RESEARCH ARTICLE

Assessment of Awareness and Attitude on Cervical Cancer Prevention among Female Preparatory Students in Ziway town, Oromia Regional State, Ethiopia

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Abstract

Objective: Cervical cancer is common disease worldwide and ranks fourth among all malignancies for women. It has been reported to have been responsible for almost quarter of a million deaths annually, of which about 85% occurred in developing nations. Hence, the present study was conducted to assess the knowledge and attitude on cervical cancer prevention and its associated factors among female students in Batu Preparatory School, Ziway town, Oromia Regional State, Ethiopia in 2018. **Methods:** Institution based quantitative cross sectional study was conducted using anonymous self- administered questionnaire among female students in Batu Preparatory School in 2018. **Results:** Our results showed, the overall (62.1%) female preparatory students had heard of cervical cancer for most the source of information was mass media (50.7%). Though most has information on CC, only 33.3% were knowledgeable. Of the participants, 7.8% of had information about risk factor and 16% were aware of at least one of the symptom of CC. Results indicated that 72.5% of the participants believes that CC is preventable disease but only 21% had good knowledge on prevention. The overall positive attitude of the participants was 58.8%. **Conclusion:** Most participant believe that CC is preventable disease, and their knowledge on prevention is either poor or not satisfactory. In addition, most of the participants showed positive attitude towards CC prevention.

Keywords: Cervical cancer- cervical cancer prevention- knowledge- attitude

Introduction

Cancer is a group of more than 100 different diseases that are characterized by uncontrolled cellular growth [1]. Cancers that originate from female reproductive system are called women's reproductive cancers. These include cervix, ovaries, vagina, vulva and endometrium. Cervical cancer is common worldwide and ranks fourth among all malignancies for women. According to WHO in 2012, an estimated 530,000 new cases were identified globally [2-3]. Approximately 90% of the 270,000 deaths were recorded in 2015 in low and middle income countries [4]. In general, higher incidences are found in developing countries, and these countries contribute 85 percent of reported cases annually. In Ethiopia, cervical cancer ranks as the 2nd most frequent cancer among women between 15 and 44 years of age. Economically advantaged countries have significantly lower cervical cancer rates and add only 3.6 percent of new cancers. This incidence disparity highlights successes achieved by cervical cancer screening programs in which Pap smears are regularly obtained [5-6].

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HPV is central to the development of cervical neoplasia and can be detected in 99.7 percent of cervical cancer. The two major histologic types of cervical cancer, adenocarcinoma and squamous cell carcinoma, and the pre-invasive disease that corresponds with this histology's share many of the same risk factors. Most of these are associated with an increased risk of acquiring or having inappropriate compromised immune response to infection with HPV, the etiologic agent of most cervical cancer [7].

A considerable reduction in cervical cancer (CC) incidence and deaths has been achieved in developed countries with systematic cytological screening programs. Thus it is largely preventable by effective screening programs. However, this has not been possible in most limited resource countries, mainly because systematic screening is rarely performed [8-9]. The Papanicolaou test is a cytological study used to detect cancer in cells that an organ has shed. It is recognized as an effective and successful cervical cancer screening (CCS) test. It has become an essential component of annual primary care for women with access to regular medical care. With the help of routine organized screening programs that detect the disease in its premalignant stage (cervical intraepithelial neoplasia) or at an early stage when it can be cured, both morbidity and mortality from the invasive disease are falling [10-13].

Worldwide, cancer of the cervix is among the major leading cause of cancer death in women. Each year, an estimated half-million new cases are diagnosed and approximately 270,000 deaths from the disease in 2015 alone [4]. It is the most common malignancy among females in developing countries. The epidemiologic risk factors for cervical cancer include multiple sexual partners, early onset of sexual activity, a high-risk sexual partner (history of multiple sexual partners, HPV infection, lower genital tract neoplasia, or prior sexual exposure to someone with cervical neoplasia), a history of Sexually Transmitted Diseases (STDs), as well as cigarette smoking, human immunodeficiency virus (HIV) infection, acquired immune deficiency syndrome (AIDS), other forms of immunosuppression, multiparty, and long-term oral contraceptive pill use [13-14].

Recently, lack of screening is also considered as a major risk factor for developing cervical cancer (Cunningham et al., 2014). According to the 2009 WHO report, the age-adjusted incidence rate of cervical cancer in Ethiopia is 35.9 per 100,000 patients with 7,619 annual number of new cases and 6,081 deaths every year. Despite this fact, very few women receive cervical cancer screening services in Ethiopia [14-15-16] Recent research study identified that low levels of knowledge, is believed to contribute low rates of screening uptake in the populations. To date, however, little attention has been directed toward assessing women's knowledge in countries where mass screening has long been implemented as a matter of public policy and where general uptake rates are consistently high [17].

