

Knowledge, Attitude and Practices on Cervical Cancer Screening, Prevention, and Control among Undergraduate Female Students in Northwest, Ethiopia: A Descriptive Cross Sectional Study

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Abstract

Background

In the world, cervical cancer is an easily preventable disease and it is one of the leading causes of cancer mortality in females. It is the second most common women cancer in Ethiopia. The aim of the present study was to assess the KAP of undergraduate female students towards cervical cancer screening, prevention, and control.

Methods

A cross-sectional study was conducted in April 2018 at the University of Gondar, College of Medicine and Health Sciences undergraduate female students. Pretested, self-administered questionnaire was used for data collection. Four hundred and three female students were recruited by a stratified random sampling method and the data were entered and analyzed using SPSS version 20 statistical packages. Descriptive data analysis was used to report the results.

Results

Most of the respondents (59.3.3%) had good knowledge, whereas nearly 67.7% of the respondents had a positive attitude towards cervical cancer. However, less than 1% of the respondents had been screened for cervical cancer.

Conclusion

Although female students had a high proportion of good knowledge and a positive attitude, their practices on cervical cancer were quite low. Therefore the university should create awareness on cervical cancer screening, prevention, and control by incorporating in the curriculum.

Introduction

Cervical cancer is a rapid uncontrolled cell growth and spread at the cervical area (1). Many common human papilloma viruses (HPV) cause this disease. Today, more than 120 different HPV types have been identified. In the world, 80% of cervical cancer is caused by four high-risk strains (HPV-16, 18, 31, and 45). Females acquire the disease through sexual contact with infected individuals (2). Early-onset of sexual activities, multiple sexual partners, extended use of oral contraceptives, immune-suppression, and smoking (3) are other known risk factors. The spread of diseases is very high among young sexually active adult females, particularly the age of 22–25 years (2). Malignant cervical cancer is characterized by vaginal bleeding, contact bleeding, and vaginal secretion. However, it is one of the most easily

preventable forms of female cancer. A key aspect of its prevention is the identification of the premalignant form by cervical screening (4).

Lack of knowledge about cervical cancer and risk factors, beliefs about cervical cancer, poor access to preventive services, the supply of the service, and the current health service system were the barriers to the decision to be screened for cervical cancer (5). Cervical cancer is the second most common cancer among women in the developing world and is responsible for the deaths of 230,200 and the new cases of 444,500 annually (6). However, it is largely preventable through early screening, vaccination, early detection, and prompt treatment of detected precancerous lesions, and safe sexual practices (7).

The rate of cervical cancer was five times higher in developing countries (25 per 100 000) compared with more developed countries (5 per 100 000). The high mortality rates are due to the advanced stage at presentation, affected women being unable to complete therapy, lack or unavailability of treatment, and unaffordable therapy(8). The problem is serious in sub-Saharan Africa, 34.8 new cases of cervical cancer were diagnosed per 100,000 women every year, and 22.5 per 100,000 women deaths reported. This is higher compared with 6.6 and 2.5 per 100 000 women cases and death in North America, respectively (2).

In Ethiopia, cervical cancer ranks as the most frequent cancer among women. About one-third(33.6%) of women are estimated to have cervical cancer infection at a given time (9). In 2010, it was estimated that 20.9 million women were at risk of developing cervical cancer in Ethiopia, with an estimated 4,648 and 3,235 annual numbers of new cases and deaths, respectively. Low coverage of cervical cancer screening is a serious problem and a major barrier in reducing the mortality and morbidity in the developing countries(10). Lack of knowledge and poor attitude towards the disease and risk factors can also affect screening practice and development of preventive behavior for cervical cancer.

No previous study was done on the KAP towards cervical cancer screening as well as prevention and control among the University of Gondar, College of Medicine, and Health Sciences undergraduate female students. Therefore, the present study gives an insight into what the university students know and do.

Methods And Materials

Study area

The study was conducted at the University of Gondar, College of Medicine, and Health Sciences in Gondar town, northwest Ethiopia. Gondar town is located in northwestern Ethiopia at a latitude of 12°36'North, and longitude of 37°28'East. The University of Gondar is located in the west of the Central Gondar Administrative Zone, which is, 747 kilometers far from Addis Ababa in the Northwest direction(11).

Study design and period

An institution-based cross-sectional study was conducted at the University of Gondar, College of Medicine, and Health Sciences on April 2018.

Measurements of variables

Measurement of knowledge: Participants who have scored greater than or equal mean value from 11 knowledge questions were considered to have good knowledge, and those who had scored less than the mean value was considered to have poor knowledge.

