

**SAINT PAUL'S HOSPITAL MELLINIUM
MEDICAL COLLEGE
DEPARTMENT OF OBGYN**



**KAP OF CERVICAL CANCER SCREENING AND FACTORS AFFECTING
PRACTICE OF SCREENING AMONG WOMEN HEALTH CARE
PROFESSIONALS IN SPHMMC AND AFFILIATED HOSPITALS IN
ADDIS ABABA CITY ADMINISTRATION, 2019**

**Principal investigator: - *Dr. Melese mengistu(MD, Obstetrics and Gynecology
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Advisors: -Dr. Bethel Dereje (Ass. Prof of OBGYN at SPHMMC)

Dr. Ewenat G/Hanna (Ass. Professor)

**A research thesis submitted to Saint Paul's Hospital Millennium Medical
College, department of Obstetrics and Gynecology as partial fulfillment for
specialty certificate in Obstetrics and Gynecology**

Addis Ababa, Ethiopia
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List of abbreviations

FGA – Family Guidance Clinics

FIGO – Federation of International Gynecology and Obstetrics

HPV – Human Papilloma Virus

KAP – knowledge, attitude, practice

Pap smear – Papanicolaou smear

HR – Human resource

SPHMMC – St. Paul Millennium Medical Collage

VIA – Visual inspection with Acetic Acid

WHO – World Health Organization

ABSTRACT

Introduction: Cervical cancer is one of leading causes of death in women all over the globe resulting in 265,700 deaths annually. [1] Burden of the disease in Ethiopia is very high and about 6081 deaths occur annually from this disease. Most of the patients in Ethiopia present in advanced stage. [3] Knowledge of cervical cancer and screening methods of precancerous lesions among women health care professionals was shown to be good in different studies done at institutional levels in Ethiopia. But uptake (practice) of cervical cancer screening methods among women health care workers is significantly low. There is scarcity of data on factors that determine the practice (uptake) of cervical cancer screening methods among women health care professionals.

Objective: To assess knowledge, attitude and practice as well as some constraints of cervical cancer screening among women health care professionals in SPHMMC in its affiliated hospitals (Yekatit 12 and Ras Desta Damtew Memorial Hospital).

Methodology: Hospital based cross sectional study was conducted in SPHMMC and its affiliated hospitals from August 1/ 2018 till November 15/ 2019. Data was collected with pretested structured questionnaires by four trained nurses. Data was entered and analyzed using SPSS version 20 and bivariate and a multivariate logistic regression analysis was done to see association of variables and control confounders.

Result: Among the 330 health professionals who responded to the questionnaire, (24.5%) of health professional participated had screened for cervical cancer. The results showed that (17.8%) had good knowledge while 68.5% had positive attitude about cervical cancer screening. In addition, having work experience for more than ten year [AOR= 2.71(95% CI: 1.07-6.81)] and availability of cancer screening service in the institution [AOR=1.09(95%CI: 1.05-3.64)] were significantly associated with cervical cancer screening.

Conclusion: the magnitude of health professional screened is low in SPHMMC, Yekatit 12 and Ras Desta memorial hospital. Health professional cervical cancer knowledge also low, while majority of the participant had positive attitude.

1. INTRODUCTION

1.1 Back Ground

According to International Federation of Gynecology and Obstetrics (FIGO) 2015 cancer report, cervical cancer is the fourth most common female malignancy in both incidence and mortality worldwide, following breast, colorectal, and lung cancers, and results in approximately 527 600 new cases and 265 700 deaths annually. It is the second most commonly diagnosed cancer and third most common cause of cancer death among females in low-resource countries. More than 85% of new cases are diagnosed in low income countries, and nearly 90% of cervical cancer deaths occur in these low-resource regions of the world. [1]

The difference in cervical cancer diagnosis and subsequent morbidity and mortality between high- and low-resource countries is mainly due to the low rate of screening for pre-invasive cervical disease and limited treatment options in low-resource settings. [6]

According to the 2009 World Health Organization (WHO) report, the age-adjusted incidence rate of cervical cancer in Ethiopia is 35.9 per 100,000 patients with 7619 annual number of new cases and 6081 deaths every year [2]. Most of these Ethiopians often at an advanced stage by the time they seek screening services.[3,4].

Screening for pre invasive cervical cancer is very effective in preventing invasive cancer. Despite this fact, the rate of screening in the general population as well as among health care workers is shown to be significantly low. [3]

Promising new prevention strategies of cervical cancer are developed including primary prevention through vaccination against human papilloma virus (HPV) in young women and secondary preventive screening directly for carcinogenic HPV in older women. Historically, prevention efforts largely focused on Pap smears. In developing countries where there is limited access to cytology laboratory facilities, visual inspection with acetic acid (VIA) is considered as alternative early detection method. [5]

Attitude of health care professionals towards cervical cancer screening is found to be low, though the expectation is that health care professionals to be role models and knowledgeable

[12]. Primary screening method in Ethiopia is VIA. There is limited use of PAP smears, mostly in private clinical settings and some community health centers such as family guidance association (FGA) clinics. However, PAP smears have proven to be difficult in resource-limited settings due to cost, limited cytopathology resources, and inability for consistent patient follow-up [11]. This study is aimed at investigating knowledge, attitude and some factors which contributed to low consumption of pre invasive cervical lesions screening.

1.2 Statement of the problem

Cervical cancer is one of the leading causes of death in middle aged women in developing countries, yet it is preventable disease with early screening [7]. A good VIA program can detect 90% of all precancerous lesions with cure rate of 85% if proper therapy given in time. Combined program of VIA and cryotherapy (single visit approach) has proven to be safe and acceptable by patients in urban African countries. [8]

In 2012, Ethiopia has a population of 27.19 million women aged 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 7095 women are diagnosed with cervical cancer and 4732 die from the disease. The disease ranks 2nd most frequent cancer among women. The disease has crude incidence rate of 16.3 per 100,000 populations per year in the country. Only 0.6 % women age 18–69 years were screened every 3 years. [9]

Low level of awareness, lack of effective screening programs, overshadowed by other health priorities (such as AIDS, TB, malaria) and low quality and diversity of services health care services for women are the possible factors for the observed higher incidence rate of cervical cancer and low rate of screening in Ethiopia. [10]

2. Literature review

The main screening methods are Pap smear, VIA, and HPV testing. Knowledge of risk factors, preventive methods (primary or secondary), and treatment modalities as well as the attitude of health care workers or patients affect practice and utilization of the available resources. [12]

Studies done in different parts of the world showed level of knowledge among health care professionals was good but uptake of screening was poor. Studies from Serbia and India revealed level of knowledge is not a problem. Knowledge of risk factors and screening among participants in these studies were 83.8% and 69%, respectively). Screening practice was insignificant in the Serbian study, only 5% among the study participants. [19, 22]

A study done in Japan to assess knowledge of cervical cancer and screening adherence among nurses at a university-affiliated hospital in Japan showed there was significant association between knowledge of cervical cancer and screening adherence. [20] In contrary to this study done in Nigeria at institutional level showed there was no significant relationship between profession and attitude of female health workers towards the uptake of cervical cancer screening. [21]

Studies done in different parts of Africa showed different levels of knowledge (from poor to good level), but consistently low level of practice among women health care workers. In cross sectional study done in Uganda, 83% of participants had knowledge about risk factors and screening methods of precancerous lesions, but only 26% were screened. [14]

