

Knowledge and Practice of Cervical Cancer Prevention and its Associated Factors among Primary School Female Teachers of Hawassa City, Southern Ethiopia: Cross-Sectional Study

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ABSTRACT

Objective: This study was assessed knowledge and practice of cervical cancer prevention, and its associated factors among primary school female teachers of Hawassa city, southern Ethiopia.

Methods: A school-based cross-sectional study design was used to investigate the Knowledge and practice of cervical cancer prevention and its associated factors. Data was collected from 475 female teachers with simple random sampling techniques. Data were analyzed and presented with frequency, proportion, mean and standard deviations while crude odds ratio and p-value were generated with binary logistic regression. Multivariate logistic regression was used to identify associated factors of knowledge and practices towards cervical cancer prevention with p-value ≤ 0.05 .

Results: From 475 respondents 129 (27.2%) were knowledgeable and 95 (20%) have practices to prevent cervical cancer. Age 35-39 years old were 2.20 times and have a history of pregnancy 2.09 times (Adjusted odds ratio 2.20, 95% Confidence Interval: 1.11-3.46) and (Adjusted odds ratio 2.09, 95%, Confidence Interval: 1.08-4.05) respectively, increases the odds of a good level of knowledge. On the other hand Age between 30-39 years old were 1.85 times more likely (Adjusted odds ratio 1.85, 95% Confidence Interval: 1.02-3.36), and those having a good level of knowledge 6.14 times more likely (Adjusted odds ratio 6.14, 95% Confidence Interval: 3.71-10.16) increases the odds level of practices.

Conclusions: In this study knowledge and practice towards cervical cancer prevention were low. Age 35-39 years old, and was having history of pregnancy, increases the odds of a good knowledge. Whereas age 30-39 years old and was having a good level of knowledge increases the odds practices towards cervical cancer prevention. Therefore counseling with information, education, communication and service should be given at maternal and child health units and platforms should be created in schools to give health education in order to reach more need specific groups.

Keywords: Cervical cancer, Knowledge, Practice, Teachers, Hawassa, Prevention information

BACKGROUND

Cervical cancer is a malignancy of the uterine cervix which is the lower, narrow end of the uterus which connects the vagina (birth canal) to the upper part of the uterus [1]. The primary cause of cervical pre-cancer and cancer is persistent or chronic infection with one or more of the "high-risk" (or oncogenic) types of Human Papillomavirus (HPV) which interferes with the normal functioning of cells that will result in distinct change in the epithelial cells of transformation zone of the cervix [2]. The peak time for acquiring infection for both women and men is shortly after becoming

sexually active. HPV is sexually transmitted, but penetrative sex is not required for transmission [3].

Cervical cancer is the fourth most frequent cancer in women with an estimated 530,000 new cases every year, representing 7.9% of all female cancers in the world and approximately 90% of the 270,000 deaths from cervical cancer in 2015 occurred in low- and middle-income countries [4]. Nearly 60,100 deaths occurred in Africa, 28,600 in Latin America and the Caribbean, and 144,400 in Asia. India, the second-most populous country in the world, accounted for 25% (67,500) of cervical cancer deaths. In Eastern, Middle, and Southern Africa, as well as Melanesia, cervical cancer is the second

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leading cause of cancer death in females [5].

Mortality varies 18-fold between the different regions of the world, with rates ranging from less than 2 per 100,000 in Western Europe, and Australia/New Zealand to 27.6 per 100,000 in Eastern Africa [6]. According to data from the WHO, the United Nations and the World Bank, Ethiopia ranked 20th next to Japan with a mortality rate of 14 per 100,000 due to cervical cancer in 2013 [7]. Cervical cancer ranks as the 2nd leading cause of female cancer deaths in Ethiopia with approximately 7,095 new cervical cancer cases and 4,732 cervical cancer deaths annually [8,9].

Fortunately, cervical cancer is one of the preventable non-communicable diseases of a female genital organ through early cervical cancer screening, HPV vaccine, and lifestyle modification as well. It is one of the very few cancers where a precursor stage (pre-cancer) lasts many years before becoming invasive cancer, providing ample opportunity for detection and treatment [10].

The age at which the screening is initiated and the frequencies of screening were varied across countries; The American Congress of Obstetrician and Gynecologists recommend initiation of screening with Pap smear at age 21 every three years interval until the age of 29 followed by screening with Pap smear and HPV testing (Co-testing) every five years till age 65 [11]. However, in low- and middle-income countries, because of the high cost of setting up screening programs based on cytology, coverage of screening is very low and alternative screening methods are required [12].

Ethiopia adopted the WHO recommendation of cervical cancer screening between 30-49 years of age at least once every three years. Therefore, the “see and treat” strategy is currently being applied using Visual Inspection under Acetic acid as a screening method and cryo-therapy as a treatment option for positive results [13].