Measurement of attitude: Participants who have scored greater than or equal mean value from 9 attitude questions were considered to have a positive attitude and those who had scored less than the mean value were considered to have a negative attitude.

Measurement of practice: Participants used at least one alternative method of cervical cancer screening/prevention/control of cervical cancer was considered as good practice with a score of 1, otherwise poor practice as a score of 0.

Sample size determination

The required sample size was determined by using the single population proportion formula based on the following assumptions. The proportion of knowledge/attitude was taken from the results of a study done in Mizan Tepi University, Ethiopia, 61% (12), with 95% CI, α -level 5%, and considered the margin of error 5%. The minimum sample size was calculated based on the following formula:

$$n = (Z_{\alpha/2})^2 P (1-P)/d^2 ; n = (1.96)^2 * 0.61(1-0.61)/(0.05)^2 = 367$$

Where: n = sample size

$Z_{\alpha/2}$ = normal distribution value at 95% CI (Z=1.96)

P= the successful proportion of knowledge/attitude (0.61)

d= margin of error (5%)

Therefore, the final sample size after adding 10% non-response rate was 403 female students.

Sampling technique

A stratified sampling technique was used to select the participants of the study. The study population was stratified based on the department. Participants were selected from twelve departments of the University of Gondar, College of Medicine and Health Sciences by using simple random sampling methods. The sample size was proportionally allocated for each selected department based on their class size by using the formula: $n_i = n \times N_i / N$

Where n= the total sample size (403); n_i = sample size in each stratum, N_i = Number of female students in each department; N= Total number of female students in the study area (1746).

Using the students' lists obtained from the office of the registrar as a sampling frame, the respondents were selected by a simple random sampling method. The sample size was proportionally allocated by using the above formula for each department.

Data collection

The data was collected by using a self-administrated questionnaire that contains different items like socio-demographics, knowledge, attitude, practice, and control of cervical cancer screening, prevention, and control. Questionnaires were adapted from different pieces of literature from previous studies. These questions explored the respondent's knowledge, attitude, and practices about cervical cancer, screening, prevention, and control. The questionnaires were translated from English to Amharic for data collection and vice-versa for data entry for ensuring its consistency.

Data quality management

A pre-test was done on 5% of the questionnaire to make sure the questionnaire was appropriately structured and to ensure its consistency. Two days of training were given to data collection facilitators and supervisors for improving the data collection process. Close supervision was followed for ensuring the completeness of questionnaires at the time of data collection. Finally, data editing and clearance were done for the proper management of data.

Data management and analysis

Data were entered after encoded the completed questionnaires and analyzed using SPSS version 20 statistical packages. Descriptive data analysis was used to describe the knowledge, attitude, and practice for cervical cancer screening, prevention, and control. The results were presented in mean/ median, standard deviation, texts, and tables.

Results

Socio-demographic characteristics of participants

A total of 403 undergraduate female medical and health science students were included in this study. The overall response rate was 100%. Among these, the majority 302(74.90%) were between the age range 20-24 years followed by 15-19 years 99 (24.6%) and 25-30 years 2(0.5%) with the mean age of 21 + 1.5 (\pm SD) years. About 322(79.9%) of the respondents were orthodox Christian and 256(63.5%) were Amhara in ethnicity. Regarding marital status, 390(96.8%) of the respondents were single followed by 11(2.7%) married, 1 (0.2%) divorced, and 1 (0.2%) separated. About 333 (82.6%) of the respondents came from urban parts of Ethiopia.

Knowledge of the respondents on cervical cancer

From this study, more than half of the respondents, 239 (59.3%) had good knowledge, whereas the remaining two-fifth 164(40.7%) of respondents characterized by poor knowledge. Majority, 363 (90%) of the respondents heard about cervical cancer from different information sources. Among respondents who heard about cervical cancer, 119(32.8%) got this information from their teachers. Less than one-third, 142 (35.2%) of the respondents knew about the causative agent of cervical cancer. More than half of the respondents, 211(52%) knew about the sign and symptoms of cervical cancer, whereas 192(47.6%) of the respondents didn't know. Among respondents who knew the sign and symptoms, 84 (20.8%) of respondents said that Vaginal foul-smelling discharge is the symptom of the disease whereas, 83(20.6%) of the respondents reported that irregular vaginal bleeding is the symptom of the disease. However, one-third, 133 (33%) of participants had no idea what factors raise the chance of getting cervical cancer, whereas one-quarter of participants 101 (25%) reported that having multiple sexual partners is a risk factor for the disease. Most of the respondents, 296 (73.4%), knew as early treatment can cure cervical cancer. Regarding knowledge on vulnerability for the Pap smear test, 195 (48.4%) of the respondents pointed out that all women > 25 years should get the Pap smear test (Table1).