Another cross sectional study done in Nigeria showed knowledge among participants was good (87% were knowledgeable), but habit of screening was significantly poor, only 5.7%. Studies done in Tanzania and another part of Nigeria at institutional levels showed low levels of screening among the participants, 15.4% and 10%, respectively. [16, 17]

Some other studies done in Africa showed poor level of knowledge and low level of screening practice as already mentioned. A cross sectional study done in the Sudan showed poor knowledge among nursing students (84% didn't know different methods of screening) and 49.9% had no knowledge about HPV vaccine. Similar study done in Nigeria showed 64.2% of participants had poor knowledge of cervical cancer risk factors. Only 10% of the participants had ever been screened. [13, 18]

Studies done at community level to assess knowledge as well as practice showed low outcomes. Nigerian study showed poor knowledge (97.7% had no/ poor knowledge about cervical cancer) and only 1.4% of participants were screened. Similar study done in India revealed knowledge related to cervical cancer was 22.7% among participants. [15, 19]

Studies done at different parts of Ethiopia, at institutional level, showed good knowledge among study participants, but level of practice was significantly low in all of the studies. Cross sectional studies were done in Sidama zone (Hwassa city administration), AAU and its affiliated hospitals and Mekelle showed significant knowledge level (86.9%, 81%, and 76.4% respectively). The level of practice was low in all of the studies (11.4%, 30% and 10.7% respectively). [6, 11, 12]

3. Rational of the study

As clearly mentioned in the studies above, practice of cervical cancer screening among health care professionals is low, particularly in developing countries including Ethiopia. Women health care workers are considered as role models in the areas of health related issues to the community.

Knowledgeable professionals can change the attitude of the general population to consume important procedures like cervical cancer screening methods and utilizing the tests for themselves as well. Studies in Ethiopia showed level of knowledge is good among health care professionals, but there is a gap of information on the attitude and factors that contributed low screening among health care professionals themselves.

Considering this gap of information on our setup initiated us to conduct this study. This study, therefore, aimed at assessing knowledge, attitude and practice as well as some constraints on practicing cervical cancer screening among women health care professionals in SPHMMC its affiliated hospitals in AA city administration (Ras Desta Damtew memorial hospital and Yekatit 12 hospital medical college). This study will identify some factors that limited consumption of cervical cancer screening in the professionals and will also be used as input for other studies in this subject matter.

4. Objective

4.1 General objective

To assess knowledge, attitude and practice of cervical cancer screening and factors affecting practice of cervical cancer screening among women health care professionals in SPHMMC and its affiliated hospitals.

4.2 Specific objectives

- To assess knowledge of cervical cancer screening among women health care professionals in SPHMMC and its affiliated hospitals.
- To assess attitude of cervical cancer screening among women health care professionals in SPHMMC and its affiliated hospitals.
- To assess practice of cervical cancer screening among women health care professionals in SPHMMC and its affiliated hospitals.
- To assess factors associated with practice of cervical cancer screening among women health care professionals in SPHMMC and its affiliated hospitals.

5. Methodology

5.1 Study area and period

The study was conducted in SPHMMC and its affiliated hospitals, which are located in the capital Addis Ababa. Two of these are teaching hospitals, the other one is non-teaching hospitals. Data was collected from August 1/ 2018 until November 15/ 2019.

5.2 Study design

Hospital based cross sectional study was used to assess knowledge, attitude and practice of cervical cancer screening among women health care workers in SPHMMC and its affiliated hospital.

5.3 Source population

All women health care workers in SPHMMC and its affiliated hospitals were source population.

5.3.1 study population

Women health care workers aged between 21 to 65 were asked to participate in the study and those who gave consent during the study period were included in the study.

5.3.2 Inclusion and exclusion criteria

Inclusion criteria: Women health care workers aged between 21 to 65 and currently (at the time of data collection) working in SPHMMC and affiliate hospitals were studied.

5.4 Sample size determination and sampling technique

Sample size: The required sample size was determined using the EPI INFO statistical package with assumptions and then the largest sample size was taken.

We calculated sample size for knowledge, attitude and practice used single population proportion formula based on assumptions below. (p value taken from study done in Mekele, Ethiopia; [12]).

$$SS = \frac{Z^2 pq}{d^2}$$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)

p = percentage picking a choice, expressed as decimal (.5 used for sample size needed)

d = confidence interval, expressed as decimal (e.g., .05 = ±5)

Since the population is less than 10000 we used the following correction formula for adjusted sample size

$$NSS = \frac{SS}{1 + \frac{SS - 1}{population}}$$

Table 1: sample size calculation for the outcome variable practice using factor affecting practice and practice

Variables	Assumption	Sample size
Knowledge (35.6%)	Power is 80%	173
Attitude (63.1%)	95% confidence level	194
Practice (10.7%)	Ratio 1:1	76
Negative attitude but screened 5%	Non-response rate is 10%	289
Work place other than OPD 6%	Margin of error 5%	336

Hence, with these assumptions a total of **336** health workers were included in the study.

5.5 Sampling technique

Stratified sampling technique was used. Doctors, nurses, midwives, pharmacists and laboratory technicians were included during the study period until the required sample size is met. Total number of female professionals listed above was obtained from HR office of the hospitals and number of participants from each hospital was allocated proportionally. The number of participants from each profession mentioned above were proportionately be calculated to obtain the sample size in each respective hospital. Participants were selected randomly in each profession.

5.6 Study variables

Independent variables

Socio-demographic factors

Age

Marital status

Profession

Level of education

Working experience

Reproductive health factors

Age at first sexual intercourse

No of sexual partners

Smoking

Use of contraceptives

Knowledge

Dependent variables

Screening practice

5.7 Data collection procedure and instrument

Pretested and structured self-administered questionnaire, assessing socio-demographic, reproductive health, knowledge assessment and practice of cervical cancer screening of participants were used for data collection. The questionnaire was prepared in English. Different relevant literatures were reviewed to develop the tool that can address the objective of the study. [6, 7, 11, 12, 15, 18, 20]. Four nurses were trained on data collection for one day.

5.8 Operational definition

Knowledge: In this study it is understanding of the respondents about carcinoma of the cervix with the respect to the questionnaire on symptoms, risk factors, screening, prevention and treatment methods. For all the questions if respondents identify the correct answer, then they will be given a point of 1 and if not, a point of 0. Points will be summed up and measured using a standard tool. Measurement will be by using Bloom's cut of points (Annex 1) a tool adopted from Nahida's KAP study . [12]

Attitude: Belief and feeling of respondents about cervical cancer and issues related to it. Measured by standard tool of Likert Scale System. Likert items use respondents' attitudes to a particular question or statement and responses are coded. Maximum point is 5 and given to strongly agree (SA), minimum point is 1 and given to strongly disagree (SD). (Annex) Total score obtained for individuals, then mean score of all respondents will be calculated. [12]

Score equal to or more than mean: positive attitude

Score < mean: negative attitude

Practice: In this study it is practice being tested for cervical cancer in life time.

5.9 Data quality control

Pretesting of the questionnaire was conducted on staffs in kolfe HC and necessary modifications were applied. Data collectors were trained in pre-tested check lists. The collected data was checked for completeness and consistency by the principal investigator on daily bases. As clearly mentioned in the data procedure part relevant literatures were reviewed to develop the tool that can address the objective of the study. Four nurses were trained on data collection for one day.