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However studies in Ethiopia shown that knowledge and practices were considerably low. A community-based cross-sectional study conducted in finoteselam north-west Ethiopia from 735 female study participants 83.3% had heard about cervical cancer and their comprehensive knowledge was 23.1%. Where-as factors affecting knowledge of participants were age 35-49 AOR 2.8 CI;1.01-7.9, religion being protestant AOR 8.8 CI; 2.04-37.7, marital status being windowed/divorced AOR 0.22, CI; 0.06-0.7, not experienced sexual intercourse AOR 2.9, CI; 1.15-7.49 and age at first intercourse \geq 18 years was AOR 3.7, CI; 1.8-7.5 [14]. A similar study in hosanna town participants having good knowledge was 53.7% [15]. Addis Ababa among health professionals having a good level of knowledge was 43.8% [16] and Gonder among reproductive-aged women 31% [17].

In Ethiopia, cervical cancer screening was generally low in different parts of the country, even if most studies were done among health professionals and university students. A study was done in southern Ethiopia, Hawassa 11.4%[18].In Ethiopia, cervical cancer screening was generally low in different parts of the country, even if most studies were done among health professionals and university students. A study was done in southern Ethiopia, Hawassa 11.4%[18].Northern Ethiopia, Mekele 10.7%[19]. Gurage zone, Butajira 15.1%[20], south-west Ethiopia Mizan-Tepi 14.83%[21],

Arba Minch town and zuria district gamogofa 9.6% [22]. West gojam zone Finoteselam 7.3%[14]. Hosanna town southern Ethiopia 9.9%[15].And Addis Ababa 3.5% [17]. In recent years, cervical cancer screening tests and HPV vaccination have been a feasible alternative modality for the prevention and control of cervical cancer. However, to maximize the effectiveness of this program in terms of reaching more vulnerable populations, teachers' knowledge and practices towards cervical cancer prevention and control service play a vital role in establishing reproductive health education programs.

METHODS AND MATERIALS

Study Area and Period

A study was conducted in Hawassa city administration capital of Southern Nations Nationalities and Peoples Region, Ethiopia from May 1 to 30, 2019. The city was located 273 km from Addis Ababa's capital city of Ethiopia. It was the economic and cultural hub of the region. There are 8 sub-cities (Kifle-kelema) that divided based on the geographical structure. It had 58 governmental and 80 non-governmental making a total of 138 schools. From governmental schools, there were twelve first cycle schools, thirty-one full-cycle schools, eleven high schools, three 9-12 schools, and one 11-12 school. Whereas from non-governmental there were thirty-one first cycle schools, thirty-four full-cycle schools, five 9-10schools, one 5-8school for individuals who have a special need and nine 9-12schools. The total number of teachers in governmental and non-governmental schools were 4,309[four thousand three hundred nine] in Hawassa city administration. Among those total numbers of female teachers were 1,779, which is 41 percent of total teachers. From this primary school female teachers were 1,393 in 108 schools (Hawassa city administration education office).

Study Design

School-based cross-sectional study design was carried out among primary school female teachers of Hawassa city administration, Hawassa, southern Ethiopia, 2019.

Source population:All primary school female teachers of Hawassa city administration, Hawassa, southern Ethiopia, 2019

Study population: The study population was all female teachers found during data collection in selected primary schools of Hawassa city administration, Hawassa, southern Ethiopia, 2019.

Study unit: The study subject was primary school female teachers who were selected with simple random sampling technique from selected primary schools.

Inclusion: All-female teachers who were recruited randomly from selected governmental and non-governmental primary schools.

Exclusion: Absent during data collection due to maternal leave or sick leave, absent with official permissions beyond the study period and Unwillingness to participate.

Sample Size Determination

The sample size was computed by open Epi version 3.5.1 size based on a single proportion formula on the following assumptions as above. P= prevalence value (the practice of cervical cancer screening among Tanzanian primary school teachers which is equal to 21%) [23]. Sample size including non-response rate n=475.

Sampling procedure:Stratified sampling method was employed for

each school. First lists of all of the schools were obtained from Hawassa city administration Education office. Then, the schools were grouped in to two governmental and non-governmental primary schools. Forty percent of schools were selected from both which made seventeen governmental and twenty-six non-governmental primary schools with lottery method. A list of female teachers was taken from each school and numbered for both governmental and non-governmental in two groups. Then sample frame were created for each in micro-soft excel 2010, and samples were generated with computers. If selected one was unresponsive or not available during data collection skip to the next participants not selected primarily in similar school and was continued as usual.