Table 1: Distribution of respondents on knowledge about cervical cancer, screening, prevention and control, University of Gondar, Ethiopia, April, 2018 (n=403)

Variables	Categories	Number	Percent (%)
Have you ever heard about cervical cancer?	Yes	363	90.1
	No	40	9.9
Where did you learn about cervical cancer?	Teachers	119	32.8
	News media	108	29.8
	Health institutions	98	27
	Family, friends, neighbors	30	8.3
	Magazine	8	2.2
What is causative agent of cervical cancer?	Virus	142	35.2
	Bacteria	54	13.4
	Fungi	20	5
	Parasite	16	4
	Don't know	171	42.4
What are the symptoms of carcinoma of the cervix?	Vaginal foul smelling discharge	84	20.8
	Vaginal irregular bleeding	83	20.6
	Post coital bleeding	15	3.7
	All of the three symptoms	29	7.2
	Don't know	192	47.6
Do you know the Risk factors for cancer of the cervix?	Having multiple sexual partners	101	25.1
	Human papilloma virus	63	15.6
	Early sexual intercourse	48	11.9
	Cigarette smoking	11	2.7
	All the four risks	47	11.7
	Don't know	133	33
How can a person prevent getting cancer of the cervix?	Avoid multiple sexual partners	101	25.1
	Avoid early sexual intercourse	68	16.9
	HPV	33	8.2

	vaccination		
	Quit cigarette smoking	19	4.7
	All the four prevention mechanisms	42	10.4
	Don't know	140	34.7
Can cancer of the cervix be cured in its earliest stages?	Yes	296	73.4
	No	19	4.7
	Don't know	88	21.8
How can someone with cancer of the cervix be treated?	Surgery	94	23.3
	Specific drugs are given by a hospital	92	22.8
	Radiotherapy	92	22.8
	All	19	4.7
	Don't know	106	26.3
Screening frequency	Once a year	240	59.6
	Every three years	83	20.6
	Every five years	30	7.4
	All	5	1.2
	Don't know	45	11.2
Who should be screened?	Women of > 25 years	195	48.4
	Prostitutes	83	20.6
	Elderly women	30	7.4
	All	51	12.7
	Don't know	44	10.9
Which screening method do you know?	Papanicolau smear	152	37.7
	Biopsy	108	26.8
	Visual inspection with acetic acid	39	9.7
	All	35	8.7
	Don't know	69	17.1
Knowledge of respondents	Good	239	59.3

Attitude towards cervical cancer screening, prevention/control

More than two-thirds of the respondents 273(67.7%) had a positive attitude, whereas the remaining respondents 130 (32.3%) had a negative attitude. The majority of the respondents, 361(89.6%), had a positive attitude towards early detection. Only 229 (56.8%) of the respondents responded that they have the chance of acquiring cervical cancer. More than one-quarter of the respondents 110 (27.3%) thought that cervical carcinoma is transmitted from person to person. The majority of the respondents 348 (86.4%) thought that screening helps to prevent cervical cancer (Table 2).

Table 2: Attitudes towards cervical cancer screening, prevention and control, University of Gondar, northwest Ethiopia, April, 2018 (n=403)

Variables	Categories	Number	Percent (%)
Do you think it is helpful to detect cervical cancer early?	Strongly agree	224	61.7
	Agree	137	37.7
	Neutral	1	0.3
	Disagree	1	0.3
	Strongly disagree	1	0.3
Do you believe that you have the chance of getting Cervical Cancer?	Strongly agree	81	22.3
	Agree	148	40.8
	Neutral	8	2.2
	Disagree	106	29.2
	Strongly disagree	20	5.5
Do you believe that getting Cervical Cancer is a serious for you?	Strongly agree	235	64.7
	Agree	120	33.1
	Neutral	2	0.6
	Disagree	5	1.4
	Strongly disagree	1	0.3
Do you think that there are effective methods to reduce the risk of seriousness of cervical cancer?	Strongly agree	150	41.3
	Agree	204	56.2
	Neutral	1	0.3
	Disagree	2	0.6
	Strongly disagree	6	1.7
Do you think Carcinoma of the cervix is the cause of death?	Strongly agree	157	43.3
	Agree	157	43.3
	Neutral	43	11.8

