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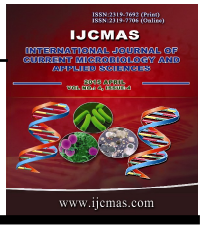

Original Research Article

Pattern of PAP Smear Test Results among Nigerian Women Attending Clinics in a teaching Hospital

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Keywords

Cervical, screening, pattern, Pap smear, Intraepithelial, neoplasia

A B S T R A C T

Cervical cancer is a largely preventable disease. In developed countries, the incidence and mortality associated with cervical cancer has reduced substantially following the introduction of effective cervical cancer screening programmes. This is in contrast to what is obtained in developing countries including Nigeria where cervical cancer screening is rudimentary or non-existent. To determine the pattern of Pap smear test results among Nigerian women attending clinics in Imo State University Teaching Hospital (IMSUTH), Imo State, Nigeria. The study was a cross-sectional retrospective, facility based study. The mean age of all the clients was 46 ± 13 years while that of those with Cervical Intraepithelial Neoplasia (CIN) was 48 ± 14 years. The prevalence of abnormal Pap smears and CINwas 22.6% (57) and 11.5% (28) respectively with the commonest symptom at presentation being bleeding per vagina. There was a significant association between clients' age, parity, educational level, residence, presenting symptoms and history of contraceptive use with abnormal Pap smear result (p value < 0.05). This study shows a high prevalence of abnormal smears and CIN. There is an urgent need to scale up routine Pap smear screening.

Introduction

The Papanicolaou test (abbreviated as Pap smear test) is a method of cervical screening used to detect potentially pre-cancerous and cancerous processes in the endocervical canal(transformation zone) of the female reproductive system.

In 2008, cervical cancer was the third most common cancer among women and the seventh most common cancer overall with 530,000 new cases and 275,000 deaths reported [1]. Women in Sub-Saharan Africa are disproportionately affected, where it is the most common cancer in women, accounting for 13% of all female cancers[1,2]. In Nigeria, it is the second most common female cancer after breast cancer, with an age standardized incidence rate of 34.5 cases per 100,000 women in 2010[3].

Abnormal results are reported according to the Bethesda system[4]. They include:

-Squamous cell abnormalities (SIL) comprising atypical squamous cells of undetermined significance (ASC-US), atypical squamous cells – cannot exclude HSIL (ASC-H), low-grade squamous intraepithelial lesion (LGSIL or LSIL), high-grade squamous intraepithelial lesion (HGSIL or HSIL), and squamouscell carcinoma (SCC)

-Glandular epithelial cell abnormalities egatypical glandular cells not otherwise specified (AGC or AGC-NOS)

Cervical intraepithelial neoplasia (CIN), also known as cervical dysplasia and cervical interstitial neoplasia, is the potentially *premalignant* transformation and abnormal growth (*dysplasia*) of *squamous* cells on the surface of the *cervix*[4]. CIN is not cancer, and is usually curable[5].Most cases of CIN remain stable, or are eliminated by the host's *immune system* without intervention. However a small percentage of cases progress to become *cervical cancer*, usually *cervical squamous cell carcinoma (SCC),* if left untreated which make up about seventy percent of cervical cancer cases globally[6]. There two cytological types and three histological grades of CIN; Low Grade Squamous Intraepithelial Lesion (LGSIL grade 1) and High Grade Squamous Intraepithelial Lesion (HGSIL grade 2 and 3). Progression to invasive cancer occurs in approximately 1% of CIN1, 5% in CIN2 and at least 12% in CIN3[6].Progression to cancer typically takes 15 (3 to 40) years. Also, evidence suggests that cancer can occur without first detectably progressing through these stages and that a high grade intraepithelial neoplasia can occur without first existing as a lower grade[4,6].Between 250,000 and 1 million American women are diagnosed with CIN annually. Women can develop CIN at any age, however women generally develop it between the ages of 25 to 35[4].

