RESEARCH COMMUNICATION

Cervical Cancer Awareness and Preventive Behaviour among Female University Students in South Africa

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Abstract

Objectives: The objectives of this descriptive cross-sectional study were to assess the awareness about cervical cancer and preventive behaviour of female first year Mangosuthu University of Technology students. Methods: A total of 205 students were selected by stratified random sampling techniques. Results: 40% of the students were currently sexually active and among them 28% reported having two or more sexual partners. A third (33%) of the participants heard about cervical cancer. Among them a third (32%) and over a quarter (26%) knew about the HPV virus and multiple sexual partners, respectively, as risk factors for cervical cancer. Participants were twice more likely to use condoms if they heard about cervical cancer (OR = 2.47, p = 0.003). Only 31% participants had heard about the Pap smear test, and among them a third (33%) knew that Pap smear is used for detection or prevention of cervical cancer. Conclusion: University management should concentrate on developing policies on health education and promotion particularly targeting preventable health conditions to prevent transmission of the HPV virus.

Key Words: Cervical cancer - Pap smear test - knowledge - sexual practice

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Introduction

Cancer of the cervix is a major burden on women's health worldwide. It is the second most common cause of cancer-related death among women globally as well as in South Africa (Jamal et al., 2006; Moodley et al., 2006). Study estimated that 493,000 new cases and 274,000 deaths occur every year due to this preventable disease (Ferlay et al., 2004). In South Africa, the incidence rate is 30 per 100,000 women per year (Mqoqi et al., 2004; Moodley et al., 2006,). Deaths due to cervical cancer in South Africa have been seen to outnumber the maternal deaths during 2000 (AbouZahr & Wardlaw, 2000; Ferlay et al., 2004). The women of poorer communities are mostly affected with this disease. It is evidenced that approximately, 83% of the world's new cases and 85% of all cervical cancer deaths reported are from developing countries where screening programmes are not well established or minimally effective (Cherenji et al., 2001; Moodley et al., 2006). This condition affects not only the health and lives of the women, but also their children, families and their communities at large.

Genital human papillomavirus (HPV) infection is the most common sexually transmitted infection (STI) worldwide. It is estimated that 50 to 80 percent of sexually active women are infected at least once in their lifetime (Christopher, 2003; Brown et al, 2005; Franco & Harper, 2005). Generally women are infected with HPV in their teens and 20s, but cervical cancer can take up to 20 years after the initial HPV infection to develop (Cronje, 2005). The other known risk factors for cervical cancer are the early onset of sexual activities, multiple sex partners, long use of oral contraceptives, immunosuppressant's, smoking and specific dietary factors (Blanche, 1989).

The prevalence of HPV is very high among young, sexually active adult women (Burak & Meyer, 1998). The primary determinant of level of sexual activity in a given population is its sexually transmitted disease (STD) rate (Vail-Smith & White, 1992). While many college students underestimate their risk of contracting various sexually transmitted diseases, HPV has become a common sexually transmitted infection on college campuses. College women have a greater risk of acquiring STDs than the general population because of the high-risk sexual behaviour in which they engaged. One study found that as many as 60% of college age women had some form of HPV, which is causally linked to cervical cancer (Alvey, 1990). Another study done in the University of Transkei, South Africa showed that the majority of respondents were young and sexually active (86.9 %) having initiated sexual activity at a mean age of 17.3 years (Buga, 1998). A study found that there was a high prevalence of the major risk factors for cervical cancer among the respondents, and these included initiation of coitus before 18 years (53.3%), multiple sexual partners (73.6%), previous history of sexually transmitted diseases (42.2%), and vulval warts (4.7%) (Buga et al., 1996). Risky behaviour, a lack of knowledge and preventive care, such as a regular Pap test, lead to a high incidence of HPV infection in college women that lead to cervical cancer later.

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A lack of HPV knowledge, coupled with misperception about susceptibility, impacted on college students' attitude and behaviours regarding cervical cancer prevention. Vail-Smith and White (1992) found that 72% of female university students had never heard of HPV infection and were unaware of the related cervical cancer risk. However, a study done among college-age Vietnamese students found that more than one-third (39.3%) of sexually active respondents reported never having had a Pap smear (Yi, 1998). Thus, the objectives of this study were to assess the knowledge of the risk factors associated with, and detection methods of cervical cancer among first year female students at Mangosuthu University of Technology.

Materials and Methods

Study design, sampling, and data collection

This was a descriptive cross sectional study carried out in August 2008 among full time first year undergraduate female Mangosuthu University of Technology students. The sample size was calculated using a formula for finite population (Underhill & Bradfield 1998). Assuming that 50% of the university students had sufficient knowledge of cervical cancer, a sample of 215 students was selected by stratified random sampling techniques with 95% confidence and 5% reliability. Faculties of the University were considered as strata. From each faculty, number of students were selected based on the proportion of students were in the faculty. The study was conducted by means of a questionnaire survey. The questionnaire included questions on behavioural profile, knowledge on cervical cancer and its prevention method, and participants' source of information. The questionnaires were translated into isiZulu by an isiZulu expert from the university's language center. Questions were simple and concise.