	Disagree	3	0.8
	Strongly disagree	3	0.8
Do you think any women acquire cervical cancer?	Strongly agree	254	70
	Agree	87	24
	Neutral	5	1.4
	Disagree	10	2.8
	Strongly disagree	7	1.9
Do you think carcinoma of the cervix can be treated?	Strongly agree	35	9.6
	Agree	75	20.7
	Neutral	94	25.9
	Disagree	131	36.1
	Strongly disagree	28	7.7
Do you think screening helps in prevention of cervical cancer?	Strongly agree	186	51.2
	Agree	162	44.6
	Neutral	3	0.8
	Disagree	9	2.5
	Strongly disagree	3	0.8
Willingness for screening	Strongly agree	100	27.5
	Agree	185	51
	Neutral	30	8.3
	Disagree	39	10.7
	Strongly disagree	9	2.5
Attitude towards Cervical Cancer	Positive	273	67.7
	Negative	130	32.3

Cervical cancer screening and practices for prevention and control

Most of the respondents 351(87.1%) didn't have any sexual experience. Among respondents who had sexual experience, 36(8.2%) had sexual intercourse at the age of >18 years, whereas the smallest proportion of them 16(4%) had sexual intercourse at the age of < 18 years.

However, of all the respondents, only 2 (0.5%) of them had been exercised for screening cervical cancer tests. With regard to the reasons why participants were not being screened, 211 (52.4%) of the respondents indicated that they never had experienced the illness. Among the total respondents, most of the respondents 398(98.8%) had not vaccinated but only 5(1.2%) had vaccinated (Table 3).

Table 3: Practice towards cervical cancer screening by undergraduate female students, University of Gondar, Ethiopia, April 2018 (n=403)

Variables	Category	Number	Percent(%)
Sexual experience	Yes	52	12.9
	No	351	87.1
Age at the first sex	<18	16	4
	≥18	36	8.9
Number of sexual partners(n=52)	Single	33	8.2
	Multiple	19	4.7
Have you ever screened for cervical cancer	Yes	2	0.5
	No	401	99.5
How many times screened?	Once	1	0.2
	More than one	1	0.2
When was last time screening?	Within past three years	1	0.2
	Three years ago	1	0.2
Reason for not screened	I am healthy	211	52.4
	It may be painful	55	13.6
	I feel shy	23	5.7
	I'm not informed about screening place	114	28.3
Do you receive a cervical cancer vaccine?	Yes	5	1.2
	No	398	98.8
Have you had a Pap smear done before?	Yes	2	0.5
	No	401	99.5
If not had done, why?	No time	45	11.2
	Never heard of it	337	83.6
	Partners will not allow	18	4.5
	No interest	3	0.7

Discussion

From this study, most of the respondents 59.3% with 95% CI: (54.3, 64.0) had good knowledge, which is a little bit higher than a study conducted in Hossana town, Southern, Ethiopia, which is 53.7% (13). In this

study, 90% of the respondents have heard about cervical cancer from different sources, which are comparable with results reported in Sidama zone, southern Ethiopia (92.9%) (10). However, our finding is higher than findings reported in South Africa, only 42.9% of the participants have heard about cervical cancer (2). This variation may be due to the educational background of study participants, which is respondents in South African were undergraduate technology students. Of these, who had heard about cervical cancer, nearly one-third of respondents (32.8%) got this information from their teachers, unlike to findings reported in Uganda, 70.2% of respondents got information from the radio (14).

More than one-third (35.2%) of the respondents mentioned that the causative agents of cervical cancer are viruses. This finding is much lower than the results reported in Pakistan, nearly 62% of the respondents said that viruses are the causative agents of cervical cancer (15). This knowledge variation may come due to the difference in study participants, in which study participants in Pakistan were interns and nurses who are more aware of the disease. But 42.4% of the respondents did not know about the causative agent. This finding is comparable with 39% reported by the same study.

More than half of the respondents (52.4%) knew about the possible sign and symptoms of cervical cancer, which is higher than a report in India, only 36% of the total participants knew the sign and symptoms (16). This higher result in our study may be due to the fact that the respondents in our study were higher institution students who study health-related courses, unlike the Indian study which is mainly done on adult women in the community who may not have information on cervical cancer sign and symptoms. Among respondents who knew the sign and symptoms, one-fifth of respondents (20.8%) were reported vaginal foul-smelling discharge is the symptom of the disease. Similarly, 20.6% of the respondents reported that irregular vaginal bleeding is the symptom of the disease. A similar study was done in Mizan Tepi University; Southern Ethiopia on female students and 40.67% and 19.14% of them mentioned vaginal bleeding and foul-smelling vaginal discharge, respectively. However, half of the respondents (50.72%) did not know any symptom which is comparable with our findings, (47.6%) (12).

