

RESEARCH ARTICLE

Knowledge and Attitudes towards Cervical Cancer Screening amongst University of Botswana Female Students

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Abstract

Background: Cervical cancer is the leading cause of cancer deaths in Botswana. More than two-thirds of cases occur in HIV-infected women, in a nation with a high HIV prevalence of 17%. Even though cancer screening is free in health facilities, cervical cancer screening is low. The objective of this study was to assess the knowledge and attitudes of University of Botswana female students on cervical cancer screening. **Methods:** A cross-sectional study was conducted among University of Botswana female students to elicit information about their knowledge and attitudes on cervical cancer screening. **Results:** A total of 335 students completed the questionnaire and all reported that they were aware of cervical cancer. The awareness was mostly through brochures, posters and other printed material. Regarding cervical cancer risk 315 (94%) attributed cervical cancer to smoking and 301 (89.9%) to early sexual debut. The majority of students 329 (98.2%) were aware of cervical cancer screening. Papanicolaou (Pap) smear was the most popular screening test reported by 160 (47.8%) of the respondents as compared to Human Papilloma Virus testing (HPV) reported by 106 (31.6%) of the respondents. The overall Pap smear screening rate was 92 of 335 students (27.5%). Those who perceived themselves to be at risk of contracting cervical cancer 203 (60.6%) were 1.8 times more likely to go for Pap smear than those who perceived to be safe, (Adjusted Odds Ratio [AOR] 1.834; 95% Confidence Interval [CI]; 1.094-3.067), (P = 0.02). **Conclusions:** Pap smear screening uptake is low amongst University of Botswana female students. The likely reason for this could be because students do not perceive themselves to be susceptible to cancer so the lesser the likelihood of engaging in preventive behaviours. There is urgent need for university based cancer education campaign on cervical cancer screening benefits and incorporating these campaigns into the existing university medical services to increase uptake of screening programs offered.

Keywords: Cervical cancer- screening- Pap smear- university of Botswana- female students

Asian Pac J Cancer Prev, 18 (9), 2445-2450

Introduction

Cancer of the cervix uteri is the 4th most common cancer among women worldwide, with an estimated 527,624 new cases and 265,672 deaths in 2012 (Ferlay, 2015). Wong et al., (2009) define cervical cancer as a malignant disease of the cervix usually occurring in the 5th or 6th decade of life at a mean age of 54 years. The disease has a pre-malignant stage which usually occurs in younger women under the age of 40. Deaths resulting from cervical cancer are tragic as this type of cancer develops slowly and has a detectable precursor condition, known as carcinoma, which is treatable and can be prevented through screening (Abotchie and Shokar, 2009). Cancer of the cervix is a preventable disease and a key aspect of its prevention is the detection of the pre malignant form by cervical screening; it is also one type of cancer that can be prevented and cured if detected early enough (Canavan and Doshi, 2000).

In Botswana cervical cancer is the most common cancer (WHO, 2016), and in Southern African region the prevalence rate of cervical cancer is 15.5% (Okore, 2011). Within Botswana, cervical cancer is the leading cause of cancer death among women (30–49) age group (World Health Organization, 2015). More than two-thirds of cases occur in HIV-infected women (BAIS IV, 2013), with a national HIV prevalence of 17–24% in 2013 (BAIS IV, 2013; UNAIDS, 2013). Between 2003 and 2011, cervical cancer accounted for 14% of all cancers in Botswana and 26% of all the cancers in women, and the mean age at presentation was 52 years. Over 250,000 women in Botswana are in the age group 30–49 years about 25% of total female population (UNAIDS, 2013) and are, thus, at high risk of developing cervical cancer. Cervical cancer screening knowledge and awareness is suboptimal in Botswana hence there is need for more health education to be done to sensitize the public of the health effects of cervical cancer. Although cervical cancer screening has

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been offered for a long time in Botswana, few females know about it. Those who are aware of it have different perceptions or attitude towards cervical cancer screening (Ibekwe, 2011). Thus this study is to assess female's attitude towards cervical cancer screening which will hopefully increase uptake of screening programs offered. Screening is checking the cervix by the Pap smear for cervical cancer and has been credited with dramatically reducing the number of cases of mortality from cervical cancer in developed countries (Canavan and Doshi, 2000). Arbyn et al., (2010) state that Pap smear screening every 3–5 years with appropriate follow-up can reduce cervical cancer incidence by up to 80% and abnormal results may suggest the presence of pre-cancerous changes allowing examination and possible preventive treatment.

