PREVENTION OF CERVICAL CANCER AMONG FEMALE UNDERGRADUATES IN TWO UNIVERSITIES IN SOUTH- WESTERN, NIGERIA.

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ABSTRACT

Background: Cervical cancer (CC) is the leading cause of death from cancer among women in developing countries.

Objectives: The study assessed the effects of an educational package on the knowledge of female undergraduates (FUs) on CC and its prevention using the Pap smear.

Study Design: A quasi experimental design was adopted. Two universities in South west Nigeria was used. Forty subjects who were sexually active were recruited from each university. Instruments used were an educational package and a semi structured questionnaire. The experimental subjects were given access to free Pap smear as a preventive measure. Data collected were analyzed using descriptive statistics and test. Ethical clearance was taken from the institutions while informed consent was taken from each subject.

Results: The results showed that 10% of experimental and 17.5% of the control subjects had good knowledge of CC and its prevention at pre-intervention. At post intervention, 92.5% of the experimental and 35% of the control group had good knowledge. During the intervention, 42.5% of experimental had Pap's Smear. Of these subjects that had Pap smear, 47% had abnormal results that required cytology and further investigation. At p= 0.001, there was a significant difference in the mean scores of both groups.

Conclusion: The introduction of a health education package and provision of Pap smear significantly improved the knowledge of FUs on CC and their uptake of Pap smear. It is recommended that health education on CC and prevention using HPV vaccines and Pap smear be given to University students.

Keywords: Cervical Cancer, Educational Package, Pap Smear, Female Undergraduates

INTRODUCTION

Cervical cancer (CC) is one of the reproductive health problems faced by women worldwide. It is the second most common form of cancer in women and the leading female cancer in sub-Saharan Africa, Central and South America and Southeast Asia[1]. It was once among the leading causes of death in developed countries like America, United Kingdom and South Africa[1] However, incidence of invasive cervical cancer

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have declined steadily over the years in these countries. This decline is primarily attributed to increased use of Papanicolaou (Pap) Smear, a screening test procedure that detects cervical changes (pre-cancerous) before cancer develops. Most CC develops slowly in the lining of the cervix and could take years (at most ten years) for the pre-cancerous lesions to develop into invasive CC[2]. This interval could be shortened depending on the overall health status of the affected woman. The exact cause of cancer of the cervix is not clearly defined but it has been linked strongly with Human Papilloma Virus (HPV) subtypes [2,3] HPV infects the cells of the cervix to produce pre cancerous lesions. Above ninety-nine percent (99.7%) of CC cases are attributable to HPV and approximately 6% are associated with multiple HPV infections [3]. HPV subtypes 16 and 18 are responsible for 70% of CC but most current methods for detection of cervical lesions do not assign causal HPV type [4].

Global statistics in 2008 indicated that there were 10.9 million new cases, 6.7 million deaths, and 24.6 million persons living with cancer worldwide[5]. Of these, CC accounted for 371,000 cancers and is the third most common type of cancer after lung and breast cancers respectively. It is the leading cause of death from cancer among women in the developing countries [6]. In Africa the estimates indicate that 78,897 women are diagnosed every year and 61,671 die from the disease[7]. In recent times, statistics available have shown that in Nigeria, the estimated incidence rate of CC is 25 per 100,000 women; with an estimated 8000 new cases of CC diagnosed in the country each year. Shockingly, less than 0.1 per cent of Nigerian women have ever had CC screening in their

lifetime and less than 1 per cent is aware of the existence of this silent killer[7]. Consequently, CC kills a woman every hour in the country. The World Health Organization (WHO) projects a 25 per cent increase over the next decade in the absence of widespread interventions. Unfortunately, according to WHO estimates, Nigeria has a population of 40.43 million women aged 15 years and older who are at risk of developing CC. Current estimates indicate that every year 14,550 women are diagnosed with CC and 9659 die from the disease[6,8]. Reports have shown that young teenagers are among the victims of CC and women are affected at a time of life when they are critical to social and economic stability. Prevention is an essential strategy in cancer management. Therefore, an intervention programme aimed at the prevention of CC among undergraduate students is a major approach to the prevention of CC.