Despite the fact that, cervical cancer is preventable and avoidable, its incidence among women is becoming high and on the increase, this can be attributed mainly due to the lack of awareness and low participation of the target group in effective prevention techniques. Cervical cancer disease is a preventable disease; its prevention, among other ways, is through detection of early stages of the disease and treatment [18]. Knowledge of the disease is important, so that students are aware and through motivation they can have positive attitude towards screening for premalignant cervical lesions and other preventive methods [19-20].

The aim of this study is, therefore, to look in to the knowledge and attitude on cervical cancer among high and preparatory school students in Ziway, Ethiopia. Findings from this study will provides available information to authorities so that proper measures can be taken according to the results to save the lives of victim's women by creating awareness about cervical cancer prevention and screening.

Materials and Methods

Study Area and Study Design

This study was conducted in preparatory schools in Ziway town, Eastern Shewa, Oromia, Ethiopia. According to the population and housing census of Ethiopia in 2007, Ziway has a population of 43,660 residents. Of which 22,956 are males and 20, 704 are females. It has an area of 1269.07 square kilometers. For this research institution based cross sectional quantitative study was implemented in preparatory school female students in Ziway town in 2018. The source population for this study was all preparatory female students in Ziway town.

Sample Size Determination and Selection of Participants

The study population was selected from the source population by simple random sampling from all four preparatory schools in Ziway town and includes those preparatory female students aged 16-20 years. All of the students were included to attain the desired sample size. Inclusion criteria: All preparatory female students in school at the time of data collection and students who were able to give information were included. Exclusion criteria: Those who were critically sick or absent due to some other reason at the time of data collection were excluded.

The Sample size for this research was planned to be calculated using the following assumptions: There is no national or local data on the assessment of knowledge and attitude toward CC prevention among preparatory female students. Hence, proportion 50 % was to be used in order to maximize the sample size P (50 %) - assumed proportions of knowledge and attitude towards CC among preparatory female students. Using single proportion population formula:

$$n=(Z\,\alpha/2)^2 * P\,(1-p)/d^2 \quad \text{Appendix 1.}$$

Where: n= Sample size; α = Level of significance (set at 0.05); z = the standard normal deviate with 95% Confidence level (1.96); p= Expected proportion of students who are aware of Cervical cancer; 1-p= is the probability of non-occurrence of event of interest and d= Degree of precision (0.05).

The sample size for knowledge and attitude towards CC prevention using the above formula and assumption was 384. A non-response rate of 10%, the total sample size would have been: 384+ 10 %(NR) = 422 preparatory female students. But the sample size obtained from all 4 preparatory schools was 306 with no non-response rate. This result was by including all female students present at that particular school during data collection.

Sampling Procedure, Data Processing and Analysis

All four preparatory schools in Ziway town were included. These are: Batu Preparatory school (public), Share Ethiopia Preparatory School (private), Donbosco Preparatory School (private) and Merry Our Help Preparatory School (private). First all schools (government and private) were identified by name. Next the calculated sample size (422) was to be distributed to each School using probability proportional to size (PPS).Sample size for each School was to be computed as follows using the formula:

$$ni = Ni \times no/N$$

Where: ni = number of female students that are needed from specific preparatory school Ni = total number of female students who will be attending within specific school no = calculated sample size and N = total number of female students in the preparatory schools in Ziway town N= 433 students Using the above formula the sample size was to be distributed as follows.

In the present study, the dependent variables were knowledge and attitude towards cervical cancer, whereas the independent variables were socio-demographic variables such as: Age, Educational status and religion, and gynecologic factors: age during 1st sexual intercourse, age at menarche.

Data collection and Analysis

The data collection process were done by utilizing a carefully prepared questionnaire. Anonymous self-administered close-ended and mixed questionnaire, which was adopted and modified after reviewing different literature and consultation with our advisor. Pre-testing was planned but not done because of time constraint. The first part contained ethical consideration and information on the socio- demographic characteristics of the study participants. The second part was used to assess knowledge of students (study participants) about cervical cancer and the third part was also used to evaluate their attitude towards cervical cancer. The questionnaires were collected after completion. The collected data was profiled to discover inconsistencies and other anomalies such as incomplete information. Ensuring data quality also involved data cleansing activities such as removing outliers and missing data interpolation to improve the quality of the data for analysis, data quality assurance provides information on severity of inconsistency, incompleteness and accuracy, precision and missing data. In addition to this in order to minimize chances of bias using the following strategies were implemented:

Questionnaires were prepared in English and interpreted in to Amharic and Afan Oromo with great care to avoid language bias. Since our study populations were educated and can read and understand the concept of the questions, it was self-filled to which greatly reduced interviewer's bias.