Virtually all cases of cervical pre-cancer and cancer are associated with a high-risk human papillomavirus (hrHPV) infection, with types 16 and 18 reported to account for the majority of cases[7,8]. However, only about 12% of individuals with persistent hrHPV infection go on to develop cervical pre-cancer and cancer. Hence, hrHPV infection can be a cause of cervical cancer but is not the exclusive cause. In addition to hrHPV, other factors impact progression, from persistent hrHPVinfection to cervical pre-cancer to cancer. These include smoking, parity, education, diet, physical inactivity, sexual behavior and use of oral contraceptives[9,10]. Other factors, including population growth and aging, are also contributing to the rising burden of cervical cancer in developing countries[11].Unlike many cancers, cervical cancer can be prevented. This is because the cervix is easily accessible. This prevention can be achieved using relatively inexpensive technologies to detect abnormal cervical tissue before it progresses to invasive cervical cancer. Most developed countries like the United States saw dramatic reductions in the incidence and death rates from cervical cancer following the implementation of organized screening programmes. Accessibility to treatment, early detection, reduction in parity and other risk factors have contributed to this decline.It has been estimated that only about 5% of women in developing countries have been screened for cervical dysplasia in the past five years, compared with about 85% in developed countries[12].In Nigeria, cervical cancer remains the most common reproductive tract malignancy[13]. Most cases of cervical cancer are diagnosed

predominantly at advanced clinical stages III and IV. Also, as in most other developing countries, no organized screening programme exists. Thus the aim of this study is to determine the pattern of pap smear test results among Nigerian women attending clinics in Imo State University Teaching Hospital (IMSUTH), Orlu, Imo State, Nigeria, within a nine year period.

Materials and Methods

Study Area and Population: The study area is IMO State University Teaching Hospital (IMSUTH),Orlu, Imo State, Nigeria. The hospital was established in 2002 by the state government and started full clinical activities by 2004. It has about 252 bed spaces and runs clinics in almost all the specialties and sub specialties of Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics and Public health. The hospital is fully accredited by the National University Commission (NUC) and the Medical and Dental Council of Nigeria (MDCN) for the training of medical and nursing students and has either partial or full accreditations for post graduate medical trainings in some specialties including Obstetrics and Gynaecology, Community Medicine and Paediatrics. The study population comprised patients who underwent pap smear test in the hospital within the period under review.

Study Design and Sample Size Determination: This study was a cross-sectional retrospective, facility based study of the prevalence of CIN among Pap smear clients attending gynaecology clinics in IMSUTH from its inception in November 2004 to November 2013. The sample size comprised all women who had Pap smear in the hospital within this period which was 252 women.

Data Collection Method and Analysis

The data was collected using a structured data collection proforma that was developed by the researchers. Folders were accessed and the following information's were extracted from the demographic details of the clients; hospital number, age, marital status, occupation, educational status and place of residence. The parity was also extracted from the family and social history. Other information extracted included: presenting symptoms, history of smoking, use of oral contraceptives, use of intrauterine device, use of implants, retroviral status, history of infertility, cost of test and result of Pap smear. The data was cleaned, validated manually and analysed using computer software (Epi Info 7.1). Frequency tables were generated. Bivariate analysis was done using chi-square where appropriate to test for significant associations. Results were considered significant when p value was < 0.05.

Ethical Approval: Ethical approval for this study was obtained from Imo State University Teaching Hospital Ethics Committee (IMSUTHEC). Permissions were also obtained from the Heads of histopathology and medical records to access disease registers and patients' folders.

Result and Discussion

A total of 252 women did Pap smear in the hospital within the study period. The ages of the patients ranged between 20 and 75 years with a mean age of 46 ± 13 years with majority of the clients (65.9%) aged 40 years and above. They were mostly married (98%), employed (85.3%) and parous (79.4%). Majority (96.8%) lives in rural areas and 62.3% had no formal education(Table 1).

The commonest presenting symptom among the clients was bleeding per vagina (70.2%). Most of the women (86.9%) had been pregnant before and 47.2% had used some form of contraceptive. The prevalence of abnormal pap smear and CIN cytology results were 22.6% (57 out of 252) and 11.5% (29 out of 252) respectively. Majority (72.4%) of the CIN was of HGSIL type (grade 2&3) while generally most abnormal smears on cytology were; HGSIL,(36.8%), SCC, (35.1%) and LGSIL, (14.0%). About 83.3%, (20 out of 24) of the malignant lesions on cytology were SCC type.(Table 2).