MATERIALS AND METHODS:

A quasi-experimental design was adopted using female undergraduate students (FUs) residing at the Queen's hall, University of Ibadan, Ibadan as control group and those at the Moremi hall of the Obafemi Awolowo University, Ile Ife as experimental group. Ethical clearance for this study was taken from the Institutional Review Board of Obafemi Awolowo University Teaching Hospital complex (OAUTHC) Ile Ife. Permission to conduct the study was also taken from the Dean of Student Affairs of each **institution. Verbal and written consents were taken from each subject.** A purposive sampling was used to select a sample of 40 subjects each in the experimental and control groups from the selected institutions based on the following criteria; the subjects were sexually active,

resident in the University halls of residence and were willing to participate in the study. Two instruments were used for the study; a self administered questionnaire and an educational package. The questionnaire is semi structured with 20 items that asked knowledge questions on CC and its prevention. In scoring the items, 1 mark was given to every correct response. The scores were later coded as 'good knowledge' and 'poor knowledge'. All scores below 12 were considered 'poor' while those above 12 were considered 'good'. The educational package contains content on (i) anatomy of the cervix, (ii) causes, signs and symptoms of cervical cancer and (iii) preventive strategies- safe sex/ abstinence, vaccines and the Pap smear.

There were three phases in the study. A pre-intervention phase, an intervention phase and a post- intervention phase. The Pretest phase: the questionnaire was administered to subjects in the two groups. The completed questionnaires were collected back immediately and analyzed. The educational package was developed during this phase. This was done in the first two weeks of the study. At intervention phase: The educational package was used to educate the experimental subjects over three sessions for a period of two weeks. As part of the educational programme, the subjects were allowed to have free Pap smear done at the OAUTHC, Ile Ife. The result was communicated to the subjects that volunteered to undertake the Pap smear and those with abnormal results were referred for further investigation and management. Post intervention phase: The semi structured questionnaire used at pre intervention was used to assess the knowledge of participants in both groups at the end of 12 weeks. Data collected was fed into Statistical Package for Social Sciences (SPSS) software version 17.0 and analyzed using both descriptive and t test.

RESULTS

All the subjects that participated in the study were university undergraduates, singles and sexually active and of a mean age of 18.8 years ±0.55 (experimental group) and 16.4 years ±0.58. (Control group). The socio demographic characteristics of the participants in the two groups are in table 1. The results further revealed that 10% of the experimental group and 17.5% in the control group had good knowledge of CC and its prevention at pre- intervention. At post intervention, 92.5% of the experimental group and 35% of control had good knowledge of CC and its prevention. Using the t test, there was no significant difference in the mean scores of the experimental and control groups at pretest with t= 1.09 df = 78 at P = 0.28. At the post test, there was a significant difference in mean scores of the two groups with t = 3.38 df = 78 and P = 0.001 in their knowledge of CC and its prevention. Also, there was a significant difference in the mean scores between the pre test and post test scores of the experimental group with t= -7.91 df= 39 and p =0.001. Using Pap smear as a preventive strategy, only 10 % of the control group and none of the experimental group had had Pap Smear prior to pre intervention. During the intervention, 42.5% of experimental group and none from the control group had Pap smear. The Pap smear results of the experimental group revealed 53% had normal Pap smear, negative for intraepithelial lesion or malignancy while 47% had abnormal pap smear that require cytology and further investigation.

DISCUSSION

Our study revealed that at pre intervention, these undergraduate students had very low knowledge on CC. This low level of knowledge on CC was also reported by Nnodu et al[9] and Mbamar et al[10] in other Nigerian studies. The low level of knowledge demonstrated by these subjects throws a lot of challenges as they are all sexually active. HPV is a very common sexually transmitted virus that has a high correlation with cervical cancer. When the infection persists in 5% to 10% of infected women there is high risk of developing precancerous lesions of the cervix, which can progress to invasive cervical cancer[11]. Therefore these subjects are pre disposed to CC. Primary prevention of cervical cancer with HPV vaccines as well as secondary prevention with screening with Pap smear have been advocated as preventive measures for CC. Having personal knowledge regarding the link between HPV and CC will encourage FUs to decide on use of preventive measures. Evidences have shown that Pap smear and vaccination against HPV prevent and reduce the adverse outcome of cervical cancer[12, 13, 14, 15].

