



The Knowledge and Acceptability of Cervical Cancer Screening among Female Students in University for Development Studies (Uds) Tamale Campus-Dungu

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Authors contributions

This work was carried out in collaboration between all authors. Authors EMD, RA, BMI and GAA conceptualized the study. Authors RA, MBI and GAA compiled and entered the data. Authors EMD, RA, BMI and GAA analysed the data. Authors EMD, RA, BMI, GAA and NVK drafted the manuscript. Authors EMD, RA, BMI, GAA and NVK read, edited and approved the final manuscript for publication.

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ABSTRACT

Adequate knowledge of cervical cancer and the patronage of available screening services in developed countries resulted in a drastic reduction in the morbidity and mortality associated with the disease. In Ghana, cervical cancer is the leading cause of gynaecological cancer-related deaths and this calls for early detection and treatment of the premalignant lesions. The aim of the study was to assess the knowledge and acceptability of cervical cancer screening practices among female

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students. This was a cross-sectional descriptive study among female students in the Tamale campus of the UDS. Data was collected randomly using self-administered structured questionnaires. The analysis was done using SPSS Software. Statistical associations between variables were determined by Fisher's exact test. A total of 300 students were interviewed with a mean age of 23.0 (SD \pm 2.4). Majority of the students were aware of cervical cancer 262 (87.3%, $P < 0.001$), with the electronic media as the main source (37.7%). Many of the respondents identified the major risk factors of cervical cancer as multiple sexual partners (80.0%, $P < 0.001$), HPV Infection (75.0%, $P < 0.001$) and immunosuppression (71.0%, $P < 0.001$). The great majority of the study population have never been screened for precancerous cervical lesions (91.3%, $P < 0.001$). The reasons for the poor patronage of the screening services were lack of screening centres, the distant location of centres and the high cost of screening. The majority (77.7%, $P < 0.001$) of the participants were willing to undergo screening in the future. The study revealed a high level of cervical cancer awareness among respondents, but low patronage of the available screening services. The majority were, however, willing to undergo the screening if the service is made accessible and affordable.

Keywords: Cervical cancer screening; knowledge; acceptability; premalignant lesions; Tamale-Ghana.

1. INTRODUCTION

Cervical cancer is the second most common cancer in women living in developing countries particularly the Sub-Sahara Africa [1,2,3,4]. In Ghana, it is the most common genital tract malignancy [5,6]. Cervical cancer historically is said to be a sexually transmitted infection [7,8]. Between the years 1974 to 1976, Harold Zur Hausen started to postulate and established the link between Human papillomavirus (HPV), particularly, the high-risk serotypes (16 and 18) and cervical cancer [7]. For his contribution in unraveling this link, he was conferred with 2008 Nobel Prize for Physiology and Medicine.

Studies have shown a drastic reduction in the incidence and mortality rates of cervical cancer in the developed countries where there is effective population-based screening programmes [9,10]. However, the incidences and mortality rates are on the rise in developing countries without effective population-based screening centres [11,12].

The awareness level of the disease, the risk factors, the accessibility and affordability of screening services varies globally [13,14,15,16,17]. For instance, risk factors such as early coitus, multiple sexual partners, multiparity, smoking and infection with high-risk HPV serotypes (16, 18, 31, 33) have been identified as inimical to the development of cervical cancer [15,18,19].

Increasing women's knowledge of cervical cancer and preventive health-seeking behaviour can have a great impact on cervical cancer incidence and mortality [15]. The uptake of preventive cervical cancer services is greatly

affected by knowledge of the disease. The aim of the study was to assess the knowledge and acceptability of cervical cancer screening among female students of the University for Development Studies (UDS), Dungu-Tamale in the Northern Region of Ghana.

2. MATERIALS AND METHODS

2.1 Study Site

This study was conducted in the Tamale Campus-Dungu of UDS in Sanerugu District in the Northern Region of Ghana.

