Original Article

Knowledge and attitude towards cervical cancer screening among female students and staff in a tertiary institution in the Niger Delta

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ABSTRACT

Background: Cervical cancer is a largely preventable disease. In western countries, the incidence of and mortality associated with cervical cancer has reduced substantially following the introduction of effective cervical screening programmes. This is in contrast to what is obtained in Africa including Nigeria where cervical screening is rudimentary or non- existent. **Aim:** This study seeks to assess the knowledge, level of perception and the attitude of female staff and students of Niger Delta University, Nigeria, towards cervical cancer screening. **Methods:** A questionnaire was used for data collection. The questions were made to capture the objectives of the study. **Results:** Most of the respondents 278 (72%) were aware of cervical cancer, while only 182 (50.6%) were aware of cervical cancer screening. Pap smear was the most popular screening test mentioned by respondents 100 (41.2%), while some respondents (8.5% of staff and 16.3% of students) wrongly believed that blood test is used for cervical cancer screening. There is a significant association between awareness and practice of cervical cancer screening amongst staff and students ($X^2 =$ 29.4, P=0.00). **Conclusion:** The study shows that awareness of cervical cancer screening was higher amongst students than staff of Niger Delta University. Uptake was low in both staff and students. There was an association between awareness and practice of cervical cancer screening amongst respondents. Overall, a greater proportion of the staff respondents had little or no knowledge of cervical cancer screening.

Key Words: Knowledge, attitude, barriers, cervical cancer, screening, Niger Delta.

INTRODUCTION

Cervical cancer is 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.[1] Carcinoma of the cervix is associated with the following risk factors; early age at first sexual intercourse, multiple male sexual partners, male sexual partners who have had multiple partners, early age at first birth, multiparty, smoking, long-term use of oral contraceptive pills, immunosuppressed states.[1] Cancer is responsible for about 51million deaths yearly, out of which cervical

cancer accounts for about 8.5%, most of which occurring in the developing countries including Nigeria.[1] About half a million new cases are seen annually worldwide, most occurring in developing countries.[1] In Bayelsa an incidence of 1.5% in 2011 was reported.[2]

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.[3] The long transition time from a premalignant lesion to frank cancer of the cervix affords ample time for early detection and nearly complete cure even in secondary health care centres.[4] However, this window of opportunity which has enabled the developed countries to reduce the incidence of cancer of the cervix would be wasted if the level of screening is low.[4] The greatest burden of cervical cancer occurs in the developing world where the mortality rate ranges from 10 to 35 per 100 000 compared with 2 to 4 deaths per 100 000 in developed nations.[5] This difference is attributed to effective national screening programs of cervical cytological testing (the Papanicolaou test) to identify cell abnormalities that may indicate or precede cervical cancer. [6,7]

A number of studies have shown that effective screening programmes have significantly reduced the incidence of cervical cancer in developed countries. The incidence of cervical cancer in the United Kingdom (UK) decreased significantly after the introduction of a national screening programme.[8] Nigeria has not had a great deal of success in implementing effective cervical cancer screening till date. In Nigeria, screening for cervical cancer is an opportunistic procedure which is dependent on the woman's initiative and/or that of her health care provider. This inadvertently leads to inappropriate utilization of screening facilities and lack of follow-up of abnormal results. There is currently no mass screening program for the detection of cervical cancer in Nigeria. Services are only available in teaching hospitals and are not adequately utilized. Constraints against underutilization were found to be poverty, ignorance and system failure.[9,10] The more knowledgeable women are about Pap smear testing, the more likely they are to make a screening visit and to adhere to recommended follow-up for an abnormal result.[11,12]