Data collection tools: Pretested, structured and close-ended questionnaire was used to collect data from each study subject in selected primary schools of Hawassa city. The questionnaire was adapted from different related literature with modification in line with the objectives of this particular study [14,15]. The questionnaire had four parts; the part includes socio-demographic characteristics, reproductive and lifestyle, general comprehensive knowledge, practice on cervical cancer prevention and had 47 items. The questionnaire was first prepared in English, translated into Amharic and then back-translated to English to check for its consistency.

Data collection: Data collectors were first-year masters of clinical midwifery students of Hawassa University and the supervisor was MPH in general public health from shashemene specialized referral hospital. Data collectors and supervisors were trained for one day on the procedures of data collection, data collection tools, and communication skills. Data collection was conducted with face to face interviews in selected primary school female teachers of Hawassa city administration. The interview was given after obtaining verbal consent from each participant. The completed questionnaires were collected on a daily basis to check for its consistency and completeness by the supervisor and principal investigator as well. Day to day supervision was carried out for the entire length of the data collection period by the one trained supervisor and by principal investigators.

Independent Variables

- Socio-demographic like age, marital status, level of education, income/insurance,
- Reproductive-related and life-style factors, age at first sex, history of pregnancy, having child/children, use of COC, history of sexually transmitted infections, history of smoking and history of alcohol use.

Dependent variables

- Knowledge of cervical cancer prevention
- Practice of cervical cancer prevention

Operational definitions

- **Knowledge:** If the Participant scored less than 50% from 24 total knowledge related question was categorized as having poor knowledge and scored greater than 50% were knowledge after each question dichotomized in to yes/no [24].
- **Cervical cancer screening:** Steps taken to identify women with any form of cervical changes using an available method of screening with at least three years penetrating sexual engagement.

- **Cervical cancer screening practice:** The action of ever use of available cervical cancer screening service.
- **Practice:** In this study, the practice refers to the ways that the respondents used to prevent cervical cancer
- **Prevention:** Actions directed to preventing cervical cancer through early and regular screening and diagnosis, vaccinations, avoid smoking, consistent use of condom and avoid early and multiple sexual partners.

Data processing and analysis: After individual data were scrutinized thoroughly for completeness, the questionnaire was coded, checked, cleared and entered on Epi data 3.1 software and exported to SPSS software version 22 for analysis. Summary statistics such as frequency, percentage, mean, and standard deviation were computed. Initially, a bivariate analysis was performed between each of the potential factors associated with respect to knowledge, and practice of cervical cancer preventions. Then, multivariate logistic regressions were carried out to examine the association of the socio-demographic and reproductive variables that was/were associated with Knowledge and Practice.

In bivariate logistic regression with a significance level of p-value <0.25 were entered into a multivariate logistic regression model to identify the important factors affecting knowledge and practice of cervical cancer prevention. The necessary assumption of logistic regression, model fitness was checked using Hosmer and Lemeshow goodness of fit test statistics and it was fit. Variables with a P-value <0.05 were considered as statistically significant factors and odds ratio with 95% confidence interval was used to measure the strength of association.

Data quality assurance: To assure the quality of the data, properly pretested data collection tool was prepared, training was given to data collectors and supervisor by the principal investigator, and on each data collection day the collected data was reviewed by the principal investigator, any problem faced in the time of data collection was discussed and an immediate solution was made. In order to maximize the response rate of the participant's data collector should clearly explain the objective of the study. To control the quality of data for analysis, cleaning data before entry and running frequency and percentages then, editing was done by contrasting coded questionnaire.

RESULTS

Socio-demographic characteristics of participants

A total of 475 primary school female teachers were included in the study making the response rate 100%. Among the total participants, 189 (39.8%) were between 25-30 years of age with a mean age of 31 with (SD ± 7.71) years. Around half of the respondents were orthodox 220 (46.3%) and more than half of them were degree in their educational level 256[53.9%]. Regarding their marital status 329 (69.3%) were married and 300 (63.2%) on marriage, 230(76.7%) of their husbands had higher education and about 212 (70.7%) were employed. Their average monthly income was 3007.57±241 Ethiopian birr (Table 1).

Reproductive and Lifestyle Characteristics of Participants

As shown in Table 2 below the mean age of first menses was 14.29 and SD 1.72 years. However, 276 (58.1%) had menses before the age of 14 years and below. All had history sexual intercourse; their

Table 1: Distributions of primary school female teachers' by socio-demographic characteristics in Hawassa city, southern Ethiopia, 2019.