Avoiding multiple sexual partners and avoiding early sexual intercourse were mostly mentioned prevention methods by the respondents 41.62 and 35.4%, respectively. Unlikely, one-third (33%) of participants had no idea what risk factors raise the chance of getting cervical cancer. This finding is in line with the results reported in Yemen, 30.5%(17). In the current finding, among respondents who knew about risk factors, a quarter (25.1%) of participants reported that having multiple sexual partners is a risk factor for the disease. This result is in contrast to finding in Yemen (17), 42.3% of respondents knew about viral infection as a major risk factor for acquiring cervical cancer. More than a quarter (26.3%) of the respondents did not know about any treatment options. Among respondents who knew about treatment options, less than a quarter (23.3%) of respondents said surgical therapy and 22.8% chemotherapy. Our findings were a little bit lower than the results reported in Yemen, in which, 35.6% and 34.1% of respondents reported surgical treatment and chemical therapy, respectively (17). The majority of the respondents, (73.4%) knew early treatment can cure cervical cancer. This result is in line with the result reported in Uganda, (74.6%) of respondents knew that the disease was curable if detected early (14).

The attitude of respondents was also assessed in this study. Majority (67.7% with 95% CI :(63.3, 72.0)) of the respondents had a positive attitude on cervical cancer screening which is supported by a report done on childbearing women in Hossana Town, Hadiya zone, Southern Ethiopia, approximately two-third (65.2%) of respondents had a positive attitude (13). Most of the respondents, 89.6% with 95% CI: 86.6, 92.3 had a positive attitude towards the importance of early detection of the disease. This finding is a little bit higher than findings reported in Hawassa, Ethiopia, 80.7% of respondents knew that cervical cancer was curable at an early stage (10).

In this study, more than half of respondents 56.8% reported that they have the chance of acquiring cervical cancer. Less than three-fourths (72.7%) of the respondents thought that cervical carcinoma can be transmitted from person to person. This finding is lower than the result reported in Pakistan (89%) (15).

Regarding cancer screening, respondents' practice level was assessed. In the study, almost all (99.5%) of the respondents have poor practice towards cervical cancer screening. This is by far lower than results reported in Tanzania, 22.6% (18) and Gabon, 65.1% had done cervical cancer screening (19). This high variation may be due to lack of awareness creation towards cervical cancer screening among students in higher education. Even, the majority of the respondents' family, 95.8% were not screened for cervical cancer before this study. This evidence showed that the overall screening practice both in the community and among students in Ethiopia was very low. With regard to the reasons why respondents were not being screened, 52.4% of the respondents indicated that they never had experienced the illness before. This is higher than evidence reported in Mizan Tepi University 36.84% believed as they were healthy (12). This variation might be due to the common knowledge and understanding difference in relation to cervical cancer. About 28.3% of respondents indicated that they had never heard about the disease. Among the total respondents, most of them, 98.8% had not vaccinated and only 1.2% had vaccinated. This evidence showed that special attention should be given to the prevention of the disease through early vaccination.

Limitation: The results about attitude and practices on screening, prevention, and control of cervical cancer were based on self-reports of participants, which may answer due to social desirability that may result in over or under estimates. The other limitation can be this study was not including all University campus students in the study area.

Conclusion

Despite the University female students had high proportion of good knowledge and positive attitude, their practices on cervical cancer screening, prevention and control was very low. Thus, there should be an awareness creation on cervical cancer screening for University female students.

Abbreviations

CI: Confidence Interval; HPV: Human Papilloma Virus; KAP: Knowledge Attitude and Practice; SD: Standard Deviation; SPSS: Statistical Package for Social Science

Declarations

Ethics approval and informed consent

The study protocol was reviewed from Research Ethical Committee in School of Biomedical and Laboratory Sciences, University of Gondar. The study was carried out after obtaining the ethical clearance. The written consent was obtained from each participant. Confidentiality was secured by using anonymous data collection tools. The participants were informed they have a full right to withdraw from the study at any time.

Consent for publication

Not applicable

Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Competing interests

The authors declare that they have no competing interests.

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