Early detection is important in the management of cervical cancer, however most of the women in developing nations present with advanced disease when nothing can be done for them.[13] Several reasons for the late presentations have been noted, namely ignorance about the symptoms, fatalistic attitude (fear of death from the disease), readiness to attribute neoplastic disease to supernatural causes thereby resulting in delays in seeking help, fear of confirmation of suspicion and of course the perennial problem of low coverage of the population by health centre services especially the rural areas.[14, 15] Furthermore, it has been reported that 50-90% of women who develop or die from cervical cancer have never been screened.[16]

A literature search identified studies that examine factors influencing women's participation in screening program, their psychological reaction to the receipt of an abnormal cervical smear result, and experiences of colposcopy.[17] Reasons given for nonparticipation included administrative failures, inconvenient clinic times, unavailability of a female screener, lack of awareness of the test's indications and benefits, considering one-self not to be at risk of developing cervical cancer, and fear of embarrassment, pain, or the detection of cancer.[17] The receipt of an abnormal result and referral for colposcopy cause high levels of distress owing to limited understanding of the meaning of the smear test, many women believe the test aims to detect existing cervical cancer.[17]

Cervical cancer screening is relatively inexpensive and there is worldwide agreement that screening programmes for cervical cancer are a necessity.[9] Factors that can influence participation rate include: acceptability, accessibility, screening interval, promotion of screening among others.[18] Cervical cancer screening services are not readily available in the state at present. It is therefore expected that the findings and recommendations of this study would provide guidelines for the provision and utilization of cervical cancer screening in our environment, and thereby

METHODOLOGY

Study Area

The Niger Delta University has 10683 students with a female to male ratio of 1: 1.7 (4000 and 6683) respectively. There about 3578 academic and non-academic staff in the university, with 636 male and 135 female academic staff, 394 male and 188 female senior non-academic staff, and 852 male and 1348 female junior non-academic staff. Approval for this work was obtained from the Ethical Committee of the Niger Delta University.

Inclusion and exclusion criteria

The study population comprised female staff and students of the Niger Delta University, Nigeria, within the age range of 16-65years. All female students or staff less than 16 years old or greater than 65 years old was excluded from the study.

Study design and data collection instrument

This is a descriptive cross-sectional study. A 26-item self-administered questionnaire was designed to assess the view, knowledge, level of perception and the attitude of female staff and female students in Niger Delta University towards cervical cancer screening based upon similar studies conducted elsewhere and literature review. The questionnaire was used to obtained information on the socio-demographic characteristics of the respondents, Knowledge, perception about cervical cancer screening, as well as barriers against screening services. The questionnaires were administered by the researchers to a total of 400 participants. Respondents were given a free hand in response to questions and were only guided in their responses when they voluntarily called for assistance. They were also assured that the information provided would be kept confidential.

Sample size and statistical analysis

The sample size was calculated using the formula; n=Z2pq/e^2,[19] where n=the desired sample size, Z=standard deviation at 95% confidence level (1.96), p is the proportion in the target population estimated to have a particular characteristic. P is therefore the proportion of staff and students with knowledge about cervical cancer screening. Since there are no studies regarding this topic in this locality, p is taken as 50%. q = proportion of people= 100-p = 100-50 = 50% (0.5), while e is the allowable error margin of 5% = 0.05 therefore, n= (1.96)20.5(1-0.5)/ (0.05)2=384.16. The sample size was calculated to be 384 using this formula. Multistage sampling was used for the recruitment of study participants into both study groups. Stage one; involved stratification of females of Niger Delta University into two categories: staff and students. Stage two involved determination of proportional allocation into staff and students using a sample frame obtained from the University. Stage three involved simple random sampling for the selection of target student population. Four faculties were selected from the twelve faculties in the University, which includes Faculties of Law, Nursing, Pharmacy and social Sciences .the self-administered questionnaire was administered by quota purposive sampling method to members of a faculty irrespective of year or department of study. Information obtained were coded and transferred onto a profoma design for the study.

Statistical analysis

Statistical analysis was performed with Statistical Package for Social Sciences software (SPSS) version 11. Chi square test (X^2) and students t- test was used to determine the difference between means. The level of significance was set at α = 0.05.