EPI-INFO was used for data entry and SPSS version 20 was used for data analysis. Analysis focused on the description of knowledge and attitude on preparatory female students regarding cervical cancer. The entire data collected was counted and the quantitative data was analyzed. Figurative data was structured as frequency tables, graphs and percentages.

Results

Socio-demographic characteristics of study population.

A total of 306 female preparatory students of Ziway town were invited to complete questioner, and all the questioners were returned with complete and consistent response. The age range of the participants were 16 to 20 years with the mean age of 17.8 years. Majorities 164 (53.6%) of the respondents were aged 18 and 33.3% of them were aged 17 years. Among the 306 respondents 60.5% of them were 11 graders and 39.5% of them were 12 graders. A 49.7% of the study participants were Orthodox in religion followed by protestant and Muslim religion followers 29.4% and 16% respectively. In terms of ethnic group distribution 51% were Oromo, 23% were Amhara and 12.5% were Gurage. The basic socio-demographic characteristics of the study population are provided in Table 1.

Sexual and behavioral characteristics

About 11.1% of respondents had sexual partners and among those 4.9% of them had sexual intercourse with the mean age of 16 years. Among those who ever had sexual intercourse 66% of them had sex with only one partner, 20% with two partner and 13% with more than two partners. Regarding substance abuse 2.9% of the respondents smoked cigarette at least once in their life time.

Knowledge about cervical cancer

A total of 190 (62.1%) of respondents had heard about cervical cancer but about 116 (37.9%) had heard nothing about cervical cancer (Table 2). Of those who had heard of cervical cancer, a higher proportion of students do not knew about the symptoms, risk factors and prevention method of cervical cancer. Among those who heard about cervical cancer 50.7% of them heard about cervical cancer from mass media like television and radio. For the rest of respondents their source of information was health workers (6.9%), school (5.9%) and family (2.9) (Table 3). The overall respondent's knowledge towards cervical cancer were categorized as Knowledgeable and not Knowledgeable using the mean score of the respondents on the knowledge part questions. A total of 102 (33.3%) of the respondents were knowledgeable and 204 (66.7%) of them were not. The knowledge of respondents about the risk factor, prevention and symptom of cervical cancer

Table 1. The Actual Sample Size of the Study

School	Total number of students	Planned sample size	Available students	Obtained sample size
Batu	230	210	142	142
Share Ethiopia	63	57	51	51
Donbosco	105	96	60	60
Merry Our Help	65	59	53	53

was assessed individually. From the question that asses the knowledge of risk factor about cervical cancer only 7.8% of the respondents were knowledgeable while 92.2% of the respondents were not using the mean score.

Symptoms of cervical cancer

About 16% of the respondents knew at least one symptom of CC. From those who knew the symptoms 9.2% of them knew vaginal bleeding is the symptom of CC. About 3.6% of the respondents had responded weight loss as the symptom of CC. Additionally the percentage distribution of female preparatory students of Ziway town about prevention of CC, Ziway is presented in Table 4 and 5. The result suggested that 72.5% of the participants think CC is preventable disease but only 20 % had good knowledge on prevention which was assessed with the question about the method of prevention of CC. 18% and 10.8% of the respondents have heard about the vaccination and screening method for CC respectively.

Students level of knowledge about prevention

The respondent's level of knowledge of prevention in the graph shows that 21% students with good knowledge those who answered >=60% of the knowledge questions. About 11% students with satisfactory knowledge those answered >=40%- <60% of questions and 67% of the students with poor knowledge those answered below 40% of questions.

Attitudes of respondents toward cervical cancer prevention

A total of six questions put on Likert's scale to assess the attitude of participants towards cervical cancer prevention. 58.8% of the respondents had positive attitude towards cervical cancer prevention. While the

Table 2. Percentage Distribution of Female Preparatory Students of Ziway Town about Knowledge of CC, Ziway, Ethiopia, 2018 n=306

Variables	Frequency	Percentage (%)
Ever heard about CC		
Yes	190	62.1
No	116	37.9
Source		
Mass media	155	50.7
Health worker	21	6.9
School	18	5.9
Family	9	2.9

Table 3. Percentage Distribution of some Sexual and Behavioral History of Female Preparatory Students of Ziway Town, Ziway, Ethiopia in 2018, n=306.