5.10 Data processing and analysis

Coding of individual questionnaires was checked and data was entered into SPSS version 20.0 and analyzed. Descriptive analysis was used to characterize the dependent and independent variables. Bivariate and multivariate logistic regression analysis was used to determine independent variables for practicing screening of precancerous cervical lesions.

5.11 Result dissemination plan

The copies of the final result will be submitted to SPHMMC OBGYN and PH departments. It will be presented to the collage community and other concerned bodies. There will be attempts to publish outcome of this study in a relevant national and international journals.

5.12 Ethical consideration

Formal letter was obtained from the college's ethical review committee. Informed consent was obtained from each study participants after the objectives of the study are explained. Confidentiality of participants was maintained during data collection, processing and dissemination.

6. Result

6.1 Socio demographic characteristic of the study participant

A total of 336 health professionals were included in the study; - Complete data was obtained from 330 health care providers, yielding a response rate of 98%. The data was collected in three hospitals SPHMMC, yekatit 12 and RDDMH. Majority of the participants 164(49.7%) belong to age group 30-39. More than half of the participants 172(52.1%) were orthodox. The distribution of marital status indicated that 229(69.4%) were married at the data collection. Majority of the participants 250(76%) were nurses while 32(9.2%) were medical doctors. one hundred eighteen (35.8%) of the respondents have work experience for more than ten years. (Table 2)

Table 2: Socio-demographic characteristics of health professionals participated in the study, Addis Ababa Ethiopia, 2019 (n=330)

Variable		Frequency	Percentage
Name of the hospital			
	SPHMMC	233	70.6
	Yekatit 12	63	19.1
	RDDMH	34	10.3
Age			
	20-29	123	37.3
	30-39	164	49.7
	40-49	37	11.2
	>50	6	1.8
Ethnicity			
	Oromo	74	22.4
	Amhara	124	37.6
	Wolayta	16	4.8
	Gurage	55	16.7
	Tigre	47	14.2
	Other	14	4.2
Religion			
	Orthodox	172	52.1
	Protestant	81	24.5
	Muslim	50	15.2
	Other	27	8.2
Marital status			
	Currently unmarried	101	30.6
	Currently married	229	69.4
Parity			
	Nullipara	124	37.6
	1-2 children	113	34.2
	3-4 children	79	23.9
	>5 children	13	3.9
profession			

	Medical doctor	32	9.7
	Laboratory technologist	18	5.5
	Pharmacist	8	2.4
	Nurse	250	76.0
	Midwife	21	6.4
Level of qualification			
	Diploma	23	7.0
	MD	31	9.4
	BSc	258	78.2
	MsC & above	18	5.5
Work experience			
	0-4 years	106	32.1
	5-8 years	62	18.8
	9-10 years	44	13.3
	>10 years	118	35.8
Partner level of education			
	Unable to write and read	10	3.0
	Elementary	7	2.1
	9 – 12 grade	11	3.3
	Diploma and above	268	81.2
	No partner currently	34	10.3
Work place/ department			
	Gynecology	48	14.5
	VIA clinic	33	10.0
	Medical	47	14.2
	Surgical	41	12.4
	Pediatric	29	8.8
	Laboratory	20	6.1
	Other *	110	33.3

Other*- laboratory, pharmacy, emergency

5.2 Health professional cervical cancer screening knowledge

Out of the 330 surveyed participants, most the health care providers 204(62%) were able to indicated the correct answer for having multiple sexual partners is risk factor for having cervical cancer while only 41 (12%) identified prolonged use of OCP is risk factor for having cervical cancer. However, more than seventy seven percent of health professionals' indicated the correct answer for reproductive age groups are vulnerable to cervical cancer. Almost 298(90.3%) of the participants answered correctly cervical cancer can be presented without symptom. 304 (92%) of study participants correctly answered Pap smear as screening method, all physicians and nurses correctly answered this particular question. Among health professional participated in this study 287(87%) didn't know VILI is one of the screening method while 234(71%) didn't know Colposcopy is one of the screening method for cervical cancer. (Table 3)

96% of the study participants believe cervical cancer is preventable. Nearly all of them correctly answered screening can detect early disease (95%), and 94% of participants knew it is curable if detected early. Knowledge of cervical cancer in general is low. Only 44% of the physicians participated in this study correctly responded vaginal discharge is symptom of cervical cancer. Knowledge of preventive methods in general is low in participants, but physicians have relatively better know how on preventive methods. (Table 4)

Table 3: Variables used to assess cervical cancer screening knowledge of health care providers, Addis Ababa, Ethiopia, 2019 (n=330)

Question	Response	
	Correct (yes) n(%)	Incorrect (no) n(%)
Which are risk factors for cervical cancer?		
Having multiple sexual partner	176(53.3)	154(46.7)
Early sexual intercourse	204(61.8)	126(38.2)
Cigarette smoking	195(59.1)	135(40.9)
Genital infection	199(60.3)	131(39.7)
Prolonged OCP use	40(12.1)	290(87.9)
Who is/ are vulnerable to cervical cancer?		
Above 50 year	174(52.7)	156(47.3)
Reproductive age	254(77.0)	76(23.0)
Can cervical cancer present without symptoms?	298(90.3)	21(9.7)
Which is/ are sign/ symptoms of cervical cancer?		
Vaginal discharge	139(42.1)	196(57.9)
Vaginal bleeding	196(59.4)	134(40.6)
Contact bleeding	72(21.8)	258(78.2)
Bleeding after menopause	197(59.7)	133(40.3)
Dyspareunia	38(11.5)	292(88.5)
Lower abdominal pain	62(18.8)	268(88.5)
Cervical cancer is preventable	316(95.8)	10(4.2)
Avoiding multiple sexual partner	142(43.0)	188(57.0)
Cancer screening	205(62.1)	125(37.9)
Delaying early sexual intercourse	104(31.5)	226(68.5)
Avoid smoking	78(23.6)	252(76.4)
Vaccination	227(68.8)	103(31.2)
Male circumcision	12(3.6)	318(96.4)
Can screening detect early disease?	315(95.5)	15(4.5)
Is the disease curable if detected early?	311(94.2)	19(5.8)
What screening methods do you know?		
Pap smear	305(92.4)	25(7.6)
VIA	109(33.0)	221(67.0)
VILI	43(13.0)	287(87.0)
Colposcopy	96(29.1)	234(79.9)

Table 4 knowledge of cervical cancer in health care providers by their profession, Addis Ababa, Ethiopia (n=330)