RESULTS

A total of 360 questionnaires were analyzed; 100 from staff and 260 from the students. Of the remaining 40 questionnaires, 32 were not returned while 8 were filled incorrectly. Table 1 shows the socio-demographic distribution of respondents. The age range of respondents was 16 – 45 (mean =23.65 ± 5years) for students and 16-65 for staff (mean =38.8 ± 9.05years). Most of the respondents were Christians and of Ijaw tribe. Majority of the staff were married(X^2 = 97.5, P=0.00). Table 2 shows the awareness of cervical cancer and cervical cancer screening. Most of the respondents were aware of cervical cancer,

Awareness of cervical cancer screening was higher amongst the students than staff, (56.2% versus 36%) there was however no significant difference in the level of awareness (X^2 = 11.73, P=0.001). 30(34.9%) and 32(37.2%) of staff heard about cervical cancer from a physician and TV/Radio respectively. The students also had physician as their most popular source of information.

Pap smear was the most popular screening test. 48.9% of staff and 9.7% of students did not know of any screening test; however some respondents (8.5% of staff and 16.3% of students) wrongly believed that blood test is used for cervical cancer screening (Table 3).

Less than 25% of the respondents (15% of the staff and 22.3% of the students) considered themselves at risk for cervical cancer. Majority of the respondents believed early detection of cervical cancer is good for treatment outcome. More students were willing to be screened than staff Over80% of respondents had not been screened for cervical cancer, majority of students respondents saw screening test being embarrassing as a major reason for non – uptake of screening test (Table 4). There is a Significant association between awareness and uptake of screening amongst staff (X^2=29.4, P=0.00) and students (X^2=148.8, P=0.00) (Table 5).

Table 1: Socio-demographic distribution of respondents

VARIABLE	STAFF (n=100) f (%)	STUDENTS (n=260) f (%)	TOTAL f (%)
AGE			
16 – 25	4 (4.0)	198 (76.2)	202 (56.1)
26 – 35	40 (40.0)	55 (21.2)	95 (26.4)
36 – 45	32 (32.0)	7 (2.6)	39 (10.8)
46 – 55	22 (22.0)	0 (0.0)	22 (6.1)
56 – 65	2 (2.0)	0 (0.0)	2 (0.6)
TOTAL	100 (27.8)	260 (72.2)	360 (100)
Mean Age + SD (x + SD)	38.80 ± 9.05	23.65 ± 5	
t = 20.17	df =358	P= 0.000	
MARITAL STATUS			
Married	67 (67.0)	43 (16.5)	110 (30.6)
Single	28 (28.0)	214 (82.3)	242 (67.2)
Divorced	4 (4.0)	3 (1.2)	7 (1.9)
Others	1 (1.0)	0 (0.0)	1 (0.3)
TOTAL	100 (27.8)	260 (72.2)	360 (100)
* X^2 = 97.5	df = 3	P= 0.00	
RELIGION			
Christianity	100 (100.0)	256 (98.5)	356 (98.9)
Islam	0 (0.0)	4 (1.5)	4 (1.1)
TOTAL	100 (27.8)	260 (72.2)	360 (100)
X^2 (with Yates Correction) = 0.550	df = 1	P= 0.46	
TRIBE			
Ijaw	94 (94)	174 (66.9)	268 (74.4)
Yoruba	1 (1.0)	32 (12.3)	33 (9.2)
Igbo	0 (0.0)	1 (0.4)	1 (0.3)
Hausa	0 (0.0)	14 (5.4)	14 (3.9)
Others	5 (5.0)	39 (15.0)	44 (12.2)
TOTAL	100 (27.8)|	260 (72.2)	360 (100)
* X^2 = 38.01	df = 4	P= 0.00	
EDUCATIONAL STATUS			
Primary			
Secondary	6 (6.0)	0 (0.0)	6 (1.6)
Tertiary	51 (51.0)	0 (0.0)	51 (14.2)
TOTAL	43 (43.0)	260 (260.0)	303 (84.2)
* X^2 = 177.9	100 (27.8)	260 (72.2)	360 (100)
	df = 2	P= 0.00	

