



Awareness and Knowledge of Cervical Cancer among Female Senior High School Students in Lower Manya Krobo Municipal in Ghana

Stephen Manortey¹ and Daniel Opoku Agyemang^{1*}

¹*Ensign College of Public Health, Kpong, Eastern Region, Ghana.*

Authors' contributions

This work was carried out in collaboration between both authors. Authors DOA and SM participated in conceiving the study and in the development of data collection tool. Author DOA carried out data collection. Authors SM and DOA participated in the analysis and drafting of manuscript. Both authors read and approved of the final manuscript.

Article Information

DOI: 10.9734/JSRR/2018/41116

Editor(s):

(1) Khadiga Ahmed Ismail, Parasitology Department, Faculty of Medicine, Ain Shams University, Cairo, Egypt.

Reviewers:

(1) Obiebi, Irikefe Paul, Delta State University Teaching Hospital, Nigeria.

(2) Essam A. El-Moselhy, Al-Azhar University, Egypt.

Complete Peer review History: <http://www.sciencedomain.org/review-history/24575>

Received 23rd February 2018

Accepted 2nd May 2018

Published 11th May 2018

Original Research Article

ABSTRACT

Introduction: Cervical cancer is one of the significant public health problems in the world, especially in Less developed countries. In Ghana, cervical cancer is the leading cause of gynecological cancers. This study was aimed at assessing the level of awareness of this dreadful disease among adolescent female Senior High School students in the Lower Manya Krobo Municipality in the Eastern Region of Ghana.

Methods: A cross-sectional study of female adolescents was conducted using self-administered questionnaires to elicit information on demographic characteristics, knowledge, awareness, and perception of cervical cancer. The association of demographic characteristics and other important study variables were investigated. Frequencies and percentages were calculated for questions asked. Logistic regression was used to make predictions.

Findings: The mean age of participants was 16.6 years (\pm 1.6). Majority (63.0%) had heard about the disease. About one-third (30.2%) reported getting their information from Television/Radio with a relatively lower proportion (0.4%) getting their information from the internet. Some risk factors

*Corresponding author: E-mail: dagyemang23@gmail.com;

identified by participants were unprotected sex (45.5%), sex at an early age (4.9%), excessive contraceptive use (4.1%). Cervical cancer knowledge was significantly associated with the school of enrollment (P -value 0.013), grade/form (P -value 0.002), and residential status of students (P -value 0.013). A respondent in a single-sex school was 2.98 times more likely to have knowledge of cervical cancer compared to the reference group, adjusting for all other variables. Only 29.3% and 17.7% knew about cervical cancer screening and HPV vaccines respectively.

Conclusions: There exist gaps in the knowledge of cervical cancer among adolescents in this study. There is the need for the creation of more awareness, with a special focus on the associated risk factors of the disease to ensure quality of life for the adolescents in their life course.

Keywords: Screening; Cervical cancer; HPV vaccines; Ghana.

1. INTRODUCTION

Cancer is a generic term for a large group of diseases. It is the uncontrolled growth and spread of abnormal cells beyond their usual boundaries and can affect almost any part of the body and /or spread to other organs [1].

Cervical cancer is one of the major public health problems in the world, especially in the less developed and resource-challenged countries. It is mainly caused by sexually acquired infections with certain types of Human Papilloma Virus (HPV) [2]. Genital HPVs which are sexually transmitted account for most cervical cancer cases globally. HPV types 16 and 18 are responsible for seven out of ten cervical cancer cases worldwide [3]. The main risk factors of cervical cancer are increased the number of sexual partners or sexual intercourse with a man who has multiple sexual partners, increase frequency of having sexual intercourse and early age of first sexual intercourse. Other risk factors include smoking, incessant use of oral contraceptives, infection with other STIs and lack of Vitamin C or Beta-carotene [4].

Cervical cancer is the fourth most common cancer in women worldwide and the seventh overall, with an estimated 528,000 new cases in 2012 [5]. Cervical cancer is the second most common cancer in women living in less developed regions with an estimated 445,000 new cases in 2012 [2]. About 85% of the global burden occurs in the less developed regions where it accounts for 12% of all female cancers [6].