Tamale Campus has an estimated population of 4,980 students. The main courses offered in UDS-Tamale Campus, Dungu are human biology, nursing, midwifery, community nutrition, health science education, and doctor of medical laboratory science. The academic calendar consists of three trimesters. This area was chosen because of the age characteristics of the students, and also due to the wide diversity of the socio-cultural background of these students.

2.2 Study Design

This was a cross-sectional descriptive study using quantitative methods (self-administered structured questionnaires) to gather data on cervical cancer from sexually active female students.

2.3 Target Population

All female students aged 18 – 35 years perusing studies in the Tamale campus of UDS.

2.4 Sampling Method

Purposive and simple sampling techniques were used to recruit participants.

2.5 Sample Size Estimation

The sample size for the study depended on the population, the confidence interval, the confidence level and the expected frequency. The sample size was determined using the Cochran formula.

$$N = \frac{Z^2 \times pq}{d^2}$$

Where:

N = required sample size,
Z = Standard value of 1.96+,
d = margin of error at 5%,
q = 1-p,
p = prevalence of cervical cancer in Ghana is 24.6%.

Using above formula, the estimated sample size was 298.58 female students.

2.6 Data Collection, Analysis and Presentation

Structured questionnaires (closed and opened-ended) designed based on the objectives of study were self-administered. Data were collected on the following; socio-demographic characteristics, knowledge of cervical cancer, the screening services and the acceptability of cervical cancer screening among respondents. Data were entered into and analysed using the Statistical Package for the Social Sciences (SPSS) version 23.0. Descriptive statistics and associations (by Fisher's exact test) between variables were determined. The results were presented in the form of tables and a pie chart.

2.7 Ethical Consideration

Permission to conduct the study was obtained from the ethical committee of school authority. Written as well as verbal assurances were given to the respondents to withdraw from the study at any time they wished. Also, the respondents were assured of anonymity and confidentiality of information entrusted. Cultural values, norms and beliefs of respondents were duly respected and observed.

3. RESULTS

3.1 Socio-demographic Characteristics

A total of 300 respondents were interviewed, age range of 18 - 35 years with a mean age of 23.0 years (SD±2.4) and modal age group of 18 – 22 years (60.6%). The great majority of the respondents were single and never married before 284 (94.7%). Most had their menarche between 13 - 15 years (63.7%) (Table1).

3.2 Knowledge on Cervical Cancer and Screening Programme

Majority of the female students had heard of cervical cancer {(87.3% vis-à-vis 12.7%) (P<0.001)} (Table 2). Many of the respondents had their information from the Television/Radio (37.7%).

For the risk factors of cervical cancer, respondents were provided with a list and asked to express their opinions (disagree or disagree). The study population agreed with the following: multiple sexual partners (80.0%), Human Papillomavirus (HPV) infection (75.0%), weakened immune system (71.0%) and early onset of sex activity (69.0%) as the most common risk factors for cervical cancer (P<0.001) (Table3). Approximately, 64.7% of the respondents have never seen someone diagnosed with cervical cancer (Table 3).

Respondents were asked if they would recognise a symptom of cervical cancer. A total of 126 (42.0%) respondents were fairly confident whiles 39 (13.0%) were not confident (Fig. 1).

The great majority of the respondents have heard of a cervical screening programme in Ghana 246 (82.0%, P<0.0001) (Table 4). A total of 127 (42.3%) knew of a vaccination programme in Ghana compared to 58 (19.3%) who were not aware of such a programme (P < 0.0001). Of those who have heard of the vaccination, only 40 (31.5%) gave the age for vaccination, while 87 (68.5%) did not know the age (P<0.0001) (Table 4).