Variables		Frequency	Percent
Religion(n=475)	Orthodox	220	46.3
	Muslim	31	6.5
	Protestant	208	43.8
	Others*	16	3.4
Qualification (n=475)	Certificate	22	4.6
	Diploma	197	41.5
	Degree	256	53.9
Marital status (n=475)	Single	146	30.7
	Married	300	63.2
	Divorced	25	5.3
	Windowed	4	0.8
Age at first marriage(n=329)	Age ≤22	175	53.2
	Age ≥23	154	46.8
Husband education for on marriage (n=300)	No regular education	39	13.0
	Primary education	10	3.3
	Secondary education	21	7.0
	Higher education	230	76.7
Husband occupation (n=300)	Employed	212	70.7
	Non-employed	88	29.3
Monthly income(n=475)	≤2999	211	44.4
	3000-5000	168	35.4
	≥5001	95	20.2
Source of income(n=475)	From teaching only	352	74.1
	From other source	123	25.9

*others; catholic, Adventist,

Table 2: Distributions of responses of primary school female teachers on reproductive and lifestyle questions in Hawassa city 2019.

Variables		Frequency	Percentage (%)
Age at First menstrual period	Age ≤14	276	58.1
	Age ≤15	199	41.9
How did you describe your menses	Regular	321	67.7
	Sometimes irregular	125	26.3
	Always irregular	29	6.1
Age first sexual intercourse	Age ≤21	284	59.8
	Age ≥22	191	40.2
No sexual partner	One	342	72.0
	Two and above	133	28.0
History of pregnancy	No pregnancy	198	41.7
	one pregnancy	117	24.6
	Two and above pregnancies	160	33.7
Age at first pregnancy(n=277)	Age ≤24	172	62.1
	Age ≥25	105	37.9
Interval b/n births (n=160)	Below two years	13	8.1
	Two years and above	147	91.9
Breastfeeding	Yes	262	94.6
	No	15	5.4
Durations of feeding (n=263)	< 2 years	71	27.1
	≥2 years	192	72.9
Use of compound oral pills (n= 475)	Not used	254	53.5
	Ever used	221	46.5
History of STI treatment (n=475)	Not treated	447	94.1
	Treated	28	5.9
History of smoking (n=475)	No	475	100
History alcohol use (n=475)	No	475	100

mean and SD age at first sexual intercourse was 21.00 and 3.27 years, respectively. The majority 328 (83.9%) of them did not have multiple sexual partners and 28 (5.9%) had history of sexually transmitted treatment. More than half, 277 (70.8%), have been pregnant from these 160 (57.8%) had two and above deliveries. In addition, 254 (53.5%) of the respondents had used combined oral contraceptive pills (Figure 1 and Table 3).

Table 3: Distributions of primary school female teachers' responses on knowledge questions of cervical cancer and its prevention in Hawassa city 2019.

Variables		Frequency	Percentage (%)
Hearing about cervical cancer	No	156	32.8
	Yes	319	67.2
source information	Health professional	125	26.3
	From radio/TV	247	52.0
	Magazines	19	4.0
Knowledge about risk factors	HPV infection	263	55.4
	Family history	69	22.5
	Having early sex	107	14.5
	Multiple sexual partners	129	18.7
	Smoking	73	15.4
	Older age	48	10.1
Knowledge about symptoms and sign's	Others*	60	12.6
	Vaginal bleeding	115	24.2
	Foul vaginal discharge	148	31.2
	Pelvic pain	55	11.6
	Post-coital bleeding	73	15.4
Cervical cancer is preventable	No	50	10.5
	Yes	269	56.6
If yes how it would be?	Avoid multiple sexual partners	122	25.7
	Avoid early sex	102	21.5
	Avoid smoking	71	14.9
	Through vaccination	66	13.9
	By screening	248	52.2
	Others**	47	9.9
Is cervical cancer curable	No	66	13.9
	Yes	253	53.3
At what stage it would be cured	Seeking Rx At an early stage	228	48.0
	Seeking Rx at late-stage	9	1.9
	At both stage	13	2.7
	No difference	3	0.6
	Did you know cervical cancer screening	Yes	240
If yes for what purpose	no	235	49.5
	For cervical CA detection	120	25.3
	For cervical CA prevention	190	40.0
	For cervical CA treatment	77	16.2

Others* early pregnancy, prolonged use COC, multiparity, STI, lack of hygiene, repeated abortion, an uncircumcised male partner

Others** avoid early sex, prevent STI with safer sex, regular physical exercise, keep hygiene

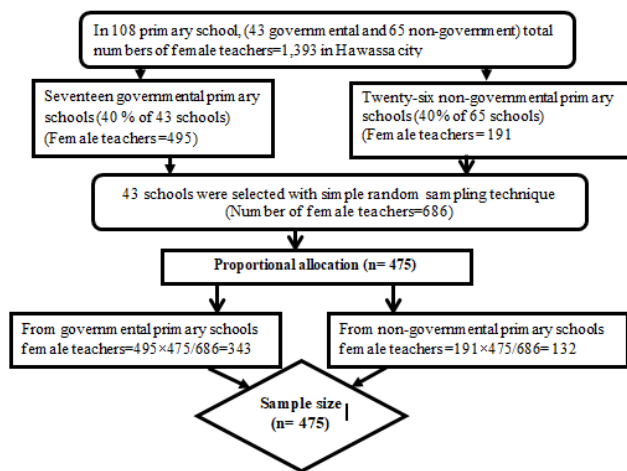


Figure 1: Diagram shows sample size determination from governmental and non-governmental primary school female teachers Hawassa city administration.

