HPV vaccine) of cervical cancer was poor. Our results highlight the need to further enlighten this group who are expected to play a major role in mobilizing the local communities, Nurses must receive consistent education about cervical cancer so that they can keep on playing their role in saving themselves and their clients by early stage of the disease, thus reducing the morbidity and mortality associated with invasive cervical cancer. Ministry of Health should work with other organizations to make cost effective screening services available to the public at all health care settings.

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