		Answered correctly (frequency/ percentage)					
Questions		Medical doctor (n=32)	Lab. Tech (n=18)	Pharmacist (n=8)	Nurse (n=250)	Midwife (n=21)	Total (n=330)
Which are risk factors for cervical cancer?	Having multiple sexual partners	30 (93%)	17 (94%)	5 (62%)	140 (56%)	11 (52%)	203 (62%)
	Early sexual intercourse	25 (78%)	16 (88%)	3 (38%)	92 (37%)	18 (86%)	154 (47%)
	Prolonged OCP use	13 (40%)	1 (6%)	4 (50%)	19 (8%)	4 (19%)	41 (12%)
Who is/ are vulnerable to cervical cancer?	Age above 50	26 (81%)	16 (38%)	5 (63%)	117 (47%)	10 (48%)	174 (53%)
	Reproductive age group	15 (47%)	11 (61%)	2 (25%)	215 (86%)	11 (52%)	254 (77%)
Can cervical cancer present without symptoms?		28 (88%)	18 (100%)	4 (50%)	227 (91%)	20 (95%)	297 (90%)
Which is/ are sign/ symptoms of cervical cancer?	Vaginal discharge	14 (44%)	15 (83%)	2 (25%)	90 (40%)	9 (43%)	130 (39%)
	Vaginal bleeding	27 (84%)	17 (94%)	5 (63%)	137 (55%)	10 (48%)	196 (59%)
	Contact bleeding	28 (88%)	6 (33%)	-	32 (13%)	6 (29%)	72 (22%)
	Bleeding after menopause	23 (72%)	9 (17%)	2 (25%)	156 (62%)	7 (33%)	197 (60%)
Cervical cancer is preventable		32 (100%)	18 (100%)	7 (88%)	238 (95%)	21 (100%)	316 (96%)
prevention methods	Avoiding multiple sexual partners	29 (91%)	15 (83%)	4 (50%)	83 (33%)	11 (52%)	142 (43%)
	Screening	29 (91%)	13 (72%)	6 (75%)	137 (55%)	19 (91%)	204 (62%)
	Delaying early sexual intercourse	23 (72%)	10 (56%)	5 (63%)	57 (23%)	9 (43%)	104 (32%)
	Avoid smoking	21 (66%)	6 (33%)	2 (25%)	43(17%)	6 (29%)	78 (24%)
	Vaccination	26 (81%)	9 (50%)	4 (50%)	178 (71%)	10 (48%)	227 (69%)
Can screening detect early disease?		32 (100%)	17 (94%)	6 (75%)	238 (95%)	21 (100%)	314 (95%)
the disease curable if detected early		31 (97%)	17 (94%)	5 (65%)	237 (95%)	20 (95%)	310 (94%)
screening methods	Pap smear	32 (100%)	15 (83%)	4 (50%)	234 (94%)	19 (91%)	304 (92%)
	VIA	23 (72%)	13 (72%)	1 (13%)	66 (26%)	6 (29%)	109 (33%)
	VILI	20 (63%)	7 (39%)	-	13 (5%)	3 (14%)	43 (13%)
	Colposcopy	13 (41%)	8 (44%)	-	72 (29%)	3 (14%)	96 (29%)

As a whole 183(55.5%) of the health professional participated in this study have moderate knowledge while 59(17.8%) had good knowledge about cervical cancer. Eighty eight (26.7%) of the participant had poor knowledge.

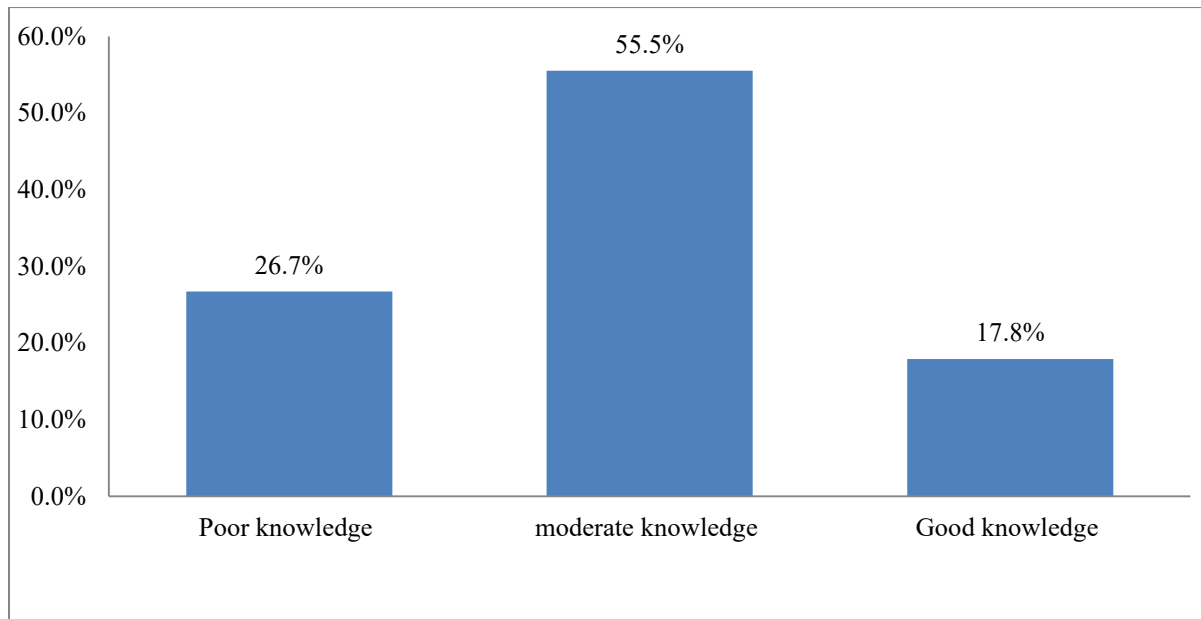


Figure 1: health professional cervical cancer screening knowledge, Addis Ababa, Ethiopia, 2019(n=330)

5.3 Health professional cervical cancer screening attitude

Two hundred one (73%) of the respondents strongly agreed on cervical cancer screening is an essential part of women's health and 234(70.9%) of the participant strongly agreed on cervical cancer is very serious disease. Two hundred eleven (64%) of health professional participated in this study strongly agree on they should be screened for cervical cancer. One hundred seventy six (53.3%) of the participant strongly agreed that they having the capacity to provide cervical cancer screening to the community. (Table 5)

Table 5: Variables used to assess health care provider attitude towards cervical cancer screening, Addis Ababa, Ethiopia, 2019 (n=330)

Question	Response				
	Strongly disagree	disagree	Neutral	Agree	Strongly agree
Cervical cancer screening is an essential part of women's health.					
Frequency	2	1	36	50	241
Percentage	0.6	0.3	10.9	15.2	73.0
Cervical cancer is very serious disease					
Frequency	1	2	36	57	234
Percentage	0.3	0.6	10.9	17.3	70.9
I should be screened for cervical cancer.					
Frequency	3	1	45	70	211
Percentage	0.9	0.3	13.6	21.2	63.9
Cervical cancer screening should be screened in my community.					
Frequency	3	7	49	69	202
Percentage	0.9	2.1	14.8	20.9	61.2
I have the capacity to provide cervical cancer screening to the community					
Frequency	2	11	66	75	176
Percentage	0.6	3.3	20.0	22.7	53.3

Over all, Among 330 health care providers participated in this study 226 (68.5%) had positive attitude while 104(31.5%) had negative attitude towards cervical cancer screening. (Figure 2)

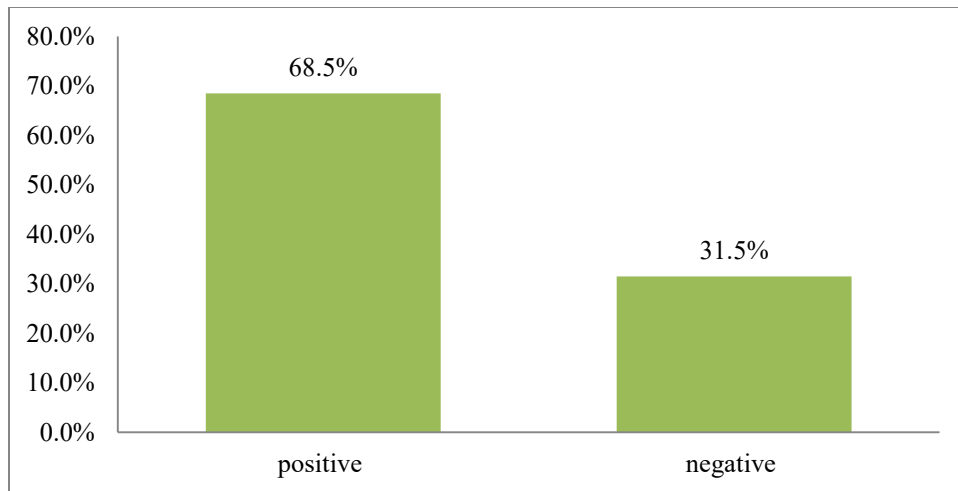


Figure 2: health professional cervical cancer screening attitude, Addis Ababa, Ethiopia, 2019 (n=330)

5.4 Magnitude of cervical cancer screening among health professionals

Out of the 330 health professionals, 81(24.5%) of them had screened for cervical cancer while 249 (75.5%) of them had not screened for cervical cancer.