Globally, there were 266,000 estimated cervical cancer-related deaths in 2012, accounting for 7.5% of all female cancer deaths. The Less developed regions are the hardest hit, recording about 87% (almost nine out of ten) cancer deaths [5]. The highest burden and mortality associated

with cervical cancer worldwide is in Sub-Saharan Africa where a woman has a 21% chance of surviving while a woman in the United States has a 70% chance of surviving [7]. According to Institut Catala d'Oncologia (ICO), West Africa recorded 27,326 new cases with over 50% of deaths annually out of the global estimates of 527,624 new cases and 265,653 deaths in 2012 [3].

In Ghana, cervical cancer is reported to be the leading gynecological cancers. Each year, there are about 3,052 new cases of cervical cancer out of which 1,556 die [3]. WHO has predicted that by the year 2025, Ghana would be recording 5,000 new cases of cervical cancer and 3,361 cervical cancer deaths annually [8]. These estimates are quite alarming and therefore concerted and collaborative efforts would be needed from all stakeholders if the disease burden is to reduce. While the WHO estimates the HPV prevalence in the West African sub-regions, including Ghana at 16.5% of women, a study estimating HPV prevalence among a sample of women attending a gynecological outpatient clinic in Accra Ghana, realized a crude HPV prevalence of 10.7% [9].

Cervical cancer is strongly associated with HPV, which is acquired through sexual intercourse [10]. The peak period for HPV infection is shortly after one has become sexually active. This deadly disease can be mainly prevented through vaccination using the HPV vaccine. Early vaccination of females before involvement in sexual intercourse is considered a lifesaving intervention since it offers a greater prospect of reducing the disease incidence over time [11]. In light of this, Ghana with the assistance of Global Alliance for Vaccines and Immunization (GAVI) conducted a pilot project in 2013, to vaccinate adolescent girls in Primary 4 and 5 in both public and private schools against cervical cancer in 17 administrative districts across the country [12].

According to Yaren et al. [13], the lack of knowledge concerning cervical cancer may be related to the fact that women are unaware of the causes and potential risk factors that expose females to the disease and the possible modes of prevention. The WHO and its affiliate institutions have reiterated, that educating women and communities about the causes and prevention of cervical cancer should be an indispensable element in developing a successful comprehensive strategy on this important public health issue [14,15].

The ICO Information Centre on HPV and Cancer, reported the percentage of 15-year-old males who had had sexual intercourse is 4% with a median age range of first sexual intercourse at 17.9–20.2 years while the percentage of the same age for females is 7% with a median age range of first sexual intercourse at 17.9 – 18.9 years [16]. Ghana has a population of 8.57 million women aged 15 years and older who are at risk of developing cervical cancer [16]. This section of the population is young and sexually active and hence, the occurrence of the human papillomavirus is extremely high. Women get infected with HPV in their adolescent and young adult ages [17].

Generally, lack of knowledge concerning cervical cancer and its importance in relation to women's health affects their decisions and activities relating to early screening and the acceptance of vaccines [13]. A study conducted among college students in Ghana revealed low levels of knowledge about the relationship between HPV and cervical cancer [18]. Lack of knowledge and awareness of this dreadful disease among tertiary institutions leaves room for doubt concerning the awareness of this disease among female senior high school students.

With the educational structure in Ghana, adolescents between the ages of 13–18 are expected to be in Senior High School (SHS). This growth stage is a vulnerable, yet critical period in the total life-course. The habit-forming stage associated with this age group exposes many to a wide range of adjustments and experiences. Physical, biological and psychosocial changes in adolescents usually lead them to form certain behavioural traits including the use and nonuse of drugs and sexual risk-taking. These changes have serious implications for both present and future health and development of the individuals [19]. Current literature in sub-Saharan Africa tends to focus

heavily on the health of young female adults in tertiary institutions and the much older women. Very little or less is however known about the awareness of cervical cancer in adolescents, given that this is the prime period most females get infected with the HPV virus.