The questionnaire was pre-tested using 20 female students from 2nd year students who were not part of the study to identify gaps and modify the questionnaire appropriately. The questionnaire was then pilot tested to a representative sample of final year female students of Mangosuthu University of Technology and modified to ensure it answered the research questions.

Ethical Considerations

Ethical permission for the study was obtained from the Ethics task team of the Faculty of Natural Sciences Research & Publications Committee of Mangosuthu University of Technology. Informed consent of participants was obtained. Confidentiality of participants was maintained at all times. To further maintain confidentiality no form of identifiers were in the questionnaires. Participation was voluntary and participants were informed that they can withdraw from the study at any stage of the interview if they so desire without any penalty.

Data analysis

Data were entered into Microsoft excel 2003 spreadsheet and imported to SPSS 12.0.1 for window version for analysis. The analysis results of participants' demographics and baseline outcome variables (both primary and secondary) were summarized using descriptive summary measures: expressed as mean (standard deviation or range) for continuous variables and percent for categorical variables. Chi-square test was used to find association between categorical variables. Binary logistic regression was carried out to find the significant predictor for doing Pap smear test. All statistical tests were performed using two-sided tests at the 0.05 level of significance. For all regression models, the results were expressed as effect (or odds ratios for binary outcomes), corresponding two-sided 95% confidence intervals and associated p-values. P-values reported to three decimal places with values less than 0.001 reported as <0.001.

Results

Two hundred and five students (n = 215) completed the survey questionnaire for a 95% response rate. Overall the mean age of the participants was 19.47 years with standard deviation of 1.60 years. Virtually all (96%) of the sample students were single, while only 4% were married.

An analysis of the behavioural questions on the survey

Table 1. Behavioural Profile of the University Students

Variables	Number	Percentage
Presently sexually active	79	(39.5)
Have multiple partners	22	(27.9)
Mean age of first sex	17.9 [Range: 10-22]	
Use oral contraceptive	5	(6.33)
Use condom	62	(78.5)
Every time you have sex	35	(56.5)
Use new or fresh condoms	61	(98.4)
Treated for STD in the past year	13	(16.5)
History of pregnancy	24	(30.4)
Had baby delivered	20	(83.3)
Smoker	7	(3.41)

Table 2. Respondents' Knowledge on Risk Factors for Cervical Cancer

Variables		Number	Percentage
Heard of cervical cancer		68	(33)
From:	Parents	7	(11)
	Classmates	11	(16)
	Family members	4	(6)
	Medical or nursing staff	14	(20)
	Community health workers	15	(22)
	Relatives	4	(6)
	Others*	13	(19)
Knowledge on risk factors			
	Early sex	13	(19)
	Multiple partners	18	(26)
	Smoking	10	(15)
	Family history	12	(18)
	HPV	22	(32)
	Vulval warts	3	(4)
	Do not know	18	(26)
	Others	2	(3)
Cervical cancer be prevented			
	Don't know	47	(69)
	Yes	21	(31)

*Radio/TV/Magazine/Newspaper

Table 3. Respondents' Knowledge of Pap Smear Test

Variables		Number	Percentage
Heard of Pap smear test (n=205)		63	(31)
From ((n=57)	Friend	12	(21)
	Family members	14	(25)
	Nurse/doctor	11	(19)
	Community Health Worker	10	(18)
	Others	11	(19)
How often a woman should have Pap smear done?			
	Once in ten years	2	(4)
When a woman should have first Pap smear test done?			
	At ≥30	5	(9)
How many Pap smears in a healthy life time?			
	At least three	14	(25)
What is Pap smear test used for?			
	Prevent cancer	19	(33)

Table 4. Respondents Practice of Pap Smear

Variables		Number	Percentage
Ever had done Pap smear (n =163)		7	(11)
Known result		2	(29)
Reasons for not doing Pap smear (n =56)			
	Fear	13	(23)
	Culture/Religion	7	(12)
	Not ill	14	(25)
	Bad attitude of doctors/nurses	5	(9)
	No clinic access	4	(7)
	Other reasons	13	(23)

provided a behavioural profile of the university student participants (Table 1). Over a third (40%) of the students were currently involved in a sexual relationship and among them 28% reporting having two or more sexual partners in the past year. Condom use was quite high (78%) but only 56% indicating always using condoms. Only six percent of respondents used oral contraceptives, perhaps explaining the high uses rate of condoms.