*X^2= likelihood chi-square

Table 2: Awareness of cervical cancer and cervical cancer screening

VARIABLE	STAFF (n=100) f (%)	STUDENTS (n=260) f (%)	TOTAL f (%)
HEARD OF CERVICAL CANCER			
Yes	70 (70.0)	208 (80.0)	278 (77.2)
No	30 (30.0)	52 (20.0)	82 (22.8)
TOTAL	100 (27.8)	260 (72.2)	360 (100)
Pearson (with Yate's correction) X^2 = 3.43	df = 1	P = 0.064	
HEARD OF CERVICAL CANCER SCREENING			
Yes	36 (36.0)	146 (56.2)	182 (50.6)
No	64 (64.0)	114 (43.8)	178 (49.4)
TOTAL	100 (27.8)	260 (72.2)	360 (100)
X^2 = 11.73	df = 1	P = 0.001	
Source of information for Cervical Cancer (For those that demonstrated awareness)			
Physician/Health worker	30(34.9)	89(31.0)	119(31.9)
Family/ Friends	9(10.5)	54(18.8)	63(16.9)
News paper	10(11.6)	23(8.0)	33(8.8)
TV/Radio	32(37.20	53(18.5)	85(22.8)
Internet	5(5.8)	24(8.4)	29(7.8)
Others	-	35(12.2)	35(9.4)
No response	-	9(3.1)	9(2.4)
TOTAL	86(23.1)	287(76.9)	373(100)
*X^2= 37.0	df= 6	P= 0.00	
Source of information for Cervical Cancer Screening (For those that demonstrated awareness on screening)			
Physician/Health worker	15(35.5)	71(39.9)	86(39.1)
Family/ Friends	3(7.1)	20(11.2)	23(10.5)
News paper/TV/Radio/internet	23(54.8)	48(27.0)	71(32.3)
Others	1(2.4)	8(4.5)	9(4.1)
No response	-	31(17.4)	31(14.0)
TOTAL	42(19.1)	178(80.9)	220(100)
*X^2= 21.4	df= 4	P= 0.00	

*X^2= likelihood chi-square

Table 3: Cervical cancer screening tests mentioned by respondents

TYPES OF SCREENING TEST	STAFF (n=47) f(%)	STUDENTS (n=146) f(%)	TOTAL f(%)
PAP Smear	12(25.5)	88(44.9)	100(41.2)
VIA	2(4.3)	16(8.2)	18(7.4)
HPV	6(12.8)	41(20.9)	47(19.3)
Blood testing	4(8.5)	32(16.3)	36(14.8)
No response	23(48.9)	19(9.7)	42(17.3)
TOTAL	47(19.3)	196(80.7)	243(100)
* X^2=33.9	df= 4	P= 0.00	

Table 4: Uptake of cervical cancer screening by respondents

VARIABLE	STAFF (n=100) f (%)	STUDENTS (n=260) f (%)	TOTAL f (%)
HAD CERVICAL CANCER SCREENING			
Yes	5 (13.9)	17 (11.6)	22 (12.1)
No	31 (86.1)	129 (88.4)	160 (87.9)
TOTAL	36 (19.8)	146 (80.2)	182 (100)
X^2 = 0.137	df = 1	P= 0.711	
Reasons for uptake of cervical screening test (Those			
who showed awareness and had screening)	0	4 (23.5)	4 (18.2)
Doctor's request	0	6 (35.3)	6 (27.3)
Free / Subsidized	4 (80.0)	0 (0.0)	4 (18.2)
Self-conviction	1 (20.0)	5 (29.4)	6 (27.3)
Part of a general screening Program	0 (0.0)	2 (11.8)	2 (9.0)
No response	5 (22.7)	17 (77.3)	22 (100)
TOTAL	df = 4	P= 0.001	
*X^2 = 18.175			
Reasons for non- uptake of cervical screening test (Those			
who showed awareness and did not have screening)	3 (7.9)	2 (1.0)	5 (2.1)
	1 (2.6)	19 (9.6)	20 (8.4)
It is Painful	0 (0.0)	10 (5.0)	10 (4.2)
It is Expensive	18 (47.4)	80 (40.2)	98 (41.4)
It is Embarrassing	7 (18.4)	35 (17.6)	42 (17.7)
I am Healthy	9 (23.7)	53 (26,6)	62 (26.2)
Others	38 (16.0)	199 (84.0)	237 (100)
No Response	df = 5	P= 0.046	
TOTAL			
* X^2 = 11.31			