3.3 Relationship between Knowledge of Cervical Cancer Screening and the Acceptability by Respondents

The great majority of the female student never had any form of cervical cancer screening 274

Table 1. The demographic characteristics of study population

	Frequency (n)	Percentage (%)
Age (Years)		
18-22	182	60.6
23-28	109	36.4
29-35	9	3.0
Total	300	100.0
Marital status		
Single	284	94.50%
Married	15	5%
Divorced	1	0.30%
Total	300	100.0
Course of study		
Nursing	120	40
Medicine	72	24
Com. Nutrition	35	11.7
Midwifery	33	11.0
Med-Lab	27	9.0
Health Science	13	4.30
Total	300	100.0
Age at menarche		
9-12	109	63.70
13-15	191	36.30
Total	300	100.0

Table 2. Awareness of cervical cancer among respondents in Dungu campus

	Frequency (n)	Percentage (%)	P-value
Have you heard of cervical cancer?			
Yes	262	87.3	<0.001
No	38	12.7	
Total	300	100	
What was the source of your information			
Newspaper	33	8.0	
Women's Magazine	34	8.3	
TV/Radio	155	37.7	
Internet	68	16.5	
Somewhere Else	83	20.2	
Have not seen or heard anything	38	9.2	
Do you know any person with cervical cancer?			
No	279	93.0	
Yes	21	7.0	
Family member	19	90.5	<0.001
Close friend	2	9.5	

Table 3. The knowledge level of respondents about the risk factors of cervical cancer

Risk factor	Disagree (n/%)	Agree (n/%)	P-value
Infection with Human Papillomavirus (HPV)	75(25.0)	225(75.0)	<0.001
Having a weakened immune system	86(28.7)	214(71.3)	<0.001
Long term use of contraceptive pills	118(39.3)	182(60.7)	<0.001
Infection with chlamydia	94(31.1)	206(68.7)	<0.001
Starting to have sex at an early age	92(30.7)	208(69.3)	<0.001
Having many sexual partners (current)	60(20.0)	240(80.0)	<0.001
Having sexual partners with many previous partners	94(31.1)	206(68.7)	<0.001

(91.3%, $P < 0.001$) (Table 5). Participants who had undergone the screening were asked of their experience, majority said the procedure was painful (65.4%) (Table 5).

When respondents were asked if they would in the future go for screen for cervical cancer, the great majority said yes 233 {(77.7%) ($P < 0.001$)}. Approximately 110 (36.7%) will recommend the screening for others, while 190 (63.3%) would not ($P < 0.001$) (Table 5).

3.4 Factors Affecting Cervical Cancer Screening

The first five factors militating against successful cervical cancer screening identified by the respondents in descending order were: lack screening centres in their locality (33.7%), the need to travel long distance for screening (18.0%), painful nature of the screening (17.3), high cost of screening (14.6%) and a test meant for promiscuous persons (10.3%) (Table 6).

4. DISCUSSION

In this current study, the respondents were very young (mean age of 23.0 years), with the great majority being single and never married before. This is similar to findings (mean age of 20.0 years) reported by Funmilayo et al. [12] study among medical students in Lagos, Nigeria. The age and marital status of respondents in this current study however differ from Opoku et al. [13] study among women attending the antenatal clinic at the Tamale Teaching Hospital in the northern region of Ghana, who reported a mean age of 28.0 years, with majority of the respondents being married women.

Increasing women knowledge of cervical cancer and preventive health-seeking behaviour can have a great impact on cervical cancer incidence and mortality.[14,15,16] The majority of the female students in this current study were aware of cervical cancer, similar to that reported in the Gabon among female university students.¹⁴ The similarity between these two studies is due to the fact that both were conducted among University students where majority of the respondents were offering health related courses. The respondents in this current study had adequate knowledge on the risk factors of cervical cancer. For instance, they identified HPV infection, early onset sexual active and multiple sexual partners as factors that increase a person's chance of getting cervical cancer. This is in line with the findings of

other previous studies [15,17,18,19,20]. However, the high awareness level of cervical cancer in this current study differs from previous studies in Ghana that reported low awareness or the lack of knowledge about the disease among their study populations [16,21]. The disparity between the previous studies and the current study may be due to the different socio-cultural backgrounds of respondents. For instance, Ebu et al. [16] study was among market women in Accra while the current study was among University students. Also studies in Cameroon [19] and Hong Kong [20], which both looked at the socioeconomic status, sexual habits, prior knowledge of cervical cancer, its prevention, and their attitudes toward cervical cancer screening, among women, similarly revealed inadequate knowledge of cervical cancer and cervical cancer screening practices among the study populations.