Knowledge on cervical cancer

A third (33%) of the participants heard about cervical cancer, almost half (42%) heard from medical or community health workers (Table 2). About a fifth (19%) heard it from media. Students named risk factors such as early onset of sexual activity, sex with multiple partners, smoking, family history of cervical cancer, HPV virus, and vulval warts as correct (Table 2). Almost a third (32%) and over a quarter (26%) of the participants knew about HPV virus and multiple sexual partner respectively. Participants were twice more likely to use condoms if they heard about cervical cancer (OR = 2.47, p = 0.003).

Knowledge on Pap smear

Only 31% participants heard about Pap smear test, about a half (46%) from health facility workers (Table 2). Pap smear test is used for detection or prevention of cervical cancer was known to 33% of the respondents. Most of them gave incorrect answers for the uses of Pap smear such as cleaning of the womb, treatment of STI and infertility. Furthermore, only 9% mentioned that first Pap smear to be done at the age of 30 years or over (according to national policy of SA). 25% respondents knew that at least three Pap smears should be done in their life time and every 10 years they should repeat the test if test results were normal. Therefore, majority of the participants didn't know how many times and/or how often they should do Pap smear test.

Practices on Pap smear

Only seven participants had done Pap smear test. Of those only two knew their result (table 4). Among those who knew about Pap smear test (n=63), 56 respondents did not do the test mainly because of personal factors such as fear of the procedure, cultural or religious and were not ill (60%). Binary logistic regression (backward stepwise) did not find any significant predictor for doing Pap smear test among the respondents.

Discussion

This study is limited to female undergraduate students at Mangosuthu University of Technology. The study was conducted to seek to establish the level of knowledge about cervical cancer, risk factors and its prevention method. The biological information indicates that 40% respondents were sexually active and 28% had multiple sex partners. These figures are less than other South African and sub-Saharan African undergraduate students. A study done among undergraduate students in Nigeria found that 54% were sexually active and 43% had multiple sex partners (Omoteso, 2006). In Uganda it was found that 70% of the students were sexually active (Sekirime et al., 2001). HIV/AIDS campaign in the country as well as in our institution might have played a role of not engaging in sex even though they are in the ages of sexual interest and experimentation. However, one should be cautious about interpreting self-reported results of sexual issues.

A third (33%) of the participants were aware of cervical cancer which is far less than the study done among female undergraduates in Ibadan (71%) (Ayinde et al., 2004). In America, 70% of adults 18 years and older have never heard of HPV the causative agent for cervical cancer (Kaiser Family Foundation, 2000). We also found 31% respondents heard about Pap smear test and 11% had done the tests which are higher than the study done in Nigeria (Ayinde et al., 2004). Among those who knew about Pap smear test, 60% respondents did not do the test mainly because of personal factors such as fear of the procedure, cultural or religious and were not ill. This indicates low level of knowledge of cervical cancer and utilization of Pap smear test. The low knowledge of Pap smear test thus could be due to low level of knowledge on the benefits of the test and prevention of cervical cancer.

The level of knowledge on risk factors for cervical cancer and Pap smear test were considered poor and utilization of Pap smear test was low to this institution. One should therefore, consider improving awareness of the program to further their knowledge by educating students about risk factors of cervical cancer and practicing preventive behaviour. The role of media campaign should be considered as these are known to work best in promoting cervical cancer knowledge (Marcus & Crane, 1998).

Provisions should be made available for female students when attending health clinics at the University for any Condition. Health care workers at the clinic can educate heath care users targeting the risk population on risk factors for cervical cancer and motivate them for performing Pap smear. This can improve the University community knowledgeable on cervical cancer and practices on Pap smear test when they seek medical care. The success of the screening program in reaching its aim is dependent on achieving adequate coverage and thus could reduce morbidity and mortality from cervical cancer. Furthermore, the cancer of the cervix was declared an AIDS defining condition in 1993 because of its association with HIV and AIDS (Serraino et al., 1999). In a case-control study in Johannesburg found a slight association between HIV and cancer of the cervix (OR=1.6) (Sitas et al., 2000). However, some studies have demonstrated an association between HIV and the increased prevalence of human papilloma virus (HPV) and cervical intraepithelial neoplasia (CIN) (Mbulaiteye et al., 2003).

In conclusion, the present findings suggest low knowledge of cervical cancer, its risk factors and detection method among these female university students. Although students are too young to be included into the South African Department of Health screening programme that begins at age 30, treatment and management strategies are not required at the university. University should thus concentrate on informing students about the risk factors and strategies to prevent transmission of the HPV virus. Students should be encouraged to inform older relatives and friends who are eligible for cervical screening, to have smears performed and return for the results.

