

## Original Article

# Pattern of cervical dysplasia among women of reproductive age in Zaria, Northern Nigeria

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## Abstract

**Background:** Cervical cancer is a preventable and the most common female genital tract cancer despite the availability of screening services for precancerous lesions of the cervix. This study aims to determine the prevalence of cervical dysplasia in women of reproductive age in Zaria.

**Methodology:** A prospective study of 131 women of child bearing age attending the family planning and Gynaecology clinics in Ahmadu Bello University Teaching Hospital, Zaria – Nigeria were recruited for the study after obtaining their consent. Cervical samples were collected and subjected to pap staining and cytological examination by a pathologist and classified using the Bethesda System. The data were processed using Statistical Package for the Social Sciences (SPSS) version 17. Bivariate analysis was done and the level of significance was set at a  $P < 0.05$ .

**Results:** Cervical dysplasia prevalence of 7.0% was found out of which High Grade Squamous Intraepithelial Lesion (HSIL) was 2.3% ( $n = 3$ ), Low Grade Squamous Intraepithelial Lesion (LSIL) was 3.1% ( $n = 4$ ) and Atypical Squamous Cells of Undetermined Significance (ASC-US) was 1.6% ( $n = 2$ ). There were 13% ( $n = 17$ ) inflammatory features. Normal cytological features for Pap smear testing was present in 77.1% ( $n = 101$ ).

**Conclusion:** These findings underscore the importance of routine screening and early treatment of cervical dysplasia in order to reduce morbidity and mortality associated with cervical cancer.

**Key words:** Cervix, dysplasia, Zaria

## Introduction

Cervical dysplasia is a premalignant lesion of the cervix uteri that can progress to cervical cancer over time if untreated.<sup>[1,2]</sup> The occurrence of premalignant lesion has since been well established with progression to cervical cancer in approximately 15% of cases that were not diagnosed and treated properly.<sup>[3,4]</sup> Cervical cancer is a highly preventable most common female genital tract cancer that is sexually transmitted.<sup>[5]</sup> The knowledge that sexually transmitted infection is a risk factor for the

development of cervical cancer was as high as 62.5% in Zaria.<sup>[6]</sup>

The Human Papilloma virus (HPV) has been implicated to be the cause with a prevalence between 40-99.7% in all cases.<sup>[7,8]</sup> Cervical cancer account for more than 70% of female genital tract cancers in Zaria.<sup>[9]</sup> The progression from normal to premalignant lesion and to cervical cancer is evident in the form of cytopathic effect of variable differentiation that is detectable through routine Papanicolaou (PAP) smear staining and cytology. Pap smear was developed and named after the inventor Dr. George Papanicolaou.<sup>[10]</sup> The varying progression of premalignant lesions is captured by the Bethesda System which was developed by the Centers for Disease Control and Prevention (CDC) and National Institutes of Health (NIH) in order to have a comprehensive and standardized method of classifying Pap smear results.<sup>[8]</sup> Whereas routine screening by the PAP smear for the

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pre-malignant lesion of cancer of the cervix has reduced the incidence of cervical cancer in developed countries, there has been poor implementation in developing countries making the disease more prevalent.<sup>[11,12]</sup>

The documented prevalence of cervical dysplasia in literatures varies according to the population studied. Kobelin *et al.*,<sup>[13]</sup> found a prevalence of 34% particularly Squamous Intra epithelial Lesion in 406 consecutive patients mostly age 35 years who had PAP smear and cytological evaluation in Boston. In a Cameroonian study done amongst HIV Positive women, Squamous Intraepithelial Lesion (SIL) were detected in 43.5% of the 276 women with satisfactory samples and on average, women aged 26 to 59 tend to have a slightly higher prevalence of any SIL than other women in the study.<sup>[14]</sup> In a related evaluation of women in Sokoto,<sup>[15]</sup> Benin<sup>[16]</sup> and Ibadan,<sup>[17]</sup> a prevalence of 7, 16.2 and 11.8% of abnormal smear was found, respectively. Although Abdul *et al.*,<sup>[18]</sup> had previously found a prevalence of abnormal cervical smear in Zaria to be 14% while Ahmed *et al.*,<sup>[19]</sup> found LSIL and HSIL to have a prevalence of 11.1 and 4.4%, respectively, in Jalingo, North Eastern Nigeria.

The aim of this study was to determine the prevalence of cervical dysplasia among women of reproductive age attending the obstetrics and gynaecology clinics in Ahmadu Bello University Teaching Hospital, Zaria - Nigeria.