Cervical cancer diagnosis and treatment in Botswana is centralized at Princess Marina Hospital, the largest referral hospital in the country. Even though The Ministry of Health and Wellness, Botswana makes efforts to encourage women to go for screening for cervical cancer, many only go for treatment when the disease is in its final stage or has become advanced. Statistics show that about 85 percent of women in Botswana seek medical assistance when the cancer is at an advanced stage and cannot be cured (World Health Organization, 2015). This means that women do not utilize cervical cancer screening programs provided by the ministry. The World Health Organization, (2016) predicts that morbidity and mortality due to cervical cancer will increase by more than 20 percent by 2025 in women under the age of 65 years in Botswana if current trends persist. This study, therefore aims at scrutinizing the knowledge and attitudes of women towards cervical cancer screening.

For the cervical cancer screening methods to be utilized in full, women need to be aware of the availability of such methods and to have knowledge of the disease. This will maximize uptake of the screening and therefore reduce morbidities and mortalities resulting from cervical cancer.

The University of Botswana female students were chosen to participate in the study because they are mostly in the age group (18 – 24 years) in which knowledge is being acquired through formal education and other methods. Lack of knowledge and negative attitudes towards cervical cancer screening in this group might pose serious challenges on the uptake of cervical cancer screening when suitable. Therefore it is important that negative attitudes and gaps in knowledge are addressed early before the women reach suitable ages for screening.

Materials and Methods

The study was a cross-sectional study conducted in February 2016 amongst University of Botswana (UB) female students who were aged between 18 and 24 years. At the time of the study in 2016, there were 10,400 UB female students registered in eight faculties in the university. Using the population size of $n=10,400$ and a 95% confidence level, the required sample size for the study was 385. The samples were selected using multi-stage sampling technique. Firstly, each faculty of

the University was considered as strata. Departments were then selected followed by degree programs on offer using the proportional allocation method. The research assistant went into different classrooms after lectures were completed and collected data after prior consultation with the respective lecturers. Those who were present in the classroom were asked to complete the questionnaire. Informed consent was obtained from participants at the time of completing the questionnaire. The survey was self-administered and anonymous and the completed surveys were returned to research assistants.

Data collection methods

Self-administered structured questionnaires were used to collect information from the students. The questionnaire collected data from individuals to assess the knowledge, attitude and utilization of cervical cancer screening among UB female students. The information collected was used to answer the objective of study and to recommend the intervention necessary to increase the cervical cancer screening amongst females.

Questionnaires were all in English as all respondents were proficient in the language. A pilot study was carried out to check the internal and external validity of the questionnaire. Results of the pilot revealed that there were no ambiguities and that language usage was appropriate for the target group. The cronbach's alpha was calculated to be 0.72 which shows high consistence of the question items.

Data management

Data were entered and analysed using Statistical Package for the Social Sciences (SPSS) version 24. Entered data was checked for completeness, incomplete data were not computed. Chi square test was used to measure different variables using 5% as a significance level.

Ethical considerations

Permission was sought from University of Botswana Office of Research and Development, permit number, REF: X: REF: UB/RES/ETHI/07. Written consent was sort from the research participants (students).

Results

A total of 385 questionnaires were distributed, of which 87% ($n=335$) questionnaires were completed and returned. The mean age of the students was 21 years (standard deviation = 1.44 years). All the respondents were single.

Knowledge on cervical cancer

As shown in Table 1, all the respondents indicated that they had some knowledge on cervical cancer and that they got that knowledge from brochures, posters and other printed material whilst 320 (95.5%) from the news media. Only a minority of the respondents indicated getting knowledge about cervical cancer from health facilities 89 (26.6%), family, friends, neighbours or colleagues 34 (10.1%), school 106 (31.6%) and other sources 2 (0.6%).