At post intervention, there was statistically significant difference between the post test scores of the experimental and control groups on their knowledge on CC and its prevention. This study has demonstrated that subjects in the experimental group benefitted from the intervention exposed to them through the educational package and free Pap smear screening. This was evidenced by improved level of knowledge and willingness of some of the subjects to go for Pap smear test during intervention. Many studies have advocated for the use of educational campaigns to help in the

prevention of CC and this study has confirmed that when education is coupled with provision of free Pap smear, there is an increased compliance to cervical screening. The Pap smear has been credited with reducing deaths from CC over recent decades. A Canadian report revealed that the fact that Pap smear-based screening is offered to women in Canada beginning at age 18 until age 70 has contributed significantly to a reduction in CC mortality of almost 50%[15]. Therefore primary prevention measures, vaccination against HPV and screening, should be initiated and expanded to reduce morbidity from cervical cancer in Nigeria. Health education strategies / campaigns should be geared towards young women on the need for taking HPV vaccines and having the Pap smear. It has been suggested that the development of a comprehensive CC screening strategy will improve participation in the pap smear test as Pap smear, still remains the test accepted globally as the procedure for early detection and treatment of premalignant stages of cervical cancer. (NIH, 1996).[16] While the benefits of Pap smear have been highlighted, Ayinde et al[17] have identified some inhibiting factors to the acceptance of Pap smear. These are personal factors such as fear of the procedure, cultural or religious factors, lack of awareness of centers where such services are obtainable, ignorance of the importance of screening and the risk factors to the development of cervical cancer. These inhibiting factors must be appreciated in any strategy for educating young people in the use of Pap smear for prevention. Although the preventive vaccines currently under study have been found to be generally safe when given to women who are already infected with HPV, it is important for women to know that the vaccines protect against infection, and provide maximum

benefit, for a woman who is vaccinated before she is sexually active. This is because these vaccines do not treat infections but has the benefits of CC prevention in females and the prevention of warts in both males and females. Nigeria could learn from nations like Vietnam who has considered incorporating HPV vaccine with the expanded programme on immunization [13]. There is a need to increase awareness and incorporate cervical screening and HPV vaccines into the pre-existing university health services.

CONCLUSION

The introduction of a health education package to FUs significantly improved their knowledge of CC and its prevention and their uptake of Pap smear. It is therefore recommended that programmes on CC and its prevention be planned and implemented at Nigerian universities. Such programme should include HPV vaccines and Pap smear. Future research should be carried on large scales targeting undergraduate students.

Table 1 Socio Demographic Characteristics of Subjects

Socio Demographic Variables	Experimental Group Frequency (%) N=40	Control Group Frequency (%) N=40	Total Frequency (%) N=80
Age	Mean age=18.8	Mean age=16.4	
15-19	SD=±0.55	SD=±0.58	35 (48.3)
20-24	7 (17.5)	28 (70.0)	38 (47.5)
25-29	28 (70.0)	10 (25.0)	7 (8.8)
Total	5 (12.5)	2 (5.0)	**80 (100.0)**
	40 (100.0)	**40 (100.0)**	
Level of study			
100 level	4 (10.0)	25 (62.5)	29 (36.3)
200 level	2 (5.0)	4 (10.0)	6 (7.5)
300 level	10 (25.0)	6 (15.0)	16 (20.0)
400 level	19 (47.5)	4 (10.0)	23 (28.8)
500 level	5 (12.5)	1 (2.5)	6 (7.5)
Total	**40 (100.0)**	**40 (100.0)**	**80 (100.0)**
Discipline			
Arts	11 (27.5)	8 (20.0)	19 (23.8)
Socio sciences	6 (15.0)	0 (0.0)	6 (7.5)
Sciences	16 (40.0)	14 (35.0)	30 (37.5)
Technology	5 (12.5)	0 (0.0)	5 (6.3)
Health Sciences	2 (5.0)	16 (40.0)	18 (22.5)
Education	0 (0.0)	2 (2.5)	2 (2.5)
Total	**40 (100.0)**	**40 (100.0)**	**80 (100.0)**