*X^2= likelihood chi-square

Table 5: Awareness and uptake amongst students and staff

STUDENTS	AWARENESS	UPTAKE	
YES	146(28.1)	17(3.3)	163(31.3)
NO	114(21.9)	243(46.7)	357(68.7)
TOTAL	260(50)	260(50)	520(100)
X^2 =148.8	df=1	p=0.00	
STAFF	AWARENESS F (%)	UPTAKE F (%)	
YES	36(18)	5(2.5)	41(20.5)
NO	64(32)	95(47.5)	159(79.5)
TOTAL	100(50)	100(50)	200(100)
X^2 = 29.4	df=1	P=0.00	

DISCUSSION

Most of the respondents were aware of cervical cancer (70% of students, 80% of staff). This high value may be attributable to the fact that these women are within the university environment and have access to

information through the mass media, print media and internet. Similar patterns of awareness were recorded in some Nigeria studies in Benin and Ibadan. In a survey of 195 health workers in the Benin study, more than 65% of the respondents were aware of cervical cancer.[20] Another study of 421 undergraduates in the university of Ibadan using self-administered questionnaire found that 71% were aware of cervical cancer.[13] Findings from this study however contrast with high levels of awareness found among college-aged female students in the United Kingdom and female university staff in Accra, Ghana where a prevalence of 90% was reported.[21,22] It also contrasts with the low levels recorded among refugees in Oru camp (22%), market women in Ibadan (40.8%), general out-patient clinic attendees in Ibadan.[23] There was a significant difference in the source of information for cervical cancer screening amongst staffs and students with newspaper/television/radio/internet (54.8%) accounting for the highest source of information amongst staff and physician/health (35.5%) accounting for the highest source of information amongst students. Various studies have recorded similar findings. In one of such studies in Kenya, healthcare providers were the principal source of information. Also in Nigeria, the major source of information about cervical smear was hospital/health facility in Owerri.[24,25]

Pap smear was the most known screening test in both staff and student (25.5% and 44.9%). The fact that Pap smear was the most known screening test is understandable considering that the Pap smear test has been in existence for over 60years, unlike other cervical screening tests and has been used over decades even in developing countries including Nigeria. Other screening methods such as liquid-based cytology and HPV DNA which are more recent and used in developed countries are not widely available in this country, because of high financial and technological requirements. The prospect of cheaper screening methods such as the Visual Inspection with Acetic Acid and inspection with Lugol's iodine (VILI) for mass screening programmes in resource poor countries like Nigeria, are new developments that are just being experimented by some state government health services and non-governmental organizations (NGOs), hence, the low level of respondents' knowledge of these tests in this study.