This study, therefore, seeks to assess the level of awareness of cervical cancer among adolescent female High School students. This will go a long way to help in achieving Goals 3 and 4 of the Sustainable Development Goals (SDGs) which is good health and well-being and quality education respectively.

2. METHODS

2.1 Study Site

The Lower Manya Krobo Municipal (LMKM) is one of the twenty-six (26) Municipalities/Districts in the Eastern Region of Ghana with Odumase-Krobo as its administrative capital. The LMKM lies between latitude 6.05°S and 6.30°N and longitude 0.08°E and 0.20°W with an altitude of about 457.5m above sea-level. The Krobos are the major ethnic group in this municipality with Ewes and Akans in the minority. The residents are predominantly Christians with just a few Muslims present.

There are a total of seven (7) Senior High Schools (SHS) in the municipality; four public and three private schools. They have three Vocational/Technical schools with one tertiary institution. The illiteracy rate is approximately 45% of the population. The SHS program in Ghana has two residential statuses. Students go in as either boarders or as day students. Unlike boarders who reside in houses or halls within the confines of the school under close supervision, the day students reside in the community and commute to and from school. It is a three-year program with a designated name for each class cohort as "Form 1, 2 and 3" respectively (Municipal Profile, 2015).

2.2 Design

A cross-sectional design was employed with the use of a survey instrument for data collection. The survey instrument constituted mainly of close-ended questions and few open-ended ones. The study population was female adolescents in selected schools within the municipality. Out of the seven (7) SHS, four were randomly selected for participation. These

schools were Krobo Girls SHS (a single-sex school), Akuse Methodist SHS, Manya Krobo SHS and King David's College are all mixed-sex school.

2.3 Population, Sample Size and Sampling Technique

The target sample size was determined based on the reported knowledge prevalence 38.4% from an earlier study conducted among college students in Ghana [18]. The estimated sample size was then calculated to be 363 with an anticipated 5% margin of error and a 95% confidence interval. The sample size was calculated using the formula;

$$n = \frac{Z^2 p(1-p)}{e^2} = \frac{1.96^2 \times 0.384 \times 0.616}{0.05^2} = 363$$

Where, n = the required sample size, p = prevalence of alcohol consumption, Z = score at 95% confidence level, and e = margin of error. A 10% non-response rate was then considered to further adjust the projected Sample size to 400 participants.

The four schools were grouped into four different strata. Proportional allocation was then used to determine the sub-sample that should be taken from each school. The formula that was used to calculate the size for each stratum is shown below;

$$n_h = \left(\frac{N_h}{N} \right) \times n$$

Where, n_h = expected sample size for a particular school, N = total size of the female student population (3,084), n = total sample size and N_h = Population size of a particular school. Hence, for Krobo Girls, Manya Krobo, Akuse Methodist and King David Senior High Schools, the sub-samples of 203, 88, 89 and 20 were respectively selected from a total female population sizes of 1,564, 680, 690, and 150.

Students were randomly selected and asked to independently complete the questionnaire. Confidentiality was assured and teacher influence was avoided by making sure there was no teacher present. Students were made aware that they were under no compulsion to complete and return the questionnaire.

2.4 Data Management and Analysis

Data was entered twice using Microsoft Excel version 2013 to ensure data was clean.

Quantitative data was analyzed using STATA Statistical software package (StataCorp.2007. Stata Statistical Software. Release 14. StataCorp LP, College Station, TX, USA). Descriptive analysis was conducted to generate percentages, frequencies, means, cross-tabulations, chi-square etc. Logistic regression was also used to make predictions. The accepted level of significance (α) was 0.05.

2.5 Ethical Consideration

An institutional approval was sought from the Ghana Education Service, school heads and tutors in the selected schools in the municipality following the ethical approval from the Ensign College of Public Health Ethics Review Board. There were no risks involved in the study, participants rather stood a chance of gaining some knowledge about cervical cancer. Signed individual informed consent was obtained from each participant before they were enrolled into the study. Participants were told about their rights to withdraw from the study without any form of coercion as the study is voluntary. Identities of participating students were not disclosed at any point of the study and will remain anonymous to ensure confidentiality.