Table II Post Test Knowledge on Cervical Cancer and its prevention

Subjects level of Knowledge on cervical cancer	Experimental Group Frequency (%) N=40	Control Group Frequency (%) N=40	Total Frequency (%) N=80
Good knowledge 60 % -- 100%	37 (92.5)	14 (35.0)	51 (63.8)
Poor knowledge 0% --59%	3 (7.5)	26 (65.0)	29 (36.3)
Total	**40 (100)**	**40 (100)**	**80 (100)**

REFERENCES

1. Boyle P, Maisonneuve P. and Autier P. Towards cancer control in women. *Journal of Epidemiology and Biostatistics: 3, 1998; 137-168.*

2. Harris TG, Burk RD, Palefsky JM., Massad LS, Bang JY, Anastos K, and Minkoff H. Incidence of cervical squamous intraepithelial lesions associated with HIV sero-status, CD4 cell counts, and human papillomavirus test results. *JAMA, 2005; 293(12):1471-6.*

3. Parkin DM., Bray F, Ferlay J, and Pisani P. Global Cancer Statistics *CA Cancer . Journal of clinicians: 2002; 55, 74-108PATH.*

4. Bosch FX, Lorincz A, Munoz N, Meijer CJLM and Shah KV. The causal relation between human papilloma virus and cervical cancer. A Review: *J clin pathol. 2002; 55; 244-265.*

5. Pissani P, Ferlay J, Bray F, and Parkin DM. GLOBOCAN Cancer Incidence, Mortality and Prevalence Worldwide. *IARC Cancer Base No. 5, version 2.0. Lyon, France: IARC Press 2004.*

6. Adewole IF, Benedet, JL, Crain, BT, and Follen, M. Evolving a Strategic Approach to Cervical Cancer Control in Africa. *Gyneco. Oncol, 2005 ; (3 Suppl. 1): S209-S212.*

7. Castellsagué X, Sanjosé S, Aguado T, Louie KS, Bruni L, Muñoz J, et al: HPV and Cervical Cancer in the World. *In WHO/ICO*

Information Centre on HPV and Cervical Cancer (HPV Information Centre); 2007.

8. Philips Z, Johnson S, Avis M, and Whynes DK. Human Papillomavirus and the value of screening: young women's knowledge of cervical cancer. *Health Education Research, 2003;18(3):318-328.*

9. Nnodu O, Erinosho L, Jamda M, Olaniyi O, Adelaiye R, Lawson L, Odedina F, Shuaibu F, Odumuh T, Isu N, Imam H, Owolabi O, Yaqub N, Zamani A . Knowledge and attitudes towards cervical cancer and human papillomavirus: a Nigerian pilot study. *Afr J Reprod Health. 2010 Mar;14(1):95-108.*

10. Mbamara SU, Ikpeze OC, Okonkwo JE, Onyiaorah IV, Ukah CO (2011) Knowledge, attitude and practice of cervical cancer screening among women attending gynecology clinics in a tertiary level medical care center in southeastern Nigeria. *J Reprod Med. 2011 Nov-Dec;56(11-12):491-6.*

11. Vu LTH Bui D and Le Ha TT (2013) Prevalence of cervical infection with HPV type 16 and 18 in Vietnam:implications for vaccine campaign *BMC Cancer 2013, 13:53 doi:10.1186/1471-2407-13-53 (accessed 25/02/2013)*

12. World Health organization. Comprehensive Cancer Control. *A Guide to Essential Practice,2006*

13. Yu CK, and Rymer J. Women's attitudes to and awareness of smear testing and cervical cancer. *British Journal of Family Planning, 1998; 23(4)127-133.*

14. Hailu A and Mariam DH (2013) Patient side cost and its predictors for cervical cancer in Ethiopia: a cross sectional hospital based study. *BMC Cancer 2013, 13:69 http://www.biomedcentral.com/1471-2407/13/69 (accessed 25/02/2013)*

15. Health Canada: Cervical cancer screening in Canada: *1998 Surveillance Report. 2002.*

16. Cervical Cancer. National Institutes of Health Consensus Development Conference Statement. (NIH, 1996) *http://www.nlm.nih.gov/medlineplus/.*

17. Ayinde OA, and Omigbodun AO. Knowledge, attitude and practices related to prevention of cancer of the cervix among female health workers in Ibadan. *J. Obst. Gynaecol., 2003; 23(1): 59- 62.*