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References

AbouZahr C, Wardlaw T. Maternal mortality in 2000: estimates developed by WHO, UNICEF and UNFPA. Annex Table G. Available at: www.who.int/reproductivehealth/publications/maternal_mortality_2000/tables.html. Accessed September 27, 2004.

Alvey J. Genital warts and contagious cancers. Jefferson, NC: McFarland and company, Inc, Publishers, 1990.

Ayinde OA, Omigbodun AO, Ilesanmi AO (2004). Awareness of cervical cancer, Papanicolau's smear and its utilization among female undergraduates in Ibadan. *African J Reproductive Health*, **8**, 68-80.

Blanche BE. Intraepithelial and invasive carcinoma of the cervix in clinical Cytotechnology. Edited by Coleman DV, Chapman PA. London: Butterworths, 1989: 195-219.

Brown DR, Shew ML, Qadadri B, et al (2005). A longitudinal study of genital human papillomavirus infection in a cohort of closely followed adolescent women. *J Infectious Dis*, **191**, 182-92.

Buga GA, Amoko DH, Ncayiyana DJ (1996). Sexual behaviour, contraceptive practice and reproductive health among school adolescents in rural Transkei. *South African Med J*, **86**, 523-7.

Buga GA (1998). Cervical cancer awareness and risk factors among female university students. *East African Med J*, **75**, 411-6.

Burak LJ, Meyer M (1998). Factors influencing college women's gynecological screening behavior and intentions. *J Health Education*, **29**, 365-70.

Cherenji ZM, Rusakanoko S, Kirumi L, et al (2001). Situation analysis for cervical cancer diagnosis and treatment in East, Central and Southern African countries. *Bull WHO*, **79**, 127-32.

Christopher PC, Derek WA, Bradley JQ (2003). Cervical cancer screening: from the Papanicolaou smear to the vaccine era. *J Clin Oncol*, **10**, 224-30.

Cronje HS (2005). Screening for cervical cancer in the developing world. *Best Pract Res Clin Obstets Gynaecol*, **19**, 517-29.

Ferlay J, Bray F, Pissani P, Parkin DM. GLOBOCAN 2002: Cancer Incidence, Mortality and Prevalence Worldwide, IARC CancerBase No. 5, version 2.0. Lyon, France:IARC Press 2004. [Available at; www.depdb.iarc.fr/globocan/GLOBOframe.htm, accessed September 30, 2004].

Franco E, Harper DM (2005). Vaccination against human papillomavirus infection: A new paradigm in cervical cancer control. *Vaccine*, **23**, 2388-94.

Jamal A, Siegel R, Ward E, et al (2006). Cancer statistics, 2006. *CA Cancer J Clin*, **56**, 106-30.

Kaiser Family Foundation (2000) HPV and Cervical Cancer Fact Sheet.

Marcus AC, Crane LA (1998). A review of cervical cancer screening intervention research: implications for public health programs and future. *Prev Med*, **27**, 13-31.

Mbulaiteye SM, Biggar RJ, Goedert JJ, Engels EA (2003). Immune deficiency and risk for malignancy among persons with AIDS. *J Acquired Immune Deficiency Syndromes*, **32**, 527-33.

Moodley JR, Hoffman F, Carrara H, et al (2006). HIV and pre-neoplastic and neoplastic lesions of the cervix in South Africa: A case-control study. *BMC Cancer*, **6**, 135-40.

Mqoqi N, Kellett P, Sitas F, Jula M (2004). Incidence of histologically Diagnosed cancer in South africa,1998 – 1999. The National Cancer Registry of South Africa, National Health Laboratory Service, Johannesburg.

Omoteso BA (2006). A study of the sexual behaviour of university undergraduate students in southern Nigeria. *J Social Sci*, **12**, 129-33.

Sekirime WK, Tamale J, Lule JC, Wabrire-Mangen F (2001). Knowledge, attitude and practice about sexually transmitted diseases among University students in Kampala. *African Health Sciences*, **1**, 16-20.

Serraino D, Carrieri P, Pradier C, et al (1999). Risk of invasive cervical cancer among women with, or at risk for, HIV infection. *Int J Cancer*, **82**, 334-7.

Sitas F, Pacella-Norman R, Carrara H, et al (2000). The spectrum of HIV-1 related cancers in South Africa. *Int J Cancer*, **88**, 489-92.

Underhill L, Bradfield D. IntroSTAT. 2nd Edition. Cape Town: Juta & Co, Ltd. 1998; 260-261.

Vail-Smith K, White DM (1992). Risk level, knowledge, and preventive behavior of human papillomavirus among sexually active college women. *J Am College Hlth*, **40**, 227-30.

Yi JK (1998). Acculturation and Pap smear screening practices among college – aged Vietnamese women in the United States. *Cancer Nurs*, **21**, 335-41.