Most of the respondents (75% staff, 63.5% students) considered themselves not to be at risk for cervical cancer. This does not pose a good
picture for the effective control of this disease as studies in the Netherlands have shown that women considering they not being at risk is a reason for non-uptake and pulling out of screening programmes.[26,27] There was no significant difference in the level of uptake amongst respondents. Uptake was generally low (13% staffs and 11.6% students). This might be due to the fact that there is no established general screening program within the university and even the state. Similar findings of low uptake have been recorded in other developing countries including Nigeria.[20,28,29]

In a study carried out in Ghana, the uptake was 8.5% while it was 5.7% and 8.7% in Nnewi and Ogun state respectively.[22,28,29] The low participation in cervical cancer screening observed in this study and similar studies in developing countries is unlike the findings in most developed countries with market economy and computerized screening programs where uptake of cervical cancer screening was generally high. In one of such studies in Germany, most women in the study group had a Pap smear test at least once a year and only a few had a smear less frequently than every five years.[30] Also among Chinese American women in the United states, uptake of Pap smear was as high as 84%.[31] In this study, there was an association between awareness and practice of cervical cancer screening. This contrasts with an Enugu study which recorded that increased awareness of Pap smear does not translate to its use.[32]

CONCLUSION

The study shows that awareness of cervical cancer screening was higher amongst students than staff of Niger Delta University. Practice of cervical cancer screening was low in both staff and students. Also, there was an association between awareness and uptake of cervical cancer screening amongst respondents. A greater proportion of the staff

respondents had little or no knowledge of cervical cancer screening. There is a need for the authorities of tertiary educational institutions and particularly those of Niger Delta University to incorporate regular cervical cancer screening into the health care of their staff and students. Adoption of alternative screening techniques, such as visual inspection with acetic acid (VIA) may be necessary to widen patients' coverage. The state government needs to put in place a policy on screening for cervical cancer with appropriate screening guidelines.

REFERENCES

1. Anorlu RI. Tumours of the cervix uteri. In: text book of Obstetrics and Gynaecology for Medical Students. 2nd edition (Ed Agboola A.) Heinemann Educational Books (Nigeria) Plc, Ibadan. 2006: 2:167-182.

2. Oboma YI and Onyije FM. Cervical Cancer: An emerging public health issue in Bayelsa state metropolis. J Phys Pharm Adv 2012; 2:133-135.

3. Arevian. M, Noureddine . S, Kabakian-Khasholian T . Raising awareness and providing free screening improves cervical cancer screening among economically disadvantaged Lebanese/Armenian women. J TranscultNurs 2006;17:357–65.

4. Hakama M, Joutsenlahti U, Virtaren A, et al. Mass screening for cervical cancer in Finland 1963-71. Organization, extent and epidemiological implications. Ann Clin Res 1975;7:101-111.

5. Arbyn M, Castellsagué X, de Sanjosé S, Bruni L, Saraiya M, Bray F, Ferlay J.Worldwide burden of cervical cancer in 2008. Ann Oncol 2011;22:2675-2686.

6. Peto J, Gilham C, Fletcher O, Matthews FE.The cervical cancer epidemic that screening has prevented in the UK. Lancet 2004;364:249-256.

7. Quinn M, Babb P, Jones J, Allen E.Effect of screening on incidence of and mortality from cancer of cervix in England: evaluation based on routinely collected statistics. BMJ 1999;318:904-908.

8. Horan T. Women's health. Screening in time saves lives. Nurs Comm 2007;8:25-6.

9. Ngoma T. World Health Organization cancer priorities in developing countries. Ann. Oncol. 2006: 17 (Suppl. 8), viii9—viii14.

10. Anderson GH, Boyes DA., Benedet JL, Le Riche JC, Matisic JP, Suen K.C, Worth AJ, Millner A and Bennett OM. Organisation and results of the cervical cytologyscreening programme in British Columbia, 1955-85. Br Med J (Clin. Res.Ed.)1988;296:975–978.

11. Dignan M, Michielutte R, Blinson K, Wells HB, Case LD, Sharp P. Effectiveness of health education to increase screening for cervical cancer among eastern-band Cherokee Indian women in North Carolina. J Nat Cancer Inst1996;88:1670-76.