3. RESULTS

A total of 389 out of the 400 targeted female SHS students completed and returned the questionnaire, yielding a total response rate of 97.3%. Krobo Girls SHS formed more than half of the participants (50.1%). Most (87.4%) of the students were boarders. Per the class distribution, the students were in form 1 (39.1%), form 2 (30.1%) and form 3 (30.8%). Over one-third (47.0%) were enrolled in the General Arts program with Visual Arts recording just a few (4.9%). The boarders (87.4%) and those who professed faith in Christianity (95.4%) formed the majority of the respondents. The mean age was 16.61 ± 1.61 (see Table 1).

The study revealed that the majority (63.0%) of the students had heard about the disease. Close to a third (30.2%) of the respondents who had heard of cervical cancer got their information from Television/Radio. Other 20.4% and 13.9% reported having heard it from family/friends and newspaper/magazines respectively. Another 17.6% admitted hearing about the disease from healthcare professionals and religious leaders/teachers. A relatively lower proportion (0.4%) admitted they got their information from

the internet at the time of the study (See Table 2).

Close to a half (45.5%), identified unprotected sex and multiple sexual partners as a risk factor of the disease. Sex at an early stage (4.9%), excessive contraceptive use (4.1%), bad sanitary practice (24.3%) and others (21.2%) which included but not limited to bad eating habits and self-medication were also identified as risk factors of the disease. As at the time of the study, ninety-four (94) of the respondents representing 24.2% reported they were sexually active.

More than one-third (40.4%) of the sexually active respondents reported their partners

sometimes use condom. Another group representing 26.6% of the total respondents revealed their partners always use condom while the remaining 33.0% reported their partners never used condom during sexual intercourse with them. A little over half (59.6%) reported having had only one sexual partner, whereas 25.5% had two partners while the rest indicated having had at least 3 sexual partners. When asked about their age of first sexual encounter, majority (46.8%) reported involving in that between 16 – 19 years. Another 7.4% reported having had their first sexual intercourse below 12 years of age.

Table 1. Demographic characteristics of respondents

Variable	Category	N (%)
School	Manya Krobo	86(22.1)
	Akuse Methodist	88(22.6)
	King David's	20(5.1)
	Krobo Girls	195(50.1)
Age group (yrs)	13 – 15	90(23.1)
	16 – 18	263(67.6)
	19 – 21	30(7.7)
	22+	6(1.5)
Grade	Form 1	152(39.1)
	Form 2	117(30.1)
	Form 3	120(30.8)
Residential status	Boarder	340(87.4)
	Day Student	49(12.6)
Program	Science	46(11.8)
	General Arts	183(47.0)
	Home Economics	118(30.3)
	Visual Arts	19(4.9)
	Business	23(5.9)
Religion	Christianity	371(95.4)
	Islam	16(4.1)
	Traditional	2(0.5)
Mean age (year)	16.61	SD 1.61

Table 2. Respondents source of information on cervical cancer

Variable	Frequency (N=389)		Percentage (%)
	YES = 245	NO = 63	
Source of information			
Internet	1		0.4
Television/Radio	74		30.2
Newspaper/magazine	34		13.9
Healthcare professionals	43		17.6
Family/friends	50		20.4
Teachers/religious leaders	43		17.6

On the question regarding their perceived risk level of contracting the disease, more than one-third (42.0%) of the students were not sure, whereas 29.0% perceived they were at risk of getting the disease. The remaining 29.0%, however, do have a strong perception that, they were not at risk of getting the disease. The study also revealed that, most (76.6%) of respondents knew that this disease could be prevented, however, 29.3% and 17.7% knew about cervical screening and HPV vaccines in Ghana respectively (See Table 3).

A bivariate analysis revealed a statistically significant association between knowledge on cervical cancer and some selected demographic characteristics. Cervical cancer knowledge was significantly associated with the school (p-value 0.00), grade/form (p-value 0.002) and residential status of students (P-value 0.013). It was also revealed that there was an association between respondents' knowledge on cervical cancer and their perception and behaviour (See Table 4).