Magnitude of Knowledge Comprehensive

One hundred twenty-nine (27.2%) participants had good level of knowledge about cervical cancer risk factors, signs, and symptoms, ways of prevention and appropriate ages of screening frequency as well, after 27 right answers were counted and those scored 50 % and above considered as having good level of knowledge. The minimum and maximum knowledge scores were 0 and 26 respectively, with a mean and standard deviation of 8.1 ± 7.70 .

Responses on Knowledge Questions of Cervical Cancer and Its Preventions

About 319 (67.2%) respondents heard about cervical cancer and their source of information was from electronic media 247(52.0%) followed by health professionals 125 (26.3%). The most cited risk factors and signs of cervical cancer were HPV infection 263 (55.4%) and foul vaginal discharge 148 (31.2%), respectively. More than half of participants 269 (56.5%) believe that cervical cancer was preventable. The most cited ways of prevention was through screening 248 (52.2%). Two hundred fifty-three (53.3%) know that cervical cancer was curable if it is detected early 228 (48.0%). About half of 240 (50.5%) participants knew that cervical cancer screening and the most common cited purpose of the screening was to prevent cervical cancer 190 (40.0%) (Table 4).

Responses to Knowledge Questions on Appropriate Age and Frequency Screening

The most cited appropriate age of screening was as soon as sexually active 126 (26.5%) followed by age 30 and above 61 (12.8). Regarding frequency of screening the most common were every 1-2 years and I don't know, 90 (18.9%) and 81 (17.1%) respectively (Table 5).

Magnitude of Practices of Cervical Cancer Prevention

The practices of the participants were 95 (20.0%). Only twenty-four (11.2%) aged above 30 years old had cervical cancer screening, with mean age of 36.17 ± 7.51 and Most advised from health professionals 38 (8.0%). Regarding other practices use of condoms 49(10.31) followed by avoid multiple sexual partners 53 (11.2%) reported by participants (Table 6).

Table 4: Distributions of knowledge questions on appropriate age and frequency of screening among primary school female teachers of Hawassa city.

Variables		Frequency	Percentage (%)
Appropriate age of screening	As soon as sexually active	126	26.5
	When a woman has child	22	4.6
	Age 30 and above	61	12.8
Frequency of screening	I don't know	31	6.5
	Every 1-2 years	90	18.9
	Every 3-5 years	69	14.5
	I don't know	81	17.1

Table 5: Distributions of primary school female teachers by responses practice-related questions in Hawassa city 2019.

Variables		Frequency	Percentage
Have you ever screened (n= 392)	Yes	44	11.2
	No	348	88.8
Who/what advice you?	Health professionals	38	8
	Media	15	3.2
	Husband	10	2.1
	Relative/friend	8	1.7
Other practices did you do (n=475)	Avoid multiple partners	53	11.2
	Use of condoms	49	10.31
Total level practice	Not practiced any	380	80.0
	Ever practiced any	95	20.0

Reasons for Not Ever Screened

The most common reported reasons not to be screened were I am not sick 154 (32.4%), negligence 105(22.1%), fear of positive results 92 (19.2%) and followed by I don't heard of cervical cancer 86 (18.1%) (Figures 2 and 3).

Bivariate and Multivariate Analysis of Socio-Demographic and Reproductive Factors Associated With Knowledge of Cervical Cancer Prevention

A binary logistic regression of socio-demographic and reproductive characteristics associated with knowledge of cervical cancer prevention and control. After controlling possible covariates with multiple logistic regressions; age between 30-35 years old were 2.20 times more likely have good level of knowledge (AOR 2.20 95% CI: 1.11-4.36) compared with age between 25-29 years old, and being ever had pregnancy 2.09 times more likely have good level of knowledge (AOR 2.09, 95%CI: 1.08-4.05) compared with ever not having history of pregnancy (Table 7).

Bivariate and multivariate analysis of factors associated with practices towards cervical cancer prevention

A binary logistic regression of socio-demographic and reproductive characteristics associated with practices towards cervical cancer prevention was done and having a p-value less than 0.25 were included and entered for multivariate logistic regression. With multiple logistic regressions; age between 30-39 years old were 1.85 times more likely ever had practices before this survey (AOR 1.85, 95% CI: 1.02-3.36) compared with age 20-29 than 30 years old and

Table 6: Bivariate and multivariate analysis of socio-demographic and reproductive factors associated with knowledge of cervical cancer prevention among primary school female teachers' Hawassa city southern Ethiopia, 2019.