12. Schofield MJ, Sanson-Fisher R, Halpin S, Redman S. Notification and follow-up of Pap test results: current practice and women's preferences. J Prevent Med 1994;23:276-83.

13. Ayinde OA, Omigbodun AO, Ilesanmi AO. Awareness of cervical cancer,Papanicolaou's smear and it's utilisation among female undergraduates in Ibadan. Afr J Repro Health 2004;8:68-80.

14. Adewole IF, Benedet JL, Brian TC, Follen M. Evolving a strategic approach to cervical cancer control. Afr J Gyne Onco 2005; 99:209-12.

15. Olukoya AA. Cancer of the breast and cervix in Nigerian women and the role of primary health care. Niger Med Pract 1989;18:26-30.

16. Anonymous. Cervical screening: editorial. Br J Fam Plann 1984;10:1-2.

17. Fylan F. Screening for cervical cancer: a review of women's attitudes, knowledge, and behavior. Br J Gen Pract 1998;48:1509-14.

18. Lara E, Day NE, Hakama M. Trends in mortality from cervical cancer in Nordic countries: association which organized screening program. Lancet 1987;1:1247-49.

19. Envuladu EA, Agbo HA, Mohammed A, Chia L, Kigbu J.H , Zoakah A.I. Utilization of modern contraceptives among female traders in Jos South LGA of Plateau State, Nigeria. Int J Med Biomed Res 2012;1:224-231.

20. Gharoro EP, Ikeanyi EN. An appraisal of the level of awareness and utilization of the Pap smear as a cervical cancer screening test among female health workers in a tertiary health institution. Int J Gyne Can 2006;16:1063-68.

21. Pitts M, Clarke T. Human papilloma virus infections and risks of cervical cancer:what do women know? Health Educ Res 2002;17:706-14.

22. Adanu RMK. Cervical cancer knowledge and screening in Accra, Ghana. J. Women's Health and Gen Med 2002;11:487.

23. Ogunbode OO. Awareness of cervical cancer and screening in a Nigerian female market population. Annals of Afri Med 2005;4:160-3.

24. Bishop A, Wells ES, Sherris JD, Tsu VD, Crook B. Cervical cancer: evolving prevention strategies for developing countries. J Repro Health Matters 1995;6:60-71.

25. Ezem BU. Awareness and uptake of cervical cancer screening in Owerri, South-Eastern Nigeria. Ann Afr Med 2007;6:94-8.

26. Tacken MAJB, Braspenning JCC, Hermens RPMG, Spreeuwenberg PMM, Van Den Hoogen HJM, De Bakker DH. Uptake of cervical cancer screening in the Netherlands is mainly influenced by women's beliefs about the screening and by the inviting organization. Euro J Pub Health 2007;17:178-85.

27.   Baker D, Middleton E. Cervical screening and health inequality in England in the 1990s. J Epid Comm Health 2003;57:417-23.

28.   Udigwe GO. Knowledge, attitude and practice of cervical cancer screening (Pap smear) among female nurses in Nnewi, south eastern Nigeria. Niger J Clin Pract 2006;9:40-3.

29.   Adefuye PO. Knowledge and practice of cervical cancer screening among female professional health workers in a sub-urban district of Nigeria. Nig Med Practitioner 2006;50:19-22.

30.   Klug SJ, Hetzer M, Blettner M. Screening for breast and cervical cancer in a large German city: participation, motivation and knowledge of risk factors. Euro J Pub Health 2005;15:70-7.

31.   Lee-Lin F, Pett M, Menon U, Lee S, Nail L, Mooney K, Itano J. Cervical cancer and Pap test screening practices among Chinese-American immigrants. Oncol Nurs Forum 2007;34:1203-9.

32.   Cyril CD, Esther E, Theresa M, Ngozi RD, Hyginus UE. Improved awareness of Pap smear may not affect its use in Nigeria: A case study of female medical practitioners in Enugu, South-Eastern Nigeria. Transactions of the RSM 2009;103:852-854.