Table 3 described the distribution of cervical cytology result as detected from Pap smear test. Age group 40 and above, (28.9%), had the highest rate of pap smear result abnormality while the least was found among those aged 20 - 29 years,(8.7%%). This difference was statistically significant (χ^2 = 17.32, p value = 0.008). Abnormal pap smear test (23.0%) was seen only in those ever married and grand multiparous women (32.8%) had more abnormal results than other women (χ^2 = 16.97, p value = 0.01). Women who were unemployed (32.4%) had more abnormal results than employed women (20.9%). Occupation however was not statistically significant (χ^2 = 5.3596, p-value = 0.147) There was a statistically significant difference in pap smear abnormality between women who had formal education (30.5%) and those with no formal education (17.8%), (χ^2 = 10.057, p-value < 0.01). All the respondents with abnormal Pap smear results live in rural areas (χ^2 = 21.132, p-value = 0.000).

Respondents who presented with vaginal discharge had more abnormal Pap smear result (25.4%) than those who did not have. This was statistically significant (χ^2 = 15.512, p-value = 0.01). All the respondents (26.0%) with abnormal Pap smear result have had a history of pregnancy, (χ^2 = 11.3, p-value = 0.01). Abnormal Pap smear results was statistically higher, (31.1%) in women that used contraceptives (χ^2 = 21.8, p-value = 0.000).Women with positive retroviral screening (25.0%), had a slightly higher abnormal Pap smear result than negative women, p>0.05.

Table 4 showed the socio-demographic characteristics and pattern of abnormal pap smear cytology results. Low Grade Squamous Intraepithelial Lesion (LGSIL) was the only CIN type seen in those aged 20 – 29 years (100.0%) in this study. It also predominates in the 30 – 39 years age group (71.4%) while High Grade Squamous Intraepithelial Lesion (HGSIL), 41.7% and Squamous Cell Carcinoma (SCC) (39.6%), predominate in clients aged 40 years and above. This was statistically significant (χ^2= 42.95,df=1, p-value = 0.000). Nulliparous women have predominantly HGSIL (71.4%) while for multiparous women, it was LGSIL (88.9%). SCC (43.9%) and HGSIL (36.6%) predominate in grand multiparous clients (χ^2 = 23.8, df-1, p-value = 0.000). SCC was the main CIN type seen in those that used contraceptive (60%) while HGSIL predominates in those that did not use contraceptive (45.9%). This was not statistically significant (χ^2 = 1.29,df=1, p-value = 0.266). All the women with abnormal Pap smear result in this study were married and HGSIL (36.8%) and SCC (35.1%) predominate among them. HGSIL (46.7%) predominates among the employed clients while LGSIL (41.7%) is the commonest form seen in unemployed clients (χ^2 = 9.62,df=1, p-value = 0.007). As regards level of education, HGSIL predominates among clients with formal education (65.5%) while SCC was the major form seen in clients with no formal education (71.0%). This was also

statistically significant (χ^2 = 8.99, df=1, p-value = 0.042). Only those ever pregnant had abnormal Pap smear result, with HGSIL (36.8%) and SCC (35.1%) being the commonest forms. As regards presenting symptoms, HGSIL (34.1%) is the commonest among clients that presented with bleeding per vagina while SCC predominates among those with vaginal discharge. This was not statistically significant (χ^2 = 3.632,df=1, p-value = 0.090).

Generally the mean age of clients from our study was 46 ±13 years while the mean age for clients with CIN was 48± 14 years. This is consistent with the median age of 47 years for cervical cancer diagnosis in the general population[14] in the United States of America but contrast with report from studies done in Ibadan and Bangladesh that showed a lower mean age for CIN of 39 ±9.6 years and 34.9± 6.8 years respectively[15,16]and another study from Abuja which showed a median age of 32years for developing CIN[17]. The high mean age of the clients in our study is primarily because our study is a hospital based study and most of the clients presented with at least a symptom of genital disease that brought them to hospital. Their ages ranged from 20 to 80 years. This is in contrast with the age range of women studied in Abuja and Bangladesh which stood at 30 – 39 years and 22 – 45 years respectively.