Variables	Knowledge on cervical cancer		COR	P value	AOR with 95% CI	p-value
	Yes	No				
Age of participants						
25-29	36	118	Ref.		Ref.	
20-24	17	83	0.671	0.223	0.98(0.47-2.03)	0.951
30-34	24	68	1.157	0.632	1.02(0.55-1.88)	0.951
35-39	25	34	2.410	0.007	2.20(1.11-4.36)	0.024*
>=40	43	27	2.058	0.020	1.80(0.94-3.46)	0.078
Marital status						
Not married	26	120	Ref.		Ref.	
Ever Married	103	226	2.103	0.003	0.74(0.33-1.62)	0.474
Ever use combined oral contraceptives						
Yes	70	151	1.532	0.04	1.18(0.74-1.87)	0.483
No	59	195	Ref.		Ref.	
types of menses						
Regular	80	241	Ref.		Ref.	
Irregular	49	105	1.41	0.115	1.31(0.84-2.06)	0.233
Age at first sex						
Age<=21	66	218	Ref.		Ref.	
Age>=22	63	128	1.636	0.02	1.46(0.93-2.28)	0.099
Number of sexual partners						
One	24	109	2.012	0.006	1.59(0.91-2.76)	0.101
Two and above	105	237	Ref.		Ref.	
Being ever having pregnancy						
No	36	162	Ref.		Ref.*	
Yes	93	184	2.274	≤0.001	2.09(1.08-4.05)	0.03

*significantly associated factors with knowledge of cervical cancer prevention

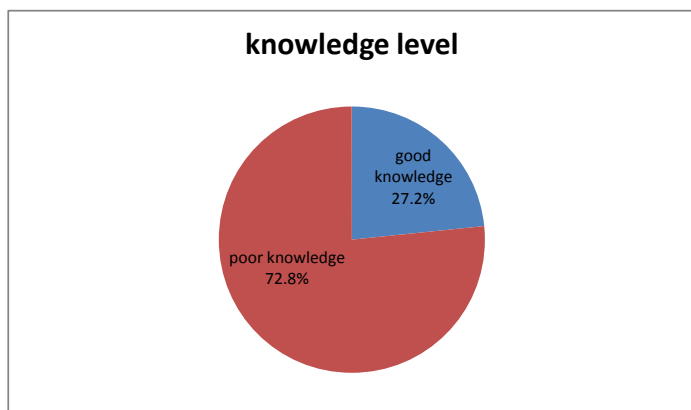


Figure 2: Distributions of knowledge level on cervical cancer prevention among primary school female teachers of Hawassa city, southern Ethiopia 2019.

having good knowledge level which was almost 6.14 times more likely ever had practices (AOR 6.14, 95% CI: 3.71-10.16) than those who have poor knowledge about cervical cancer prevention (Table 8).

DISCUSSION

This study provides baseline information for cervical cancer prevention among primary school female teachers. It is well known that good knowledge, with practices about the particular medical condition, is essential and interconnected to reduce the morbidity

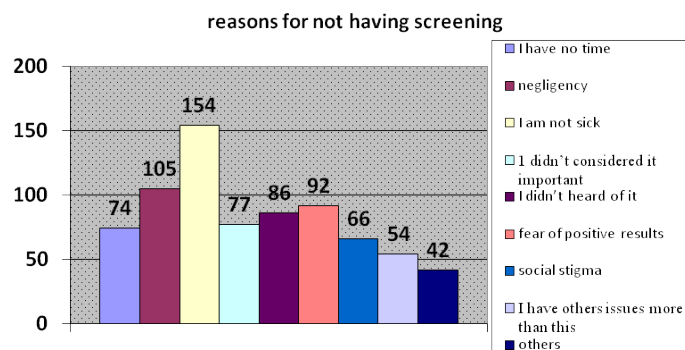


Figure 3: Shows the reasons for primary school female teachers not were screened in Hawassa city, southern Ethiopia, 2019. Others indicate: my age is not appropriate, don't know the availability of service, partner influence, believing not at risk, fear of pain, embarrassment.

and mortality caused by preventable diseases. In this study, only one hundred twenty-nine (27.2%, 95% CI: 23.2-31.4) primary school female teachers had scored 50% and above on knowledge questions, and the minimum and maximum score was zero and twenty-six respectively. The mean knowledge score was 8.1±7.7 (mean ± SD). This is consistent with studies done in northern Ethiopia Gonder 31% [17], north-west Ethiopia finoteselam 23.1% [14]. In Gabonese (27%) [25]. African American women (27%) [26]. But, lower than a cross-sectional study conducted in hosanna town 53.7% [15] and Addis Ababa 43.8% [17]. This might be due

Table 7: Bivariate and multivariate analysis of factors associated with practices towards cervical cancer prevention among primary school female teachers' Hawassa city 2019.