Early sexual debut 301 (89.9%) and smoking 315 (94%) were mentioned as the main risk factors for cervical

Table 1. Respondents Knowledge on Cervical Cancer

Variable	Frequency results	
	Yes	No
	n (%)	n (%)
Knowledge on anything about cervical cancer	335 (100)	0 (0)
Where did you learn about cervical cancer		
News media	320 (95.5)	15 (4.5)
Brochures, posters and other printed material	335 (100)	0 (0)
Health facilities	89 (26.6)	246 (73.4)
Family, friends, neighbours or colleagues	34 (10.1)	301 (89.9)
School	106 (31.6)	229 (68.4)
Others	2 (0.6)	333 (99.4)
How can a person get cervical cancer		
Early sexual debut	301 (89.9)	34 (10.1)
Smoking	315 (94)	20 (6)
Weak immune system	8 (2.4)	327 (97.6)
Sleeping with someone who is not circumcised	36 (10.7)	299 (89.3)
Traditional medicine used to maintain virginity	18 (5.4)	317 (94.6)
How can a person prevent cervical cancer		
Use of a condom during sexual intercourse	205 (61.2)	130 (38.8)
Quit smoking	310 (92.5)	25 (7.5)
Go for regular check-ups	162 (48.4)	173 (51.6)
I don't know	36 (10.7)	287 (89.3)
Others	0 (0)	335 (100)
How can cervical cancer be treated		
Visiting traditional doctors	0 (0)	335 (100)
Surgery	120 (35.8)	215 (64.2)
Specific drugs given at hospital	61 (18.2)	274 (81.8)
I don't know	70 (20.9)	265 (79.1)
Others	14 (4.2)	321 (95.8)
Can cervical cancer be treated	276 (79.7)	68 (20.3)
Are there screening procedures to detect cervical cancer	329 (98.2)	6 (1.8)

Table 2. Pap Smear Screening Uptake by Faculty

Faculty	Had Pap smear screening		
	Yes	No	Total
	n (%)	n (%)	
Science	6 (11.8)	45 (88.2)	51 (100)
Social Science	20 (54.1)	17 (45.9)	37 (100)
Health Science	12 (24.5)	37 (75.5)	49 (100)
Medicine	16 (38.1)	26 (61.9)	42 (100)
Humanities	10 (25.6)	29 (74.4)	39 (100)
Education	9 (20)	36 (80)	45 (100)
Business	17 (25.9)	20 (74.1)	37 (100)
Engineering and Technology	0 (0)	35 (100)	35 (100)
Total	90	245	335

Table 3. Attitudes Towards Cervical Cancer Screening

Reason for not going for screening	Frequency	Percent
I do not see the need	85	35
I have never heard of Pap smear screening	4	1.6
I don't know where Pap smear screening is done	40	16.5
I think it's very expensive	4	1.6
I am underage	110	45.3
Total	243	100

cancer, whilst a weak immune system 8 (2.4%), sleeping with someone who is not circumcised 36 (10.7%), use of traditional medicine to maintain virginity 18 (5.4%) were mentioned as minor risk factors.

On cervical cancer prevention, 310 (92.5%) of the students indicated that quitting smoking and use of condoms during sexual intercourse 205 (61.2%) as the main prevention methods. Less than half of the students indicated that going for check-ups 162 (48.4%) was a prevention method for contracting cervical cancer.

Some respondents 120 (35.8%) chose surgery as the most effective treatment method of cervical cancer whilst some of the respondents stated that they don't know how cervical cancer can be treated 36 (10.7%). The majority of the respondents 276 (79.7%) indicated that cervical cancer can be treated and 329 (98.2%) were aware that there are screening procedures to detect cervical cancer.