According to this study, the overall prevalence of CIN and abnormal pap smear result among the clients were 11.5% and 22.6% respectively, all of whom were rural dwellers. Only 8 out of 252 clients (3.2%) came from urban areas. This is not consistent with studies done in South Africa and India which showed higher prevalence of abnormal smears and CIN among urban dwellers[19,20]. Our hospital is located in a semi-urban town that serves many rural communities and so most of the clients were from these rural communities. This result was higher than that found in a similar study done in another hospital in Northern part of the country which reported a prevalence rate of 48 per 1000[18]. The apparently lower prevalence in that study may be because the number of patients attending Gynaecology clinic was used as the denominator while we used only those that did Pap smear screening, this may have resulted in a false impression of higher CIN prevalence found in our study. In our study, the risk of CIN was found to be higher among women with increased parity, with a combined prevalence of CIN among multiparous and grand multiparous clients of 44.8% and 13.5% among nulliparous women. This contrasts with a study done in India which showed the combined prevalence of CIN among women with parity greater than 3 to be 7.5% [21]. However, other African studies showed no significant association between parity and CIN[17,22].

There was a higher risk of CIN among clients with formal education (30.5%) than in those with no formal education (17.8%). This is consistent with a study done in Beijing which showed that women with high educational and income levels were more likely to be infected with HPV [23] which is one of the risk factors for CIN. This may also have resulted due to the fact that women with formal education are more likely to have access to good health education and are more financially motivated to carry out screening tests.

The occurrence of CIN was only observed among clients who had once been married (23.0%) when compared with the unmarried clients who had no abnormal Pap smear. This finding contrasts with an Indian study where 270 married women were screened

for cancer of the cervix and no evidence of cervical dysplasia was found among the screened population[19]but concurs with other Nigerian and Tanzanian studies[17,22]. A probable reason for the contrast in the Indian study could be that it was community-based involving randomly selected married women who were asymptomatic as at the time the study was conducted. This disease occurs mostly within the age bracket were most women in our society might have been married. Also in our environment most single women hardly present to the hospital for cervical cancer screening except those with symptoms suggestive of genital tract infection or those that were counseled by a health personnel to do it, which could be attributed to several many factors spanning from socio-cultural to economic factors[24].

Our study revealed significant association between bleeding per vaginum and abnormal Pap smear. The prevalence of CIN among clients with bleeding per vaginum was 23.2% and the prevalence of HGSIL amongst them was 34.1%. This finding is consistent with a study carried out by Abu *et al* at University of Leicester which revealed that of 142 women who presented with vaginal bleeding, 27 (19%) had CIN, out of which 15 (10.6%) of them had HGSIL[25]. In the British general practice population, the prevalence of post coital bleeding in women with cervical cancer is 11.0%[23].

Table.1 Sociodemographic characteristics of clients

SOCIO DEMOGRAPHIC CHARACTERISTICS	FREQUENCY (n=252)	PERCENTAGE
AGE GROUP (YEARS)		
20-29	23	9.1
30-39	63	25.0
40 and above	166	65.9
TOTAL	**252**	**100.0**
	MEAN: 46±13 years	
PARITY		
NULLPAROUS	52	20.6
MULTIPAROUS	75	29.8
GRANDMULTIPAROUS	125	49.6
TOTAL	**252**	**100.0**
OCCUPATION		
EMPLOYED	215	85.3
UNEMPLOYED	37	14.7
MARITAL STATUS		
EVER MARRIED	247	98.0
NEVER MARRIED	5	2.0
TOTAL	**252**	**100.0**
RESIDENCE		
URBAN	8	3.2
RURAL	244	96.8
TOTAL	**252**	**100.0**
EDUCATIONAL LEVEL		
FORMAL	95	37.7
NONFORMAL	157	62.3
TOTAL	**252**	**100.0**