Variables	Frequency	Percentage (%)
Cigarette Smoking		
Yes	9	2.9
No	297	97.1
Sexual intercourse		
Yes	15	4.9
No	289	94.4
Age at first sexual debut		
Mean age= 16 years		
Sexual partner		
Yes	34	11.1
No	270	88.2
Number of sexual partner		
One	10	66
Two	3	20
More than two	2	13

rest 41.2% of them had negative attitude based on the mean attitude score.

Association for predictors of knowledge and attitude toward cervical cancer prevention

Though socio-demographic and sexual characteristics of the respondents in relation to knowledge of CC and knowledge on prevention of CC were analyzed using bivariate logistic regression, there was no any significant correlation between having sexual intercourse and knowledge (p=0.564), number of sexual partner and knowledge (p=0.82), having sexual intercourse and knowledge on prevention of CC (p=0.592), having positive attitude and knowledge on prevention (p=0.249) (Table 3).

Discussion

This study was conducted to assess the knowledge and attitude of cervical cancer prevention and its associated factors among female preparatory students in Ziway town. The findings from this research showed that majority (62.1%) of students have heard about CC but only 33.3% were knowledgeable (similar study on university students showed comparable result of (76.8%) and (53.11%) Hawassa and Mizan Tepi University respectively. The result showed that the awareness on CC prevention, mostly through mass media (50.7%),

Table 4. Percentage Distribution of Female Preparatory Students of Zeway Town by Selected Socio- demographic Characteristics, Zeway, Ethiopia, March 2018 (n=306).

Variables	Frequency	Percentage (%)
Age		
16	4	1.3
17	102	33.3
18	164	53.6
19	30	9.8
20	4	1.3
Mean= 17.8 years		
Religion		
Orthodox	152	49.7
Protestant	90	29.4
Muslim	49	16
Catholic	6	2
Others	8	2.6
Ethnicity		
Oromo	156	51
Amhara	70	23
Tigre	14	4.6
Gurage	38	12.5
Others	27	8.9
Educational status		
Grade 11	185	60.5
Grade 12	121	39.5

health worker (6.9%) and school (5.9%) is slightly lower than Hawassa University students which may be due to educational level and department of study where students are likely to hear about the disease. In addition, the result from Mizan Tepi University found to be lower than Ziway preparatory School may be due to the research question which assessed details of CC in terms of screening of the disease. Furthermore, the respondents have over all poor knowledge on CC prevention (66.7%) even though they have awareness on the disease. The figure on the source of information may also indicated that health workers and the school were not done well and has to contribute

Table 5. Percentage Distribution of Female Preparatory Students of Ziway Town about Prevention of CC, Ziway, Ethiopia, 2018. n=306.

Variable	Frequency	Percentage (%)
Prevention		
Yes	222	72.5
No	84	27.5
Vaccination		
Yes	33	18
No	261	77.5
Screening		
Yes	55	10.8
No	237	85.3

Table 6. Bivariate Logistic Regression of Determinant Factors of Knowledge Towards Cervical Cancer Prevention among Female Students in, Ziway Ethiopia, 2018

Correlation	Sig	Odds ratio	95% CI	
			Lower	Upper
SI and Knowledge	0.564	1.411	0.438	4.546
SP and knowledge	0.82	0.917	0.434	1.936
SI and prevention	0.592	0.739	0.245	2.231

more on the education and information on CC Prevention.

The knowledge of participants on risk factors for cervical cancer indicated that 7.8% of respondents had knowledge on the risk factors. And among these risk factors: HPV, having multiple sexual partners, initiation of sexual intercourse at early age were mainly reported risk factors for cervical cancer by 3.9% , 9.8% and 10.1 % of respondents respectively. The knowledge regarding risk factor is very low when compared with similar study done at Hawassa University which showed 49.7% and 47.4% respectively on the two risk factors mentioned above and most of the students did not know the major risk factor which is HPV (3.9%). This may be due to lack of detailed health education on the subject matter [22-26].

Only 16% of the study participants were able to identify at least one symptom of CC. Of them who knew the symptoms: vaginal bleeding, vaginal discharge and weight loss were known by 9.2%, 7.8% and 3.6% respondents respectively. Comparing this result with similar study done at Mizan Tepi University which depicted that about (40.67%) and (19.14%) of them mentioned vaginal bleeding and foul smelling vaginal discharge respectively when asked about the symptoms of CC. Another study from Hawssa University showed even higher percentage regarding the subject matter. Besides the reason mentioned above, educational level and department of study of latter participant may be the reason for such a difference [21, 27-29].