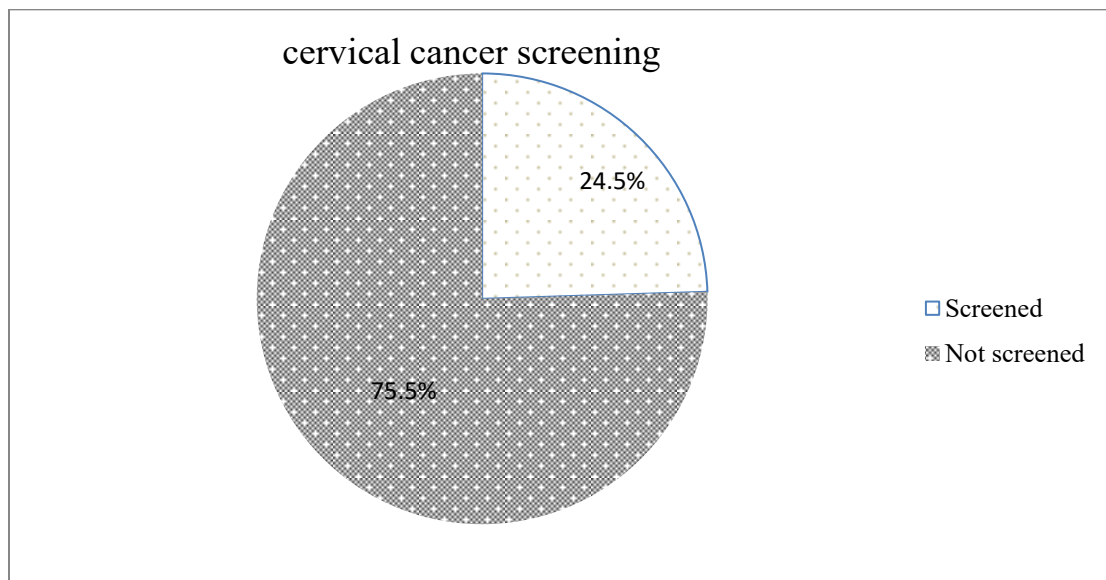


Figure 3: The magnitude of cervical cancer screened health professional working in Addis Ababa, Ethiopia, 2019 (330)

5.5 health professionals experience related to cervical cancer screening

According to the response of the participants 254(77%) have cervical cancer screening service in their hospital while 40(12.1%) don't know whether cervical cancer screening service is available or not in their hospital. Twenty four (7.3%) of the respondents have screened twice or more than twice. For 71(21.5%) of participants the last time of screening was less than 3 years. Only 3(0.9%) of the participants were positive after got screened. Regarding HPV vaccination 24(7.3%) of health professional were vaccinated. (Table 6)

Table 6: experience related to cervical cancer screening among health professional, Addis Ababa, Ethiopia, 2019

Question	Frequency	Percentage
Is there cervical cancer screening service in your institution?		
Yes	254	77.0
No	36	10.9
Don't know	40	12.1
How many time have you been screened		
not screened	249	75.5
1 time	51	17.3
≥ 2 time	24	7.3
Last time of screening		
<3 year	71	21.5
>3 year	9	2.7
the result after screening		
Positive	3	0.9
Negative	77	23.3
Method used to screen		
Pap smear	14	4.2
VIA	65	19.7
Have you ever been vaccinated for HPV		
Yes	24	7.3
No	306	92.7

Regarding the reason for not being screened, among participated health professional 126 (38%) of them were not screened due to fear of the result while 91 (27.5%) of them were not screened because of fear of pain. 55(17%) of the health professionals were not screened due to lack of information. Thirty eight (11.5%) of the participants were not screened because they feel shy to be screened. (Figure 4)

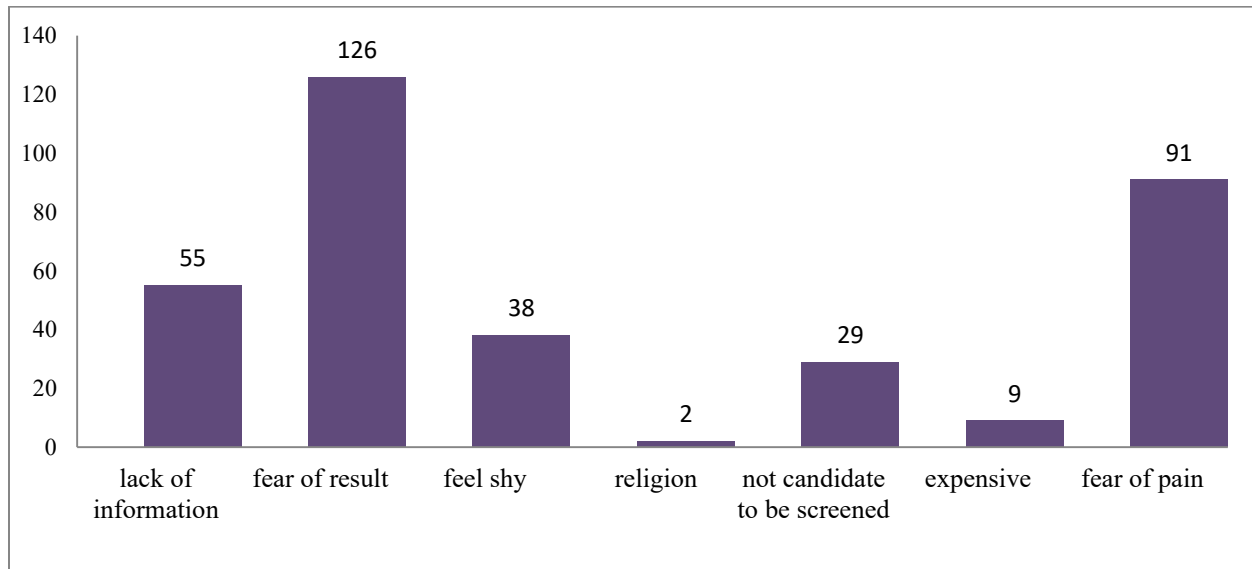


Figure 4: health professionals' reason for not being screened, Addis Ababa Ethiopia, 2019 (more than one answer was possible)

5.7 Factor associated with cervical cancer screening practice of health professional

Binary logistic regression was done to see the association of each independent variable with the outcome variable. Health professional working in Yekatit 12 hospital were 3.3 times more likely to be screened than health professional working in SPHMMC [COR=3.32(95% CI: 0.86-12.75)] while health professional working in Ras Desta hospital were 2.74 times more likely to get screened [COR= 2.74(95%CI: (0.73-10.26)].