Table.2 Clinical details and PAP smear results of clients

CLINICAL DETAIL	FREQUENCY (n=252)	PERCENTAGE
PRESENTING SYMPTOMS		
BLEEDING PER VAGINUM	**177**	**70.2**
VAGINAL DISCHARGE	63	25.0
NO COMPLAINT	12	4.8
TOTAL	**252**	**100.0**
HISTORY OF INFERTILITY		
EVER PREGNANT	219	86.9
NEVER PREGNANT	33	13.1
TOTAL	**252**	**100.0**
USE OF CONTRACEPTION		
YES	119	47.2
NO	133	52.8
TOTAL	**252**	**100.0**
RETROVIRAL STATUS		
POSITIVE	12	4.8
NEGATIVE	240	95.2
TOTAL	**252**	**100.0**
RESULT OF PAP SMEAR		
NORMAL	69	27.4
ABNORMAL	57	22.6
UNSATISFACTORY	71	28.2
INFLAMMATORY	55	21.8
TOTAL	**252**	**100.0**
RECEIVED ANY FORM OF TREATMENT		
YES	112	44.4
NO	69	27.4
ASKED TO REPEAT TEST	71	28.2
TOTAL	**252**	**100.0**
CYTOLOGIC TYPES (N=57)		
LGSIL(CIN grade 1)	8	14.0
HGSIL(CIN grade 2&3)	21	36.8
ASCUS	2	3.5
SCC	20	35.1
AGUS	2	3.5
Mixed SCC/AC	2	3.5
Adenocarcinoma (AC)	1	1.8
Carcinoma Insitu (CI)	1	1.8
TOTAL	**57**	**100.0**

Table.3 Sociodemographic data of clients and distribution of PAP smear results

SOCIODATA	ABNORMAL (%)	UNSATISFACTORY (%)	INFLAMATORY (%)	NORMAL (%)	TOTAL (%)	Statistics X^2/FE	p-value
AGE GROUP							
20-29	2(8.7)	4(17.4)	8(34.8)	9(39.1)	23(100.0)	17.324	0.008*
30-39	7(11.1)	23(36.5)	11(17.5)	22(34.9)	63(100.0)	df = 6	
40 AND ABOVE	48(28.9)	44(26.5)	36(21.7)	38(22.9)	166(100.0)		
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
MARITAL STATUS							
EVER MARRIED	57(23.0)	69(27.9)	53(21.5)	68(27.5)	247(100.0)	2.28	0.516
NEVER MARRIED	0(0.0)	2(40.0)	2(40.0)	1(20.0)	5(100.0)	df = 1	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
PARITY							
NULLIPAROUS	7(13.5)	17(32.7)	12(23.1)	16(30.8)	52(100.0)	16.972	0.013*
MULTIPAROUS	9(12.0)	23(30.7)	16(21.3)	27(36.0)	75(100.0)	df = 6	
GRANDMULTIPAROUS	41(32.8)	31(24.8)	27(21.6)	26(20.8)	125(100.0)		
TOTAL	**57(22.6)**	**71(28.2**	**55(21.8)**	**69(27.4)**	**252(100)**		
OCCUPATION							
EMPLOYED	45(20.9)	66(30.7)	46(21.4)	58(26.9)	215(100.0)	5.359	0.147
UNEMPLOYED	12(32.4)	5(13.5)	9(24.3)	11(29.7)	37(100.0)	df= 3	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
EDUCATIONAL LEVEL							
FORMAL	29(30.5)	31(32.6)	15(15.8)	20(21.1)	95(100.0)	10.057	0.018*
NO FORMAL	28(17.8)	40(25.5)	40(25.5)	49(31.2)	157(100.0)	df= 3	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
RESIDENCE							
URBAN	0(0.0)	8(100.0)	0(0.0)	0(0.0)	8(100.0)	2.415	0.205
RURAL	57(23.4)	63(25.8)	55(22.5)	69(28.3)	244(100.0)	df=1	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
PRESENTING SYMPTOMS							
POSTCOITAL BLEEDING	41(23.2)	46(26.0)	37(20.9)	43(24.3)	177(100.0)	15.5	0.017*
VAGINAL DISCHARGE	16(25.4)	15(23.8)	12(19.0)	20(31.7)	63(100.0)	**df=3**	
NO COMPLAINT	0(0.0)	0(0.0)	6(50.0)	6(50.0)	12(100.0)		
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
HISTORY OF INFERTILITY							
EVER PREGNANT	57(26.0)	60(27.4)	45(20.5)	57(26.0)	219(100.0)	11.3	0.010*
NEVER PREGNANT	0(0.0)	11(33.3)	10(30.3)	12(36.4)	33(100.0)	df=2	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
USES OF CONTRACEPTION							
YES	37(31.1)	35(29.4)	12(10.1)	35(29.4)	119(100.)	21.8	0.000*
NO	20(15.0)	36(27.1)	43(32.3)	34(25.6)	133(100.)	**df=3**	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		
RETROVIRAL STATUS							
POSITIVE	**3(25.0)**	**3(25.0)**	**3(25.0)**	**3(25.0)**	**12(100.0)**	0.16	0.98
NEGATIVE	54(22.5)	68(28.3)	52(21.7)	66(27.5)	240(100)	**df=1**	
TOTAL	**57(22.6)**	**71(28.2)**	**55(21.8)**	**69(27.4)**	**252(100)**		