Concerning methods of prevention 72.5% of the participants believes that CC is preventable disease using at least one of the five ways of CC preventive methods mentioned on the questionnaire. But only 21% of them knew three or more preventive methods or had good knowledge on CC prevention. And only 18% and 10.8% of the participants have ever heard about vaccination and screening methods for CC. This is much lower when compared to result found at Mizan Tepi University which revealed that (33.97%) of the study population had poor knowledge pertaining to screening for cervical cancer. This discrepancy may be due to inadequate information and HE regarding CC preventive methods.

According to this study there was no any significant correlation between having sexual intercourse and knowledge (p=0.564), number of sexual partner and knowledge (p=0.82), having sexual intercourse and knowledge on prevention of CC (p=0.592), having positive attitude and knowledge on prevention (p=0.249) (Table 6). This may be due to the fact that only few members of the study participants had either sexual intercourse (4.9%) or

have sexual partner (11.1%).

Regarding Attitude on CC prevention 58.8% of the respondents had positive attitude towards cervical cancer prevention. While the rest 41.2% of them had negative attitude based on the mean attitude score. This is higher when compared with results from Hawassa University study which founded that (55.3%) had positive attitude. The result is comparable to one study done at South west Ethiopia on HPV and its vaccination which showed that the study participants attitude and awareness towards some of the preventive measures of HPV infection was not good, only (38.8%) of the study participants "Agree" that "having only one sex partner decreases the risk of acquiring HPV infection" and (31.5%) of them being "Dis-agree" that "Condom prevents HPV virus infection equally as it prevents HIV transmission" but the majorities, (59.2%) agree that "Education on HPV and cervical cancer better started at primary school". Similarly their attitude towards the screening for cervical cancer was found to unfavorable among most them; the majorities (57.68%) and (67.51%) of the them claimed either to "Agree" or feel "Neutral" regarding, "Getting Pap test examination is an embarrassment" and "Starting the screening for cervical cancer, implies starting sex" respectively. Almost half of the study participants "Agree" that "Girls should get HPV vaccine before they become sexually active" and 57.0%) of the study participants worries that "Communication between children and parents to get HPV vaccination might be a problem in Ethiopian culture". Another study from Mizan Tepi University demonstrated that (61.24%) of the respondents had positive attitude towards screening for CC which is comparable with this study result.

The result of this study showed that, most participant has little/poor knowledge about CC prevention which was acquired through mass media and the school and health worker are little to do with creating awareness on the disease. Majority of students had positive attitude towards CC prevention which is encouraging for intervention on the subject matter.

In conclusion, the present study has identified the knowledge and attitude on cervical cancer prevention and its associated factors including all female students from Ziway preparatory schools. It is assumed that the study is representative of the source population as it included all the students who presented at the time of data collection. By ensuring privacy during the completion of the questionnaire and using the anonymous self-administered survey, an attempt was made to minimize social desirable bias. Moreover, in the present study most of the students have heard about cervical cancer but their knowledge was not satisfactory as well as they do not know the risk factors and symptoms of cervical cancer. It was found out that most of the respondents believe that CC is preventable disease but their knowledge on prevention is either poor or not satisfactory. However, the current study revealed the positive attitude of the participants towards CC prevention. Therefore, we suggest that the local health should increase awareness of female students on cervical cancer prevention through HE and mass media. Similarly, the schools should include cervical cancer awareness programme using HE, mini media, distribute leaflet and poster to increase knowledge on the disease.

Abbreviations

CC, Cervical cancer; CCP, Cervical cancer prevention; CCS, Cervical cancer screening; HE, Health educator; HPV, Human papilloma virus; PBC, Perceived behavioral control; WHO, World Health Organization.

Data Availability

All the required data has been included in the manuscript.

Ethical Approval

Letter of ethical clearance and approval was obtained from Addis Ababa University Research Ethics Committee. Permission to conduct and letter of support were obtained from Ziway district health bureau. Participants were informed about the purpose of the study, the voluntary bases of their participation, and the right to withdraw at any time they felt uncomfortable without any questioning. In order to make sure of the confidentiality of the information, the personal identifiers of the participants are not included in the questionnaire.

Consent

Individual written consent was obtained from the participants.

Declaration of Competing Interest

The authors declare no conflict of interest.

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