A multiple logistic regression analysis revealed that, none of the age groups were significant compared to the reference group. A respondent in Krobo Girls SHS was 2.98 times more likely to hear about cervical cancer compared to the reference group which is

Manya Krobo SHS adjusting for all other variables at the time of this study. Likewise, a respondent in Form 3 is 2.54 times more likely to have knowledge of cervical cancer compared to the colleague in Form 1, holding all other variables constant at the time of this study. With regards to the residential status of the respondents, a day student has 0.47 lower odds to have cervical cancer knowledge than the respondents who is a boarder, likewise a respondent who offered Home Economics was 0.59 times less likely to hear of cervical cancer compared to their colleagues in the science program adjusting for all other explanatory variables.

Respondents who were not sure whether information on cervical cancer has affected their sexual behavior had 0.33 lower odds to hear of cervical cancer compared to the respondents who admitted information on cervical cancer had changed their sexual behaviour as at the time of the study. More so, students who had not searched for information on their own on cervical cancer were 0.63 times less likely to hear of cervical cancer as compared to their colleagues who had been searching for information on cervical cancer (see Table 5).

Table 3. Perceived risk factors and sexual behaviour

Risk factors	Frequency	Percentage (%)
Unprotected sex/Multiple Partners	157	45.5
Early onset of sexual activity	17	4.9
Excessive Contraceptive use	14	4.1
Bad sanitary practice	84	24.3
Others	73	24.3
Reporting on sexually active participants		
Sexually active	94	24.2
Condom use		
Sometimes	38	40.4
Always	25	26.6
Never	31	33
Number of sexual partners		
1	56	59.6
2	24	25.5
3	2	2.1
4	12	12.8
Age of sexual debut		
12	7	7.4
13 - 15	39	41.5
16 - 19	44	46.8
20	4	4.3

Table 4. Bivariate analysis of cervical cancer and demographic characteristics and perception

Variable (N=389)	Heard of cervical cancer		P-value
	Yes = 245 (%)	No= 144 (%)	
School (SHS)			<0.0001*
Manya Krobo	46(18.78)	40(27.78)	
Akuse Methodist	39(15.92)	49(34.03)	
King David's	9(3.67)	11(7.64)	
Krobo Girls	151(61.63)	44(30.56)	
Age			0.522
13 - 15	53(21.63)	37(25.69)	
16 -18	172(70.20)	91(63.19)	
19 - 21	17(6.94)	13(9.03)	
22+	3(1.22)	3(2.08)	
Form/Grade			0.002*
1	84(34.29)	68(47.22)	
2	70(28.57)	47(32.64)	
3	91(37.14)	29(20.14)	
Residential status			0.013*
Boarder	222(90.61)	118(81.94)	
Day Student	23(9.39)	26(18.06)	
Religion			0.471
Christianity	233(95.10)	138(95.83)	
Islam	11(4.49)	5(3.47)	
Traditional	0	1(0.70)	
Others (unspecified)	1(0.41)	0	
Believe at risk of getting CC			0.025*
Yes	73(29.80)	40(27.78)	
No	81(33.06)	32(22.22)	
Not Sure	91(37.14)	72(50.00)	
At risk of developing CC			0.293
Yes	58(23.67)	26(18.06)	
No	183(74.70)	117(81.25)	
No Answer	4(1.63)	1(0.69)	
Affected sexual behaviour			0.002*
Yes	42(17.14)	13(9.03)	
No	131(53.47)	63(43.75)	
Not Sure	72(29.39)	66(47.22)	
Search for information on CC			0.006*
Yes	55(22.45)	14(9.72)	
No	189(77.14)	129(89.58)	
No Answer	1(0.41)	1(0.69)	

4. DISCUSSION

This study applied a cross-sectional design to explore knowledge and perceptions about cervical cancer in selected SHSs in the LMKM. This study is quite important as it adds to the literature on cervical cancer in sub-Saharan Africa, especially in Ghana because it was conducted among adolescents about whom very little is known concerning cervical cancer. Most work done in this field has been among university students and older women [9,18,20–22].