In this current study, regarding the ability of the respondents to recognise a symptom or sign of cervical cancer, just a little above half (55.3%) were confident they could identify a symptom or sign of the disease. This is similar to the 54.8% reported in by Ghadeer et al. [22] study among Saudi female University students.

The study found that less than 8.9% of the respondents have ever been screened for cervical cancer, although majority has heard of the screening services. They attributed the low patronage of the screening services to the following reasons in descending order: lack of screening centers, inaccessibility of existing screening centers to a large at risk population of the women and the high screening cost. The reasons for the low patronage of the screening services in this current study are in keeping with reports of previous studies in the southern part of the country Ghana and other developing countries [23,24,25,26]. For instance, the inaccessibility of screening centres by distance and the fact that the few available centres are located in the teaching hospitals were reported as the major reasons for the low patronage of the service by women in developing countries [25]. In China, women were reported not to have utilized the cervical cancer screening services due to anxiety of one being diagnose with the disease, the asymptomatic nature of the disease and lack of immediate benefit of the screening [27]. In moving forward, interventions to increase knowledge about the preventive nature of cervical cancer screening and regular screening, particularly the need for health

Table 4. The knowledge of the study population on cervical screening services

	Frequency (n)	Percentage (%)	P-value
Are you aware of any screening programme in Ghana?			
Yes	246	82.2	<0.001
No	12	4.0	
I don't know	42	14.0	
Are you aware of any vaccination programme in Ghana?			
Yes	127	42.3	<0.001
No	58	19.3	
Don't know	115	38.4	
Do you know the age at vaccination (years)?			
Yes	40	32.5	<0.001
≤13	11	27.5	
14 — 17	11	27.5	
≥18	18	45.0	
No	87	68.5	

Table 5. Respondents' attitude towards cervical cancer screening

	Frequency (n)	Percentage (%)	P-value
Have you ever been screened before?			
Yes	26	8.7	<0.001
No	274	91.3	
What was your experience?			
Painful	17	65.4	
Time consuming	4	13.4	
Embarrassing	3	11.5	
Costly	2	7.7	
Will you go for the screening in the near future?			
Yes	233	77.7	<0.001
No	67	22.3	
Will you recommend the screening to another female?			
Yes	110	36.7	<0.001
No	190	63.3	

Table 6. Factors affecting the participation of respondent in cervical cancer screening

	Frequency (n=302)	Percentage (%)
Factors affecting cervical cancer		
No screening centre in the locality	101	33.7
Screening Centres are Far from Where I Stay	54	18.0
I Think it is Painful	52	17.3
High Cost of Screening and Treatment	44	14.7
It Would Lead to Death	2	0.7
It is for Promiscuous Persons	31	10.3
Fear of Stigma and Embarrassment	14	4.6
Results Would Lead to Marital Separation	2	0.7
Total	300	100.0

promotion and intervention strategies would have a positive influence on cervical cancer screening in developing countries such as Ghana.

Although just a few of the respondents at the time of this study had gone for cervical cancer screening, the great majority (77.7%) were willing