Variables	Practices on cervical cancer prevention		COR	p-value	AOR	p-value
	Yes	No				
Age						
Age 20-29	33	221	Ref.		Ref.*	
Age 30-39	42	109	2.580	≤0.001	1.85(1.02-3.36)	0.044
Age ≥40	20	50	2.679	=0.002	1.59(0.75-3.35)	0.224
Marital status						
Not ever married	13	133	Ref.		Ref.	
Ever Married	82	247	3.396	≤0.001	1.91(0.74-4.90)	0.179
Number of sexual partners						
One	79	263	2.197	0.008	0.74(0.38-1.45)	0.387
Two and above	16	117	Ref.		Ref.	
Being ever having pregnancy						
No	23	175	Ref.		Ref.	
Yes	72	205	2.672	≤0.001	0.93(0.42-2.07)	0.864
Combined oral contraceptives						
No	39	215	1.871	0.007	1.23(0.73-2.10)	0.460
Yes	56	165	Ref.		Ref.	
Treated for STI						
No	85	362	2.366	0.037	2.29(0.93-5.60)	0.071
Yes	10	18	Ref.		Ref.	
Knowledge level of participants						
Poor knowledge	37	309	Ref.		Ref.*	
Good knowledge	58	71	6.822	≤0.001	6.14(3.71-10.16)	≤0.001

*significantly associated factors with practice of cervical cancer prevention

to nature of study population, sample size included time of study, the way that knowledge operationalized, and study area. In hosanna study knowledge was grouped based on the mean score, and Addis Ababa was the most urbanized than most governmental and non-governmental stakeholders, media like radio and magazines were more saturated than Hawassa.

This study finding shows that three hundred nineteen (67.2%, (95% CI: 62.7-71.8) participants had heard of cervical ca. this is lower than the study conducted in Gonder (78.7) [27]. Ghana among sexually active females (82.2%) [28]. Nigeria among students (72%) [29] And in finoteselam among community participants (83.3%) [14]. The potential difference might be due to socio-Demographic differences, sample size included, nature of the study population, time of program launched in the country, quality of life, and health-seeking behavior. For example in finoteselam total sample sizes included were 735 and the study was community-based. In Gonder there might be a numbers of clinic in the city since university of Gonder was one of the pioneer in medicine Ethiopia including oncology centers.

In this study factors significantly associated with good level of knowledge among primary school female teachers were; age between 35-39 years old were 2.20 times more likely to have good level of knowledge (AOR 2.20, 95% CI: 1.11-3.46) compared with those aged between 25-29 years old. It could be due to having chances to visit health facilities that might create opportunities for reproductive health education or might be due to health seeking for having symptoms and sign since great burden of cervical cancer

was mostly in this age group [30]. This was supported by a study done in finoteselam above 35 years old were almost three times more knowledgeable (AOR 2.8, CI; 1.01-7.9) [14].

The other significantly associated factors with knowledge was being ever had history of pregnancy 2.09 times more likely to have good level of knowledge (AOR 2.09, 95% CI: 1.08-4.05) compared with those not ever had history of pregnancy. In line with this having pregnancy/child was significantly associated with adequate knowledge $p=0.041$ [26]. And a study done in Bagdad having history of pregnancy, abortion, and delivery were significant factors with good level of knowledge [31]. The rationale could be those having pregnancy have opportunistic counseling in health facilities while they were attending for abortion, ANC, PNC, child immunizations, and family planning services in the post-natal period.

Level educations, income, husband education were not significantly associated with knowledge of cervical cancer prevention. Nevertheless, in other research secondary and higher levels of education, eight times increase the level of knowledge about cancers of cervix (AOR 7.77 95% CI; 1.7-35.48) [32]. In African American women aged 18-70 years level of educations and household income was significantly associated with adequate knowledge p -value 0.007 and 0.010, respectively [26]. The difference may be due to reproductive health educations were not well given in school or it might be masked by another communicable disease like HIV/AIDS in our cases. Increasing formal education may not be necessarily successful in bringing behavioral changes towards cervical cancer prevention and control.

The findings of this study revealed that total practices towards cervical cancer preventions of participants were 95 (20.0%, (95% CI: 16.8-23.6)). Generally, a practice in this report was higher than other researches done in Ethiopia due to the presence of additional practice measures like consistent use condoms, avoid multiple partnerships mentioned by the respondents. From 95 participants who have a history of practices only twenty-four (11.2%)(95% CI; 8.6-13.9) undergo cervical cancer screening. This is in line with a study conducted in southern Ethiopia, 11.4% [18]. Mekele town 10.7% [19]. And in abroad India 9.5% [33]. Iraq 12.6% among 222 female teachers [34]. Nigeria among school teachers 12.8% [35].