Proportion of students (63.0%) who had heard about cervical cancer was very high in this study. Other studies conducted revealed that over half (53.3%) of the participants had heard about cervical cancer [23]. A similar study conducted in South Africa showed only 33.3% of the respondents had heard about the disease [24]. These were comparatively lower than what was observed in this study. Close to a third (30.2%) of the respondents who had heard of cervical cancer got their information from television/radio, however, in another study conducted in Ethiopia,

Table 5. Output of logistic regression on cervical cancer knowledge and some variables

Variable	Categories	P-value	OR (95% CI)
Age group	13 - 15	R	1
	16 - 18	0.268	1.3 (0.81 - 2.15)
	19 - 21	0.831	0.91 (0.39 - 2.10)
	22- 25	0.67	0.69 (0.13 - 3.65)
School	Manya Krobo	R	1
	Akuse Methodist	0.227	0.69 (0.38 - 1.25)
	King David's	0.495	0.71 (0.26 - 1.8)
	Krobo Girls	0.00*	2.98 (1.73 - 5.12)
Grade	Form 1	R	1
	Form 2	0.45	1.21 (0.73 - 1.97)
	Form 3	0.001*	2.54 (1.5 - 4.29)
Residential status	Boarder	R	1
	Day Student	0.014*	0.47 (0.25 - 0.86)
Programme	Science	R	1
	General Arts	0.083	0.52 (0.25 - 1.09)
	Home Economics	0.024*	0.41 (0.19 - 0.89)
	Visual Arts	0.838	0.88 (0.26 - 2.99)
	Business	0.343	0.58 (0.19 - 1.76)
Risk of getting disease	Yes	R	1
	No	0.25	1.39 (0.79 - 2.43)
	Not sure	0.13	0.68 (0.42 - 1.12)
Developing cervical cancer	Yes	R	1
	No	0.18	0.7 (0.42 - 1.18)
	Not sure	0.61	1.79 (0.19 - 16.83)
Affected sexual behaviour	Yes	R	1
	No	0.211	0.64(0.32 - 1.28)
	Not sure	0.002*	0.33 (0.16 - 0.67)
	No answer	0.14	0.15 (0.01 - 1.85)
Own information	Yes	R	1
	No	0.002*	0.37 (0.19 - 0.70)
	No answer	0.344	0.25 (0.15 - 4.33)

*: Statistically significant at 95% CI R: Reference group

television/radio (60.8%) was identified as the predominant source of information [25]. A relatively lower proportion (0.4%) admitted they got their information from the internet at the time of the study. However, a study in Kuala Lumpur revealed that the main source of information on cervical cancer the internet (64.4%) [26]. This stark difference could be due to the fact that Malaysia is an upper middle income country with easy internet access compared to Ghana which is a Lower middle income country with less access to internet [27].

Most respondents identified unprotected sex and multiple sexual partners as a risk factor. Sex at an early stage, excessive contraceptive use, bad sanitary practice and others which included but not limited to bad eating habits and self-medication were also identified as risk factors for the disease in this study. These findings are worrying as it is consistent with the findings of a study conducted in India [23] which revealed 37.8% of respondents identified early onset of sexual activity and multiple partners and smoking (21.1%) as risk factors of the disease. This is a cause for concern because, without the

knowledge of the risk factors of the disease, it will be extremely difficult to prevent this disease. None of the respondents were able to identify HPV infection as a major risk factor for the disease.

About a quarter of participants admitted they were sexually active with most of them reporting of intermittent use of condom. This risky sexual behaviour puts these adolescents at a higher risk of being infected with the HPV. The majority (59.6%) reported having had only one sexual partner whereas 25.5% had two partners. These findings were alarming because adolescents having multiple sexual partners put them at a higher risk of contracting the HPV and even other related sexually transmitted diseases.

At the time of the study, about half (46.8%) admitted having had their sexual debut between 16 – 19 years. Another 7.4% reported having had their first sexual intercourse below 12 years. These findings coincided with other studies which revealed that the earliest age at which two of the respondents started having sex was 13 [28]. Ghotbi and Anai also reported that 59% of sexually active students had one or two sexual partners while 22% and 14% indicated having had 3 and 4 or 5 sexual partners respectively. Only 42% used condoms consistently while 56% were those who did not use condoms consistently [28]. These figures are higher compared to the findings from this study. In a similar study conducted in Nigeria, it was discovered that 56% of the participants were not sexually active [29] which commensurate with the findings of this study in which 75.8% were not sexually active at the time of the study.