Using the Pearson chi-square test, there was an association between taking up a Pap smear test and the faculty from which the students are from ($p=0.03$). The

Table 4. Logistic Regression Analysis for Background and Perception Variables on Cancer for Predictor to Pap Smear Screening

Variables	Adjusted Odds ratio	95 % Confidence Interval (CI)		P - values
		Lower	Upper	
Age				0.001
Less than 20 years	1.0 reference			
20 years old	1.22	0.99	1.43	
21 years old	1.27	0.76	2.1	
22 years or older	1.35	1.06	2.98	
Faculty				0.03
Science	1.0 reference			
Social Science	1.45	1.12	2.3	
Health Sciences	2.61	0.98	4.45	
Medicine	1.75	0.8	2.76	
Humanities	0.45	0.11	1.44	
Education	0.15	0.02	1.55	
Engineering and Technology	0.87	0.54	1.4	
Knowledge				0.1
No	1.0 reference			
Yes	0.8	0.72	1.82	
Perceived to be at risk				0.02
No	1.0 reference			
Yes	1.83	1.09	3.07	

Faculty of Social Sciences had the highest number of students who had Pap smear screening (Table 2).

A Pearson chi-square test association between two variables, “do you think you can get cervical cancer” and “have you gone for cervical cancer screening”. The p-value ($p=0.013$) indicated that there was an association. This means therefore that those who knew that they can get cervical cancer might have gone for screening.

A logistic regression was performed to ascertain the influence of age, faculty and knowledge on the likelihood of going for Pap smear screening (Table 4). Increase in age was the only factor found to be associated ($P=0.001$) with an increased likelihood of going for Pap smear screening.

A total of the respondents 110 (45.3 %) mentioned that they were still underage to go for Pap smear, 85 (35%) did not see the need. A significant number 40 (16.5%) of students expressed ignorance of where Pap smear is done (Table 3). All of the respondents were willing to undergo a Pap smear provided it was free and not painful. Those who perceived themselves to be at risk of contracting cervical cancer were 1.8 times more likely to go for Pap smear than those who perceived to be safe (AOR1.834; 95CI; 1.094-3.067), ($P=0.02$) see Table 4.

Discussion

Cervical cancer is the second common most cancer of female’s globally (WHO, 2016) and the leading cause of cancer among all women in Botswana (Botswana National HIV and AIDS treatment guidelines 2012). Women of the reproductive age group are most exposed to the risk factors that predispose to the development of the disease. HIV-positive women are also six times more likely to develop cervical cancer compared to those not infected with HIV (Wright, 1994). According to United Nations Development Program on HIV/ADS in Botswana (2016), Botswana has the second highest HIV prevalence in the world. The HIV/AIDS prevalence is estimated to be around 17.6% for the general population and 24% for 15 years and above age group, 48.9% of women aged 30-34 years while 33.3% of pregnant ones are HIV positive.

The study aimed to assess the knowledge on cervical cancer screening amongst University of Botswana female students and their attitudes towards cervical cancer screening. All the study participants had knowledge on cervical cancer and screening. This was relatively higher than that reported in a study by Saha et al., (2010) which found that there was low level of knowledge about cervical cancer amongst college girls in Kolkata, India where cervical cancer is the most prevalent form of cancer. This high level of awareness may be due to the educational status of the respondents and the influence of the print media and health sector in the creation of awareness of the disease among the populace. This study also found that 47.2% of the respondents had heard about the Pap smear and that 27.5% actually took the test, which is relatively higher than in the study conducted by Hoque and Hoque (2009) on the knowledge of and attitudes towards cervical cancer among University students in South Africa. In that study 41.9% had heard about Pap smear and only 9.8% had had a Pap smear test.

Almost three quarter (72.5%) of the respondents did not have a Pap smear test done due to several reasons such as not knowing where the tests are done, some think it is expensive to go for a test while some did not see the need to go for screening. In a study by Hoque and Hoque (2009), (90.2%) of the respondents did not have a Pap smear done due to fear of the procedure, cultural or religious reasons, and were not ill.