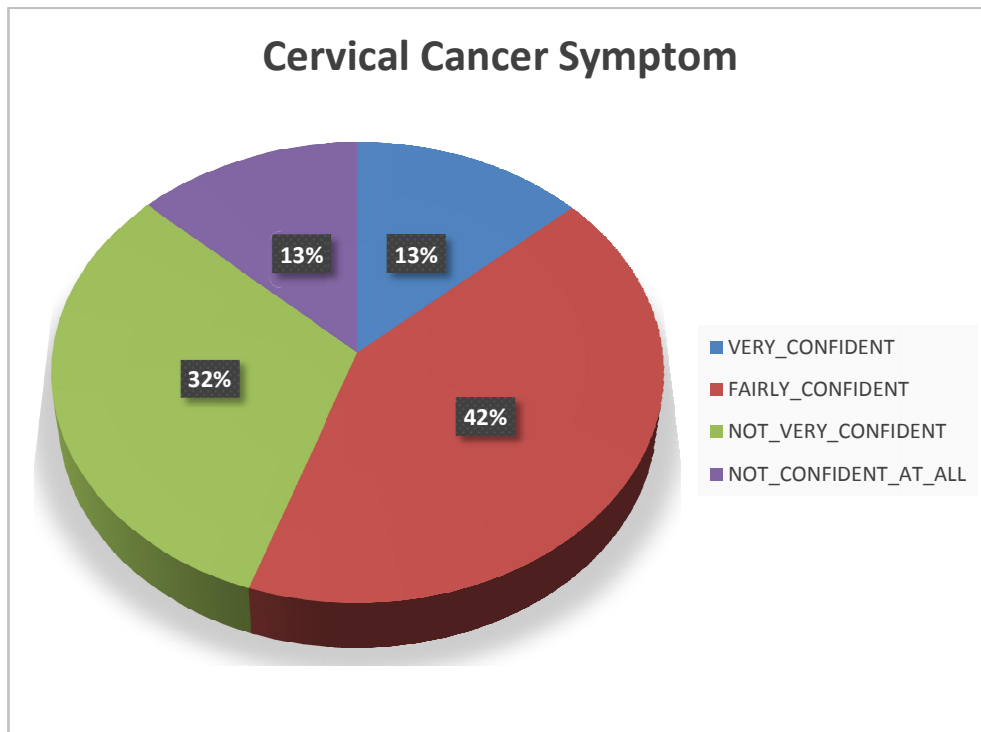


Fig. 1. Level of Confidence in identifying symptoms of cervical cancer

to undergo screening procedure in the near future, if these services are accessible and affordable. This may be attributed to the increased sensitization on cervical cancer screening and treatment through health teaching, brochures, televisions and radio programmes and the availability of screening services. This is thus in keeping with Coronado et al. [28] study in Jamaica regarding future cervical cancer screening intentions among their respondents. This was also similar to Olive et al study in British Columbia, Canada [29]. However, previous studies conducted in Singapore, [25] West Africa, [26] South Africa [30] and Mexico [31] reported low future screening intentions among the study populations. For instance, Aniebue et al. [26] study in Nigeria among female undergraduates university students found that majority of the students had no intention in the near future to go for the screening. In Harries et al. [30] study in South Africa, it was reported that women have low intention for future screening because they believed the screening; particularly Pap smear will clean or scrap the womb and expose them to possible sexually transmitted infection. Again, Watkins et al. [31] study among Mexican women identified discomfort, pain and embarrassment as factor that discourages women from going for future screening. These

same sentiments were expressed by respondents in this current study.

From the above studies, it is evident that there are many factors that affect a woman's acceptability of cervical cancer screening and such factors must be addressed in order to enhance uptake of screening services.

5. CONCLUSION

Cervical cancer screening is the major preventive measure that can be employed to significantly reduce the incidence of and mortality of the disease. This study revealed good knowledge level of cervical cancer among female students. Although the utilization of the screening among respondents was low partly due to reasons beyond their capability, the great majority were willing to go for the screening services if these are accessible and affordable. There is a critical need to improve cervical cancer screening participation amongst female undergraduate students in Ghana.

6. RECOMMENDATIONS

1. There is still a need for the vigorous campaign on cervical cancer and

- screening services through mass media and organised campus-based seminars to strengthen awareness and increase uptake of screening.
2. Stakeholders of health such as Ministry of Health (MOH) and Ghana health service should incorporate the cost of cervical cancer screening to the National Health Insurance Scheme (NHIS). Also, NGOs focused on women's health should find funding options for this purpose.
 3. The authorities of University for Development Studies and other Stakeholders should seek sponsorship to bring screening of cervical cancer to doorsteps of female students
 4. Researchers have to do extensive studies in this area by giving emphasis to factors that influence utilization.

CONSENT

As per international standard or university standard written participant consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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