Health professional with long time experience had association with cervical cancer screening. Health professional worked for more than 10 years were 3.63 times more likely to be cervical cancer screened than those with work experience 0-4 years [COR=3.63(95%CI:1.18-11.18)]. (Table 7)

Table 7: Bivariate analysis of factors affecting cervical cancer screening among health professionals, Addis Ababa, 2019(n=330)

Variable	Cervical cancer		COR	P-value
	Screened n(%)	Unscreened n(%)		
Name of the hospital				
SPHMMC	59(25.3)	174(74.7)	1	
Yekatit 12	13(20.6)	50(79.4)	3.32(0.86-12.75)	0.081*
RDDMH	9(26.5)	25(73.5)	2.74(0.73-10.26)	0.133*
Age				
20-29	18(14.6)	104(84.6)	1	
30-39	44(28.2)	111(71.2)	2.61(0.194-35.16)	0.469
40-49	13(35.1)	24(64.9)	1.41(0.122-16.48)	0.781
>50	1(16.7)	5(83.3)	1.57(0.12-19.60)	0.724
Marital status				
Unmarried	15(14.9)	86(85.1)	1	
Married	66(28.8)	163(71.2)	1.21(0.40-3.65)	0.73
Parity				
Nullipara	17(13.7)	106(85.5)	1	
1-2 children	30(26.5)	83(73.5)	2.54(0.34-19.03)	0.364
3-4 children	29(36.7)	49(62.0)	1.25(0.23-6.70)	0.794
>5 children	3(23.1)	10(76.9)	0.54(0.10-2.76)	0.541
profession				
Medical doctor	7(21.9)	24(75.0)	1	
Laboratory tec	7(38.9)	11(61.1)	-	-
Pharmacist	-	8(100.0)		
Nurse	61(24.4)	188(75.2)	0.85(0.11-6.62)	0.875
Midwife	3(14.3)	18(85.7)	0.82(0.15-4.51)	0.823
Level of qualification				
Diploma	4(17.4)	19(82.6)	1	
Bsc	61(23.8)	23(74.2)	1.17(0.16-8.26)	0.871
Msc	7(38.9)	194(75.8)	-	
MD	7(22.6)	11(61.1)	1.22(0.31-4.74)	0.474
Work experience				
0-4 years	16(15.1)	89(84.0)	1	
5-8 years	20(32.3)	42(67.7)	1.19(0.35-3.95)	0.775
9-10 years	7(15.9)	37(84.1)	0.48(0.17-1.39)	0.775
>10 years	36(30.5)	81(68.6)	3.63(1.18-11.18)	0.024*
Work place/ department				
Gynecology department	13(27.1)	35(72.9)	1	
VIA clinic	4(12.1)	29(87.9)	0.17(0.03-0.88)	0.350
Medical department	12(25.5)	35(74.5)	0.38(0.05-2.63)	0.329
Surgical department	6(14.6)	34(82.9)	0.74(0.44-1.26)	0.272
Pediatric department	3(10.3)	25(86.2)	0.91(0.82-1.00)	0.261
Laboratory	7(35.0)	13(65.0)	0.95(0.83-1.01)	0.551
Other	34(30.9)	76(69.1)	1.60(0.40-6.33)	0.562
Knowledge				
Poor knowledge	18(22.2)	70(28.1)	1	
Moderate	43(53.1)	140(56.2)	1.22(0.45-3.29)	0.321
Good	20(24.7)	39(15.7)	1.45(0.77-2.55)	0.330

Attitude				
Positive	19(23.5)	85(34.1)	1	
Negative	62(76.5)	164(65.9)	0.96(0.83-1.10)	0.571
Is there cervical cancer screening service in your institution?				
Yes	71(28.0)	182(71.7)	1.28(1.03-2.94)	0.042*
No	6(16.7)	29(80.6)	1	
Don't know	2(5.0)	38(95.0)	0.35(0.05-2.41)	0.287
Have you ever been vaccinated for HPV				
Yes	9(37.5)	15(62.5)	1	
No	70(22.9)	234(76.5)	8.92(2.59-30.71)	0.001*

*p value<0.25

6.8 Multivariable analysis

All variables associated at P value < 0.25 were under consideration in the bivariate analysis were also entered to multiple logistic regressions with the dependent variable. Among those variables entered, two of variables (work experience, and the availability of cervical cancer screening service in the institution) had significant association with health professional cervical cancer screening at p value< 0.05. The remaining variables had no independent effects on the cervical cancer screening of health professionals.

Work experience was significantly associated with cervical screening practice. Health professional worked for more than 10 years were 2.71 time more likely to be screened than those with 0-4 year work experience [AOR=2.71 ;(95%CI=1.07-6.81)].

Regarding availability of cervical cancer screening in the institution was other predictor for screening. Health professional working in institute with available cervical cancer screening service were 1.28 times more likely to be screened than those with no (limited) available services [AOR= 1.28 (95%CI: 1.03-2.94)]. (Table 8)

Table 8: Bivariate and multivariate logistic regression analysis of factors associated with cervical cancer screening practice of health professionals, Addis Ababa, 2019 (n=330)

Variable	Cervical cancer		COR	AOR
	Screened n(%)	Unscreened n(%)		
name of hospital				
SPHMMC	59(25.3)	174(74.7)	1	
Yekatit 12	13(20.6)	50(79.4)	3.32(0.86-12.75)	2.22(1.96-16.75)
RDDMH	9(26.5)	25(73.5)	2.74(0.73-10.26)	1.74(0.90-12.36)
Work experience				
0-4 years	16(15.1)	89(84.0)	1	
5-8 years	20(32.3)	42(67.7)	1.19(0.35-3.95)	2.35(1.18-4.67)
9-10 years	7(15.9)	37(84.1)	0.48(0.17-1.39)	1.05(0.53-2.12)
>10 years	36(30.5)	81(68.6)	3.63(1.18-11.18)	2.71(1.07-6.81)*
Attitude				
Positive	19(23.5)	85(34.1)	1	
Negative	62(76.5)	164(65.9)	0.96(0.83-1.10)	1.43(0.78-2.63)
Is there cervical cancer screening service in your institution?				
Yes	71(28.0)	182(71.7)	1.28(1.03-2.94)	1.09(1.05-3.64)*
No	6(16.7)	29(80.6)	1	
Don't know	2(5.0)	38(95.0)	0.35(0.05-2.41)	0.46(0.07-3.21)
Have you ever been vaccinated for HPV				
Yes	9(37.5)	15(62.5)	1	
No	70(22.9)	234(76.5)	8.92(2.59-30.71)	5.09 (3.69-50.91)

*p value<0.05

6. Discussion

This health facility based cross sectional study aimed to assess knowledge, attitude and practice of cervical cancer screening and factors affecting practice of cervical cancer screening practice among women health care professionals in SPHMMC, Yekatit 12 and Ras Desta memorial hospital. The finding revealed that cervical cancer screening practice was significantly associated with work experience and availability of cervical cancer screening service.

Among health professional participated in this study 24.5% had screened for cervical cancer. This is higher than a study done in Mekelle to assess the magnitude of health professionals cervical cancer screening 10.7% of them were screened [23]. This is similar to other study done in Nigeria also found that 10% of health care providers were screened [24]. Other study done in Ethiopia found that higher magnitude to screening 17% of health care providers were screened [25]. This could be due to the fact that the difference in study designs of our study and other study done in Ethiopia which was a follow up study.