The results of this study indicate low levels of screening amongst University of Botswana female students, it can be argued that the students do not know of the importance or benefits of the Pap smear test and the prevention of cervical cancer. Blödt et al., (2011) state that the reason for poor screening uptake is mainly due to the uneven distribution of medical facilities in the country. Blödt et al., (2011) also state that young women do not undergo screening because of lack of knowledge about the availability of screening and culturally-influenced reluctance to undergo cervical smear tests. This therefore calls for extensive health education amongst young women. Health education appears to have a prominent role to play in increasing awareness and addressing some of the negative biases the students have against the test (Francis et al., 2010). Awareness campaigns should be intensified through hospital visits, mass media and public lecture (Okore, 2011).

Healthcare workers at clinics can educate females’ especially young females on risk factors for cervical cancer and motivate them to have a Pap smear test performed. This can improve the university community’s knowledge of cervical cancer and practices on the Pap smear test when they seek medical care. Awareness of cervical cancer was high but needs to be improved, considering how common the disease is in developing countries. According to American guidelines, cervical carcinoma screening should begin at 21 years of age, regardless of age of coitarche or vaccination status, with cervical cytology testing exclusively every 3 years until age 30. For women 30 to 65 years of age, co-testing with cytology and HPV testing every five years is the preferred method of screening, although cytology screening every three years is acceptable. Screening should be discontinued for women over the age of 65 without a history of cervical intraepithelial neoplasia (CIN) grade 2 or higher and who have had adequate negative prior screening results (Baker, 2013). According to Handbook of the Botswana Integrated HIV Clinical Care Guidelines of 2016 screening should be performed every five years for woman in the target age group (30-49 years). Women living with HIV are at higher risk for cervical cancer. They should be screened as soon as they are diagnosed with HIV and Pap smear must be repeated after every 3 years.

The results of this study shows that the perception of one’s susceptibility to cervical cancer can affect screening behaviour. Thirty three percent of the participants expressed a lack of personal susceptibility to cervical cancer therefore believed it was not necessary for them to have a Pap smear test done. This was also found out by Saha et al., (2010) on a study which found that women’s perceived susceptibility to cervical cancer predicts their cervical screening behaviour. Thus efforts to promote

cervical cancer screening uptake among women should focus more on informing women of their susceptibility to cervical cancer and encouraging a belief that active and regular screening can detect cervical cancer at the pre-cancerous stage, hence enabling the early treatment and prevention of cancer. Women should be encouraged to take responsibility for their own health and be active participants in the screening programme.

Most of the participants did not undergo Pap smear screening because they thought they were underage, (35%) they did not see the need for a Pap smear test and (16.5%) did not know where it was done respectively; this may be because they perceived themselves as not at risk of developing cervical cancer. In a study done among rural women in Iran (Bahmani et al., 2016) participants pointed to the lack of time, financial difficulties, fear of test result and lack of awareness as the main barriers against the Pap smear test.

Most students thought that the purpose of a Pap smear test is to detect existing cervical cancer. Many of the reasons advanced by respondents can be labelled as misconceptions which require widespread public education, with a new emphasis on the crucial fact that Pap smear screening is targeted primarily at detecting precursor lesions that occur early in the course of the disease, and subsequent timely treatment would thus impede progress towards invasive cancer.

Although previous research has shown that circumcision reduces high-risk human Papillomavirus (HR-HPV) infection in female partners (Davis et al., 2013; Danielle et al., 2013), 89.3% of respondents in this study did not know that having unprotected sex with someone who is not circumcised is a risk factor for cervical cancer.

In conclusion, the study revealed the limited knowledge about the susceptibility of cervical cancer and the necessity for cervical cancer screening among the females. Cervical cancer screening is very low amongst University of Botswana female students. The University should thus concentrate on informing students about the risk factors for cervical cancer by carrying out awareness campaigns every semester of which should focus more or make emphasis on the benefits of screening. As a way of increasing screening amongst the students, screening services should be incorporated into the existing university medical services. It is important to offer students emotional support, as they might be experiencing fear and anxiety on the results of the Pap smear should they take the test.

Funding Statement

The study was funded by the University of Botswana.

Statement conflict of Interest

No potential conflict of interest was reported by the authors.

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