It is lower than Butajira 15.1%[20], Mizan-Tepi 14.83 [21] in Kenya 19.4% [36]. In Tanzania dare-selam 21% [23]. In Malawi 13.2%[37]and 93% in Nigerian school teachers [38]. The difference could be due to socio-demographic, nature of study population, and establishing reproductive health education given in schools. Example prevention of cervical cancer through screening was first initiated in six African countries in including Tanzania and Malawi in 2005 and in Nigerian after providing health educations their level of cervical cancer screening was raised from 12.9% to 93%. But, higher than a study done in finoteselam[14]. And Addis Ababa [17]. This could be due to nature of study populations, study area and time of study conducted. Example Hawassa was more urbanized than finoteselam with a number of alternative clinics and presence of university hospitals. Whereas in Addis Ababa the study was conducted before four years that screening was not well promoted.

In this study factors, significantly associated practices towards cervical cancer prevention were having good level of knowledge 6.14 times more likely ever had practices towards cervical cancer prevention (AOR 6.14, 95% CI: 3.71-10.16) than compared with those having poor knowledge. The possible explanations that being have knowledge for a certain problem could remove misconceptions, and have better understanding.

Therefore demonstrating the recommended practices with acquired knowledge would easy. This is considerably in line with 5.9 times in Tanzania dare-selam [39]. In Nigeria 12.8% among knowledgeable than 4.6% among poor knowledge [35]. In Malawi seven times (AOR 7.35, 95%, CI 2.44-22.20). This due to knowledge was the basic require performing any recommended practices to prevent cervical cancer.

The other socio-demographic factor associated with practices of cervical cancer prevention was the age of participants between 30-39 years old were 1.85 times more likely practiced any of prevention methods (1.85, 95% CI: 1.02-3.36) compared with age between 20-29 years old. The rationale could be that Ethiopian cervical cancer screening program was launched for age group above 30 years old for immune competent clients or it might be as age advanced becoming symptomatic, visiting health facilities, being aware through experience. This was supported by a study done in Malawi; participants among older age, AOR 7.05, 95% CI=2.31-21[37]. In Thailand aged 35-44 3.52 times more likely practice cervical cancer screening.

Strength

- Shows magnitude of knowledge level and practices towards this particular population
- School teachers focused study in order to motivate role

modeling provision

- Volunteering and participation of all primary school teachers in the study
- The study was done in 43 primary schools which increase the representativeness of the finding in Hawassa city.
- Use of simple random sampling technique in order to decrease sampling bias

Limitation of the Study

- Misreporting by respondents cannot be ruled out
- It was good if the study was complemented with a qualitative part to obtain in-depth information

CONCLUSION AND RECOMMENDATION

This study has revealed that the cumulative good knowledge and practices towards cervical cancer prevention were 27.2% and 20.0% respectively among primary school female teachers in Hawassa city. Among those age eligible participants having cervical cancer screening in this study was 11.2%. Age group between 35-39 years old were 2.20 times more likely (AOR 2.20, 95% CI 1.11-3.36) and Being ever had history of pregnancy were 2.09 times more likely (AOR 2.59, 95% CI; 1.21-5.57), to have good level of knowledge. Whereas being having good cumulative knowledge 6.14 times more likely (AOR 6.14, 95% CI: 3.71-10.16), and age between 30-39 years old were 1.85 times more likely (AOR 1.85, 95% CI: 1.02-3.36), have practices towards cervical cancer prevention.

Above the health sectors, the health bureau should launch need specific programs in schools like appropriate age of screening in line with countries program in order to address more vulnerable groups. Integrate counseling of cervical cancer preventions and control with other services like family planning, postnatal care, post-abortion care, and antenatal care services to increase their awareness. They should have to create platforms in schools to increase their knowledge of cervical cancer prevention and control through IEC, BCC materials, Advocate using media, programed days or weeks, and trainings. Mobilize students to give health education at school and at health facilities they assigned in their team training program and by establishments of RH clubs.

DECLARATION

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of Hawassa university college of Health Sciences with reference number IRB/213/11. A formal letter was written for primary schools' with the title of "to whom it may concern" from Hawassa University department of Midwifery to inform them about the study. Data collectors were explained the objective and purpose of the study to the participants. Informed verbal consent was obtained from the study subjects who were participated in. Data were kept confidential and anonymous and it was used only for research purposes. The participants were also being informed that the information was accessed by the principal investigator, they were not forced to answer the entire questions and they can withdraw at any time if they do not want to participate.

Availability of Data and Materials

All data used and/or analyzed during the current study are available

from the corresponding author on reasonable request.

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