FE= fishers Exact, *=Significant

Table.4 Pattern of abnormal results by sociodemographic characteristics of clients

SOCIODATA	LGSIL (%)	HGSIL (%)	ASCUS (%)	SCC (%)	AGUS (%)	SCC/AC (%)	AC (%)	CI (%)	TOTAL (%)	X^2	P VALUE
AGE GROUP											
20-29	3(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	**3(100.0)**	**42.95**	**0.000***
30-39	5(71.4)	1(14.3)	0(0.0)	1(14.3)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	**7(100.0)**	**df=1**	
40 AND ABOVE	1(2.1)	20(41.7)	2(4.2)	19(39.6)	2(4.2)	2(4.2)	1(2.1)	1(2.1)	48(100.0)		
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**20(35.1)**	**2(3.5)**	**2(3.5)**	**1(1.8)**	**1(1.8)**	**57(100)**		
PARITY											
NULLIPAROUS	0(0.0)	5(71.4)	0(0.0)	2(28.6)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	**7(100.0)**	**23.85**	**0.000***
MULTIPAROUS	8(88.9)	1.(11.1)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	9(100.0)	df=1	
GRANDMULTI	0(0.0)	15(36.6)	2(4.9)	18(43.9)	2(4.9)	2(4.9)	1(2.4)	1(2.4)	41(100.0)		
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**20(35.1)**	**2(3.5)**	**1.(1.8)**	**1(1.8)**	**1.(1.8)**	**57(100)**		
USE OF CONTRACEPTION											
YES	4(20.0)	4(20.0)	0(0.0)	12(60.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	20(100.0)	**1.29**	**0.266**
NO	4(10.8)	17(45.9)	2(5.4)	8(21.6)	2(5.4)	2(5.4)	1(2.7)	1(2.7)	37(100.0)	**df=1**	
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**20(35.1)**	**2(23.5)**	**2(3.5)**	**1(1.8)**	**1.(1.8)**	**57(100)**		
MARITAL STATUS											
EVER MARRIED	8(14.0)	21(36.8)	2(3.5)	20(35.1)	2(3.5)	2(3.5)	1(1.8)	1.(1.8)	**57(100)**		
NEVER MARRIED	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	**0(0.0)**	**Na**	**Na**
TOTAL	8(14.0)	21(36.8)	2(3.5)	20(35.1)	2(3.5)	2(3.5)	1(1.8)	1.(1.8)	**57(100)**		
OCCUPATION											
EMPLOYED	3(6.7)	21(46.7)	0(0.0)	17(37.8)	2(4.4)	0(0.0)	1(2.2)	1(2.2)	45(100.0)	**9.62**	**0.007***
UNEMPLOYED	5(41.7)	0(0.0)	2(16.7)	3(25.0)	0(0.0)	2(16.7)	0(0.0)	0(0.0)	12(100.0)	**df=1**	
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**2(35.1)**	**2(3.5)**	**(2(3.5)**	**1(1.8)**	**1(1.8)**	**57(100)**		
EDUCATIONAL LEVEL											
FORMAL	8(27.6)	19(65.5)	0(0.0)	0(0.0)	2(10.5)	0(0.0)	0(0.0)	0(0.0)	29(100.0)	**8.99**	**0.042***
NO FORMAL	0(0.0)	2(7.1)	2(7.1)	20(71.0)	0(0.0)	2(7.1)	1(3.6)	1(3.6)	28(100.0)	**df=1**	
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**2(35.1)**	**2(3.5)**	**(2(3.5)**	**1(1.8)**	**1(1.8)**	**57(100)**		
RESIDENCE											
URBAN	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)		
RURAL	8(14.0)	21(36.8)	2(3.5)	20(35.1)	2(3.5)	2(3.5)	1(1.8)	1(1.8)	57(100)	**Na**	**Na**
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**20(35.1)**	**2(3.5)**	**2(3.5)**	**1(1.8)**	**1(1.8)**	**57(100)**		
HISTORY OF INFRTILITY											
EVER PREGNANT	8(14.0)	21(36.8)	2(3.5)	20(35.1)	2(3.5)	2(3.5)	2(3.5)	2.(3.5)	**57(100)**		
NEVER PREGNANT	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	**Na**	**Na**
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**20(35.1)**	**2(3.5)**	**2(3.5)**	**2(3.5)**	**2.(3.5)**	**57(100)**		
PRESENTING SYMPTOMS											
BLEEDING PER VAGINUM	8(19.5)	14(34.1)	2(4.9)	11(26.8)	2(4.9)	2(4.9)	2.(4.9)	2(4.9)	41(100.0)	**3.632**	**0.090**
VAGINAL DISCHARGE	0(0.0)	7(43.8)	0(0.0)	9(56.2)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	16(100.0)	**df=1**	
TOTAL	**8(14.0)**	**21(36.8)**	**2(3.5)**	**20(35.1)**	**2(3.5)**	**2(3.5)**	**2(3.5)**	**2(3.5)**	**57(100)**		