## Methodology

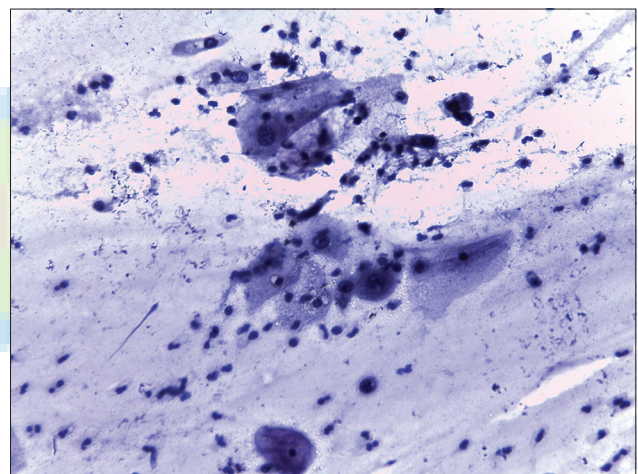
This study was carried out over a two-month period among women of reproductive age group (15-45 years). Only sexually active women that consented to the study were included and a total of one hundred and thirty-one consecutive women attending the Family Planning and Gynaecology clinics in Ahmadu Bello University Teaching Hospital Shika, Zaria were recruited for the study. Cervical smear samples were collected and subjected to Pap staining and cytological examination by a Pathologist and classified using the Bethesda System. The data were processed using Statistical Package for the Social Sciences (SPSS) version 17. Bivariate analysis was done and the level of significance was considered at a  $P < 0.05$ .

## Results

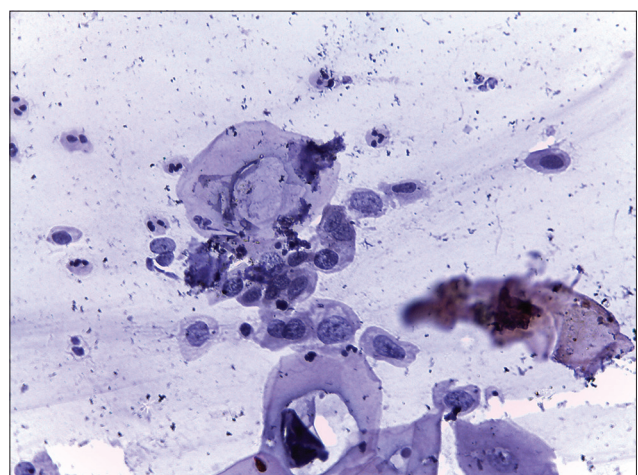
A total of 131 women were screened, majority of respondents were in the third decades of life. The overall cervical dysplasia prevalence was 7.0% in the population studied. Of the total positive smears, High Grade Squamous Intraepithelial Lesion (HSIL) was seen in 3 (2.3%) cases. The superficial and intermediate squamous cells exhibit marked increase in nuclear cytoplasmic ratio, coarse chromatin and irregular nuclear membrane [Figure 1]. Low Grade Squamous Intraepithelial Lesion (LSIL) was

seen in 4 (3.1%) cases. These cells have mild nuclear enlargement, hyperchromatic nuclei and in many cases koilocytic changes [Figure 2]. Atypical Squamous Cells of Undetermined Significance (ASC-US) was seen in 1.6% ( $n = 2$ ). There were 13% ( $n = 17$ ) inflammatory features, which comprise reactive superficial and intermediate squamous cells, numerous polymorphs and lymphocytes. Normal cytological features for Pap smear was present in 77.1% ( $n = 101$ ). Human Papillomavirus (HPV) effect was seen in 4 (3.1%) cases. HPV effect accounts for 2.5% of cases in the 30-39 years age group; and HSIL in this category accounts for 2.3% [Table 1]. There is an association between age and the occurrence of dysplasia with  $P < 0.5$ .

Women in polygamous marriage have a higher prevalence of HSIL of 2.3% when compared to those in monogamous union, singles and the divorced [Table 2]. There also was an association between marriage type and the presence of cervical dysplasia with  $P < 0.5$ .



**Figure 1:** LSIL, note the mildly dysplastic squamous cells



**Figure 2:** HSIL, there is marked increase in nuclear cytoplasmic ratio (arrows), hyperchromatic nuclei displaying irregular nuclear contour. The nuclear chromatin is coarsely distributed