This study found that the magnitude of cervical cancer knowledge of health professional was 17.8% good knowledge, 55.5% moderate knowledge while 26.7% had poor knowledge respectively. A study done in Nigeria stated that about 64.2% of respondents had poor mean knowledge of risk factors to cancer of the cervix, 22.9% had moderate, while 12.9% had good mean knowledge score [24]. This means that the magnitude of good knowledge of this study is higher than the magnitude good knowledge of a study from Nigeria [24]. Other study done in south Ethiopia found that 86.9% health workers had a good level of knowledge on cervical cancer [26]. This could be due to the variable used in this study was different from the variable used and cut of point to classify level of knowledge in Nigeria and south Ethiopia studies.

Regarding participants' cervical cancer screening attitude 68.5% had positive attitude. This is almost similar with the founding done in Hossana 65% of the participant had positive attitude towards cervical cancer screening [27] and other study done in Mekelle 63.1% has positive attitudes towards cervical cancer screening [23]. A study done in Ethiopia found that 89% of

belief that cervical cancer screening is essential [6], whereas 73% of health care providers participated in this study strongly agreed on cervical cancer screening is essential. But our finding is higher than a study done in Bahrain found that 48.7% of participant had positive attitude to cervical cancer screening [28]. This could be due to cultural difference between our study setting and a study from Bahrain.

The availability of cervical cancer screening service in the institute was significantly associated with cervical cancer screening. A study done in Mekele [23] also found similar result. Other study done in south Ethiopia [26] also found that availability of cervical cancer screening service had significant association with cervical cancer screening practice.

Work experience was found to be predictor of health professional cervical cancer screening practice. This indicate those health professionals who had had work experience more than ten year were screened more often than health professional worked for less years. The possible experience for this to be health professional had a lot of exposure or can have more opportunity and also able to participate in different trainings to get screened for cervical cancer than health professional with less work experience.

Cervical cancer is the second most common cancer among women worldwide. Cervical cancer is caused by the human papillomavirus (HPV) although it is preventable [29, 30, 31]. This study found that only 7.3% of health care providers were HPV vaccinated. Importantly, a clear understanding of the link between HPV infection and cervical cancer, as well as an awareness of the availability of HPV testing and a vaccine against HPV were low among health care providers. Increasing such awareness among health care providers would be critical to the success of any public health initiatives [6]. Prior studies in east Africa have demonstrated numerous misconceptions about the HPV vaccine, but high acceptability of the vaccine when accurate information was provided from a trusted source [32].

Strength and limitation

Strength

- This study included different field of health profession and this could help to understand health professional working in different department their knowledge, attitude and practice of cervical cancer screening.
- This study also assessed three different government hospitals.

Limitation

- Not including private hospitals and health centers
- Not possible to confirm objectively those who are screened and vaccinated for HPV.

Conclusion

Over all, magnitude of health professional screened was low in SPHMMC, Yekatit 12 and Ras Desta memorial hospital. Health professional cervical cancer good knowledge was low while majority of the participant had positive attitude. Work experience and availability of screening service were significantly associated with cervical cancer screening practice. The uptake of HPV vaccine was also very low.

Recommendation

For hospital administrator

- Should make sure cervical cancer screening kit/tools are available in their hospital.
- Should make sure HPV vaccine is available in their hospital so that health professional could get the service whenever they needed it.

For health professional

- Those who had attended training or had more work experience related to cervical cancer should train other health professional with less work experience.
- Should check their health status frequently and get screened and take the HPV vaccinated to prevent themselves from disease.

For researchers

- Future researchers need to explore other organizational and motivational factors that are not addressed in this study with the triangulation of qualitative methods.

Reference

1. Torre LA, Bray F, Siegel RL, Ferlay J, Lortet-Tieulent J, Jemal A. Global cancer statistics, 2012. *CA Cancer J Clin* 2015;65(2):87–108. Torre LA, Bray F, Siegel RL, Ferlay J, Lortet-Tieulent J, Jemal A. Global cancer statistics, 2012. *CA Cancer J Clin* 2015;65(2):87–108.
2. Jemal A, Bray F, Forman D, O'Brien M, Ferlay J, et al. (2012) Cancer burden in Africa and opportunities for prevention. *Cancer* 118: 4372-4384.
3. Combating Cervical Cancer in Ethiopia (2015)
4. WHO/ICO: Human papilloma virus and related cancers in Ethiopia. In Summary report: 2009.
5. PATH. Report of an African Regional Meeting on Cervical Cancer. Improved Cervical Cancer Prevention: Planning Now for a Better Future, Kampala, Uganda; September 14–15, 2010.
6. Catherine M Kressl et al, Knowledge, attitudes, and practices regarding cervical cancer and screening among Ethiopian health care workers, *international journal of women's health*, 31 july 2015.
7. Ekino A.A et al, Awareness Of Female Health Workers And Non Health Workers On Cervical Cancer And Cervical Cancer Screening : South - South ,Nigeria, *International Journal Of Medical Science And Clinical Inventions* Volume 2 issue 02 2015 page no. 713-725
8. Kitchener HC, Castle PE, Cox JT. Achievements and limitations of cervical cytology screening. *Vaccine* 2006, 24(Suppl 3):63-70
9. Belete et al. Willingness and acceptability of cervical cancer screening among women living with HIV/AIDS in Addis Ababa, Ethiopia: a cross sectional study *Gynecologic Oncology Research and Practice* (2015) 2:6
10. Alemayehu Y: Cancer: a threat to Ethiopia than HIV/AIDS, TB and malaria. www.waltainfocom.

11. Dubale Dulla¹ et al, Knowledge about cervical cancer screening and its practice among female health care workers in southern Ethiopia: a cross-sectional study, 22 may 2017
12. Mihret Gebreegziabher et al, Factors Affecting the Practices of Cervical Cancer Screening among Female Nurses at Public Health Institutions in Mekelle Town, Northern Ethiopia, 2014: A Cross-Sectional Study.
13. AbdAllah AAA, Hummeida ME, Elmula IMF (2016) Awareness and Attitudes of Nursing Students towards Prevention of Cervical Cancer. Published April 20, 2016
14. Twaha Mutyaba et al, Knowledge, attitudes and practices on cervical cancer screening among the medical workers of Mulago Hospital, Uganda, BMC Medical Education 2006, 6:13
15. Abiodun O.A et al, An assessment of women's awareness and knowledge about cervical cancer and screening and the barriers to cervical screening in Ogun State, Nigeria. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) .e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 10, Issue 3 (Sep.- Oct. 2013), PP 52-58
16. G. O. Udigwe, knowledge, attitude and practice of cervical cancer screening (PAP smear) among female nurses in Nnewi, south eastern Nigeria, Nigerian Journal of Clinical Practice, June 2006, Vol. 9(1): 40 – 43.
17. Urasa M et al, Knowledge of cervical cancer and screening practices of nurses at a regional hospital in Tanzania, African Health Sciences 2011; 11(1): 48 – 57
18. Fasanu A.O et al, Knowledge of risk factors and utilization of cervical cancer screening services among health care workers in a Teaching Hospital in Southwestern Nigeria. International Journal of Medicine and Medical Sciences ISSN: 2167-0404 Vol. 4 (5), pp. 172-177, September, 2014.
19. Ljiljana Gojko Antic et al. Differences in the Level of Knowledge on Cervical Cancer among Health Care Students, Midwives and Patients in Serbia, Asian Pac J Cancer Prev, 15 (7), 3011-3015.
20. Yae Yoshino et al. The knowledge of cervical cancer and screening adherence among nurses at a university-affiliated hospital in Japan, Kitasato Med J 2012; 42: 6-14
21. Ehiemere I.O et al. Attitude and practice of cervical cancer screening among female health workers in university of Port-Harcourt teaching hospital, Rivers State, Nigeria.