FE= FISHERS EXACT, *= SIGNIFICANT

On the use of contraceptives, 119 (47.2%) out of 252 clients had used contraceptives and the combined prevalence of CIN among them was 31.1%.This is higher than the combined prevalence among contraceptives users derived from a study done in Bangladesh which was 2.4%[13]. This may be due to the fact that the patients used in that study were further investigated with colposcopy and cervical biopsy for indications that were not specified. This also suggests that Pap smear may not be as sensitive as colposcopy and cervical biopsy.

None of the clients who had never been pregnant (33 out of 252) had an abnormal smear while 57 out of 219 (26.0%) of those who had once been pregnant had abnormal

smear in this study. This is in contrast to a study done in the USA that showed that history of infertility was strong risk factor for CIN [26]. The prevalence of HIV among respondents in this study was 4.8% (12 out of 252) and the prevalence of abnormal smear among the respondents with HIV was 25% (3 out of 12) as against a prevalence of abnormal smear of 22.5% among HIV negative respondents. This finding is not consistent with previous reports from other Sub-Saharan African countries where a high prevalence of cervical pre-cancer and cancer has been reported among HIV positive women[27-35]. Studies conducted in Rwanda, Kenya, South Africa, Uganda and Zambia reported prevalence of cervical pre-cancer and cancer among HIV- positive women of 24.3%, 26.7%, 66.3%, 73.0% and 76% respectively[27-31].However, another Nigerian study among HIV-positive women found only 6% prevalence of cervical pre-cancer and cancer[17]. The reason for no difference in CIN in HIV patients in this study may likely be due to generally low HIV sero prevalence in Nigeria when compared to the afore mentioned countries.

This study has demonstrated that the prevalence of cervical intraepithelial neoplasm is still very high among patients that did pap smear tests in the hospital. Also, it has shown that unexplained bleeding per vagina is a cardinal symptom of cervical dysplasia. There is need to scale up routine Pap smear screening for sexually active women and also every woman that presents with unexplained per vaginal bleeding must be investigated further for cervical dysplasia.

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