**Table 1: Distribution of cytological features by age group**

Age	No. of subject screened	HPV (%) effect	HSIL (%)	LSIL (%)	I (%)	ASCUS (%)	N (%)
10-19	20	0 (0.0)	0 (0.0)	2 (1.5)	5 (3.8)	1 (0.8)	12 (9.2)
20-29	55	1 (0.8)	0 (0.0)	0 (0.0)	8 (6.1)	0 (0.0)	46 (35.1)
30-39	44	3 (2.3)	3 (2.3)	1 (0.8)	3 (2.3)	1 (0.8)	33 (25.2)
40-49	12	0 (0.0)	0 (0.0)	1 (0.8)	1 (0.8)	0 (0.0)	10 (7.6)
Total	131	4 (3.1)	3 (2.3)	4 (3.1)	17 (13)	2 (1.6)	101 (77.1)

$P=0.046$ ,  $P<0.05$ , HPV - Human papillomavirus, HSIL - High grade squamous intraepithelial lesion, LSIL - Low grade squamous intraepithelial lesion, I - Inflammatory, ASCUS - Atypical squamous cells of undetermined significance, N - Negative

**Table 2: Distribution of cytological features by marital status**

Status and types	No. of subject screened	HPV (%) effect	HSIL (%)	LSIL (%)	I (%)	ASCUS (%)	N (%)
Married							
Polygamous	80	3 (2.3)	2 (1.5)	3 (2.3)	13 (10)	0 (0.0)	59 (45)
Monogamous	37	1 (0.8)	1 (0.8)	0 (0.0)	3 (2.3)	0 (0.0)	32 (24.4)
Not married							
Singles	9	0 (0.0)	0 (0.0)	1 (0.8)	1 (0.8)	1 (0.8)	6 (4.6)
Divorced/widow	5	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.8)	4 (3.1)
Total	131	4 (3.1)	3 (2.3)	4 (3.1)	17 (13)	2 (1.6)	101 (77.1)

$P=0.003$ ,  $P<0.05$ , HPV - Human papillomavirus, HSIL - High grade squamous intraepithelial lesion, LSIL - Low grade squamous intraepithelial lesion, I - Inflammatory, ASCUS - Atypical squamous cells of undetermined significance, N - Negative

## Discussion

A total of 131 women were screened and of these, our study revealed a cervical dysplasia prevalence of 7.0%. This result compares favorably with 7% prevalence value by Daniel *et al.*,<sup>[15]</sup> in Sokoto but the figure is lower than values of 11.8% and 16.2% from Ibadan<sup>[17]</sup> and Benin,<sup>[16]</sup> respectively. It was however noted that the latter studies were retrospective evaluation with larger sample size. It was noteworthy the significant decline in the prevalence of 14% to 7% abnormal smear comparing with the study of Abdul *et al.*,<sup>[18]</sup> in the same Zaria done 13 years earlier with this study, it can be reasoned that his study population were patients with pelvic inflammatory disease especially given the relation between chronic PID and cervical cancer and also that attention may have been given to risk factors for cervical cancers in this regard in the general population that this study captured. The prevalence of 34% from Atashili *et al.*,<sup>[14]</sup> in Cameroon was far higher probably because the study population was people infected with HIV.<sup>[13]</sup> Although there are more of LSIL 3.1% than HSIL 2.3% in the positive smear in the study, it is however observed that the LSIL are more in the younger age group (<20 years) and the HSIL in age group 30-39 years. This may probably represent the progression in the disease state over time. The same trend is observed in the Sokoto<sup>[15]</sup> study despite their higher percentages, but the result from Jalingo<sup>[19]</sup> showed higher

prevalence of 11.1% in the HSIL higher than the 3.1% in this study.

Women between the ages of 20 and 39 years have higher prevalence of cervical dysplasia than younger women and literatures agreed on the increasing occurrence of abnormal smear in this age group probably related to sexual exposure and the likelihood of infection with HPV.<sup>[13]</sup> In this study, there is an association between increasing chronologic age and polygamy *versus* monogamy in the acquisition of HPV and the occurrence of cervical dysplasia with  $P<0.05$ . This may be explained in the context that sexual activities and age are related, and there is multiplicity of sexual partner in polygamy and these combined can be a determinant for the acquisition of HPV infection and by extension cytopathic effect of such infection.<sup>[6]</sup>

The finding of dysplastic changes in routine cervical Pap smear screening in the population studied is significant especially considering the magnitude of cervical cancer in our setting where more often than not, patients present to hospital late. A multicentre study may provide higher prevalence. Routine cervical cancer screening using Pap smear to detect the precancerous lesion and early treatment will help reduce morbidity and mortality from cervical cancer. The importance of sexual behavioral modification that will reduce the acquisition of the HPV infections should be emphasized.

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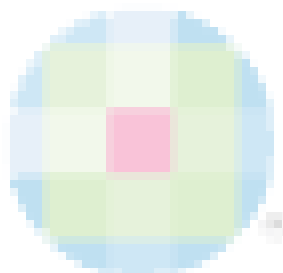


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