Journal of Research in Nursing and Midwifery (JRNM) (ISSN: 2315-568) Vol. 4(4) pp. 072-082, August, 2015.

22. V Shah et al. Awareness and knowledge of cervical cancer and its prevention among the nursing staff of a tertiary health institute in Ahmedabad, Gujarat, India. *ecancer* 2012, 6:270 DOI: 10.3332/ecancer.2012.270
23. Mihret Gebreegziabher, Nigus Gebremedhin Asefa , Factors Affecting the Practices of Cervical Cancer Screening among Female Nurses at Public Health Institutions in Mekelle Town, Northern Ethiopia, 2014: A Cross-Sectional Study Among knowledge, *Journal of Cancer Research*, volume 2016
24. Fasanu A.O, Akindele R.A , Knowledge of risk factors and utilization of cervical cancer screening services among health care workers in a Teaching Hospital in Southwestern Nigeria, *International Journal of Medicine and Medical Sciences* September, 2014
25. Catherine M Kress, Lisa Sharling ,Knowledge, attitudes, and practices regarding cervical cancer and screening among Ethiopian health care workers, *international journal of women health*, 2015
26. Dubale Dulla, Deresse Daka, Knowledge about cervical cancer screening and its practice among female health care workers in southern Ethiopia: a cross-sectional study, *international journal of women's health*, 22 May 2017.
27. Yetagesu Habetu, knowledge, attitude and practice and contril among women of child bearing age in Hossana town, southern Ethiopia, *PLOS* , 2017
28. Ghufuran Jassim ,knowledge, attitude and practice regarding cervical cancer screening among women visiting primary health care center, *BMC public health* 2018
29. E. Njuguna, S. Ilovi ,Factors influencing cervical cancer screening in a Kenyan Health Facility: a mixed qualitative and quantitative study, April 2017 · Volume 6 · Issue 4
30. WHO, Introducing HPV vaccine to national immunization programs, 2016
31. WHO, Cervical cancer screening in developing countries report, 2012
32. Remes P, Selestine V, Changalucha J, et al. A Qualitative study of HPV vaccine acceptability among health workers, teachers, parents,female pupils, and religious leaders in northwest Tanzania. *Vaccine*. 2012; 30(36):5363–5367.

Annex I

Bloom's original cut points

- 75 – 100%; good knowledge
- 50 – 74%; moderate knowledge
- <50%; poor knowledge

Annex II

Likert scale measurement

- 1 = strongly disagree
- 2 = disagree
- 3 = neutral
- 4 = agree
- 5 = strongly agree

Annex III

Consent form

My name is Dr Melese Mengistu. I am a postgraduate student at SPHMMC, department of Obstetrics and Gynecology. I am studying about knowledge, attitude and practice of cervical cancer screening among women health care workers in SPHMMC. The candidates for this study are women health care workers in SPHMMC who mainly involve in clinical care of patients. .

You are selected randomly and your participation will contribute a lot for prevention of cervical cancer and to assess the general understanding of cervical cancer among the health care workers. Whatever information you provide will be kept strictly confidential and is to be used only for the purpose of this study. Your participation is voluntary

Do you have any questions?

Are you willing to participate?

Yes I agree.....

Signature of interviewer.....

Annex IV Questionnaire

Part I Sociodemographic characteristics		
101	Hospital name	_____
102	Age	_____
103	Ethnicity	1. Oromo 2. Garage 3. Amhara 4. Tigre 5. Wolayta 6. Others (specify)
104	Religion	1. Orthodox 2. Musilim 3. Protestant 4. Catholic 5. Others (specify)
105	Marital status	1. Single 2. Married 3. Divorced 4. Widowed
106	Parity	1. Nullipara 2. 1 – 2 children 3. 3 – 4 children 4. 5 and more children
107	Profession	1. Physician 2. Pharmacist 3. Lab technician 4. Nurse 5. Midwife

108	Level of qualification	1. Diploma 2. BSc 3. MD 4. MSc & above
109	Work experience/ number of years served	_____
110	Partner level of education	1. Unable to write and read 2. Elementary 3. 9 – 12 grade 4. Diploma 5. University 6. MSc and above
111	Work place	1. OPD (specify) _____ 2. Inpatient ward (specify) _____ 3. VIA clinic 4. Others (specify) _____

Part II Knowledge questions		
201	Which are risk factors for cervical cancer?	1. Having multiple sexual partners 2. Early sexual intercourse 3. Cigarette smoking 4. Genital infections 5. Prolonged OCP use 6. Don't know
202	Who is/ are vulnerable to cervical cancer?	1. Age above 50 2. Reproductive age group 3. Children 4. Don't know
203	Can cervical cancer present without symptoms?	1. Yes 2. No

204	Which is/ are sign/ symptoms of cervical cancer?	1. Vaginal discharge 2. Vaginal bleeding 3. Contact bleeding 4. Bleeding after menopause 5. Dyspareunia 6. Lower abdominal pain 7. don't know
205	Cervical cancer is preventable.	1. Yes 2. No
206	If yes to question No "105" above, which is/ are prevention methods?	1. Avoiding multiple sexual partners 2. Delaying early sexual intercourse 3. Avoid smoking 4. Cervical cancer screening 5. Vaccination 6. Male circumcision
207	Can screening detect early disease?	1. Yes 2. No
208	If "Yes" to question No 107, is the disease curable if detected early?	1. Yes 2. No
209	If "Yes" to question No 107, what screening methods do you know?	1. Pap smear 2. VIA 3. VILI 4. Colposcopy 5. No screening methods available 6. I don't know

Part III attitude questions.						
	Questions	SA	A	N	D	SD
301	Cervical cancer screening is an essential part of women’s health.					
302	Cervical cancer is very serious disease.					
303	I should be screened for cervical cancer.					
304	Cervical cancer screening should be screened in my community.					
305	I have the capacity to provide cervical cancer screening to the community.					

Part IV Practice questions.		
401	Is there cervical cancer screening service in your institution?	1. Yes 2. No 3. I don't know
402	Have you ever been screened?	1. Yes 2. No
403	If yes to NO 102 above	1. how many times have u been screened? _____
		2. when was the last screening? _____
		3. what was the result? 1.positive 2.neg
		4. If yes to the above question, what was done? 1. treated 2. On follow up 3 Nothing done
404	If "Yes" question No 102 above, the type method with which you screened?	1. VIA 2. Pap smear 3. Other (specify) _____
405	If "No" to question No 102 above, what is your reason not being screened?	1. Lack of information about screening methods 2. Fear of results 3. Fear of pain 4. I feel shy 5. My religion not allow me to be screened

		6. I'm not candidate to be screened 7. It is expensive
406	Have you ever been vaccinated for HPV?	1. Yes 2. No
407	If "No" to question No 106 above, what was your reason not being vaccinated?	1. Vaccine not available in my facility 2. Expensive 3. I don't know whether vaccine has ever been produced. 4. Fear of side effects 5. I don't believe it can protect cervical cancer 6. I am not a candidate to be vaccinated?