Most (42.0%) of the students were not sure if they were at risk of getting the disease. However, another study revealed that only 44.8% of the respondents believed that they could develop cervical cancer in the future [30] whereas a similar study conducted established that only 10% of the respondents felt they were at risk of getting the disease [31].

Although findings from this study revealed that the respondents knew that the disease could be prevented but lacked adequate knowledge on what the preventive measures were. Only 29.3% and 17.7% knew about cervical cancer screening and HPV vaccines in Ghana respectively. Similarly, it was discovered in Nigeria that only 12.7% of the respondents knew about screening as a tool for prevention and even less than 50%

who knew about HPV vaccines knew that it was preventing cervical cancer [29]. Likewise, in Ghana, respondents were not aware of any local cervical cancer screening program with a 12% screening rate among the respondents [18].

A test for the association on selected indicators revealed that there was a significant association between knowledge of cervical cancer and school, grade/form, status, respondents' believe of being at risk and respondents' sexual behaviour in this study. This finding was not surprising though, as a student who in Form 3 is expected to be more knowledgeable compared to the junior colleagues. With regards to the residential status of the respondents, a day student has 0.47 lower odds to have cervical cancer knowledge than the respondents who is a boarder, adjusting for all other explanatory variables. More so, students who had not searched for information on their own on cervical cancer were 0.63 times less likely to hear of cervical cancer as compared to their colleagues who have been searching for information on cervical cancer. This particular finding was expected as a search for information on cervical cancer will actually increase one's knowledge of this disease.

5. CONCLUSION

The findings from this study revealed that there are gaps in the knowledge of cervical cancer among female adolescents in this study. Though most of the respondents knew about the disease, they lacked knowledge of the risk factors. Risky sexual behaviour was also observed among some of the adolescents. This is a clarion call for policymakers, especially in the educational and health sector to develop adolescent-specific cervical cancer health education program in Ghana, to raise more awareness and ensure quality life for these adolescents in their life-course.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. WHO. WHO | Cancer, Who; 2015.
2. WHO. Sexual and reproductive health Screening as well as vaccination is essential in the fight against cervical cancer; 2016 [Online].

- Available:<http://www.who.int/mediacentre/factsheets/fs380/en/> [Accessed: 04-Oct-2016].
3. Institut Català d'Oncologia (ICO). Human Papillomavirus and Related Diseases Report. HPV Inf. Cent., no. October, 2016.
 4. Jastreboff A, Cymet T. Role of the human papillomavirus in the development of cervical intraepithelial neoplasia and malignancy. *Postgr. Med J.* 2002;78:225–8.
 5. Globocan. Globocan cancer fact sheets: cervical cancer. Cervical Cancer Incidence, Mortality and Prevalence Worldwide in 2008 Summary, 2012. [Online]. Available:<http://globocan.iarc.fr/factsheet.asp>. [Accessed: 01-Aug-2016].
 6. IARC. Cancer Fact Sheets. Available:<http://qco.iarc.fr/today/factsheets-cancers?cancer=16&type=0&sex=2>, 2012. [Online]. [Accessed: 04-Nov-2016].
 7. Okonofua F. HPV vaccine and prevention of cervical cancer in Africa. *Afr. J. Reprod. Health.* 2007;11(2):121–132.
 8. WHO and Institut Català d'Oncologia (ICO). Human Papillomavirus and Related Cancers in Ghana; 2010.
 9. Domfeh AB, Wiredu EK, Adjei AA, Ayeh-Kumi PFK, Adiku TK, Tettey Y, Gyasi RK, Armah HB. Cervical human papillomavirus infection in Accra, Ghana. *Ghana Med. J.* 2008;42(2):71–78.
 10. Bekkers RL, Meijer CJL, Massuger LFA, Snijders PJ, Melchers WJ. Effects of HPV detection in population-based screening programmes for cervical cancer; a Dutch moment. *Gynecol Oncol.* 2006;100(3):451–454.
 11. UNFPA. Comprehensive cervical cancer prevention and control programme guidance for countries. *Cad. UNFPA.* 2011;1:20.
 12. Osei I. Ghana steps up fight against cervical cancer. UNICEF GHANA, Dodowa. 13-Nov-2013.
 13. Yaren A, Ozkilinc G, Oztop I. Awareness of breast and cervical cancer risk factors and screening behaviours among nurses in rural region of Turkey. *Eur J Cancer Care.* 2008;17(3):278–284.
 14. World Health Organization. Comprehensive cervical cancer prevention and control: A healthier future for girls and women. *World Heal. Organ.* 2013;1–12.
 15. CCA. Progress in Cervical cancer prevention: A new era for cervical cancer prevention; 2012.
 16. Institut Català d'Oncologia (ICO). Human Papillomavirus and Related Cancers. Fact Sheet. 2016;1:1–9.
 17. Cronjé H. Screening for cervical cancer in the developing world. *Best Pr. Res Clin Obs. Gynaecol.* 2005;19(4):517–529.
 18. Abotchie PN, Shokar NK. Cervical cancer screening among college students in Ghana: Knowledge and health beliefs. *Int J Gynecol Cancer.* 2009;19(3):412–416.
 19. World Health Organization (WHO). WHO | Adolescent development, WHO; 2016.
 20. Abiodun OA, Fatungase OK, Awosile JO. An assessment of women's awareness and knowledge about cervical cancer and screening and the barriers to cervical screening in Ogun State, Nigeria. 2013;10(3):52–58.
 21. Adanu R. Cervical cancer knowledge and screening in Accra, Ghana. *J Womens Heal. Gend Based Med.* 2002;11(6):487–8.
 22. Hoque ME. Awareness of cervical cancer, Papanicolaou's smear and its utilization among female, final year undergraduates in Durban, South Africa. *J. Cancer Res. Ther.* 2013;9(1):25–8.
 23. Saha A, Nag Chaudhury A, Bhowmik P, Chatterjee R. Awareness of cervical cancer among female students of premier colleges in Kolkata, India. *Asian Pacific J. Cancer Prev.* 2010;11(4):1085–1090.
 24. Hoque M. Cervical cancer awareness and preventive behaviour among female university students in South Africa. *Asian Pac. J. Cancer Prev.* 2010;11(1):127.
 25. Getahun F, Mazengia F, Abuhay M, Birhanu Z. Comprehensive knowledge about cervical cancer is low among women in Northwest Ethiopia. *BMC Cancer.* 2013;13(1):2.
 26. Rashwan H, Ishak I, Sawalludin N. Knowledge and views of secondary school students in Kuala Lumpur on cervical cancer and its prevention. *Asian Pacific J. Cancer Prev.* 2013;14(4):2545–2549.
 27. United Nations. Country Classification System; 2011.
 28. Ghotbi N, Anai A. Assessment of the knowledge and attitude of female students towards cervical cancer prevention at an international university in Japan. *Asian Pac. J. Cancer Prev.* 2012;13(3):897–900.
 29. Makwe CC, Anorlu RI, Odeyemi KA. Human papillomavirus (HPV) infection and

- vaccines: Knowledge, attitude and perception among female students at the University of Lagos, Lagos, Nigeria. J. Epidemiol. Glob. Health. 2012;2(4):199–206.
30. Kamzol W, Jaglarz K, Tomaszewski KA, Puskulluoglu M, Krzemieniecki K. Assessment of knowledge about cervical cancer and its prevention among female students aged 17-26 years. Eur J Obs. Gynecol Reprod Biol. 2012;166(2):196–203.
31. Di Giuseppe G, Abbate R, Liguori G, Albano L, Angelillo IF. Human papillomavirus and vaccination: Knowledge, attitudes, and behavioural intention in adolescents and young women in Italy. Br. J. Cancer. 2008;99(2):225–9.

© 2018 Manortey and Agyemang; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

*The peer review history for this paper can be accessed here:
<http://www.sciencedomain.org/review-history/24575>*