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SCREENING FOR CERVICAL LESIONS AMONG WOMEN IN BARKIN LADI LOCAL GOVERNMENT AREA OF PLATEAU STATE, NIGERIA

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ABSTRACT

This study examined atypical cervical lesions in women in Barkin Ladi LGA, Plateau State, Nigeria, to promote cervical cancer prevention and early diagnosis. A descriptive cross-sectional research was undertaken on 260 consenting women aged 21–70 in Barkin Ladi LGA's four settlements (Foron, Fan, Heipang, and Gassa). Government basic health facilities gathered endo-cervical smear samples with sterile Ayre spatulas and 95% alcohol. Papanicolaou-stained samples were examined microscopically. SPSS 25.0 was used for statistical analysis, employing Chi-square and ANOVA testing at 0.05. Of the 260 women examined, 53 (20.4%) had abnormal cervical smears and 207 (79.6%) were negative. In the abnormal smears, 37 (14.3%) were Low-Grade Squamous Intraepithelial Lesions (LSIL) and 16 (6.2%) were High-Grade. The age group ≤20 years had the greatest LSIL rate (25.0%), whereas the 51-60 years age group had the highest HSIL rate (22.2%). Women with a BMI of 18.5–24.9 had the greatest LSIL prevalence (17.2%), although BMI differences were not statistically significant ($p > 0.05$). Unemployed and oral contraception users had greater cervical lesion rates ($p = 0.008$) and ($p = 0.003$). Cervical cancer awareness was modest at 68.5%. These findings highlight the need for improved cervical cancer screening, targeted education, and preventive healthcare, especially for high-risk and marginalized communities. HPV vaccination and rural HPV prevalence study are advised to lower cervical cancer risk.

1. INTRODUCTION

A woman's uterus (womb) connects to the birth canal via the cervix. The cervix is 2 cm. It is mostly muscle and connective tissue. The endocervix is near the uterus and the exocervix near the vagina. Squamous exocervix and glandular endocervix columna cells cover the cervix. Columnar glandular endocervical canal cells generate mucus. Columnar cells are tall and columnar. Like fish scales, ectocervix and vaginal squamous cells are flat and thin. Squamo-columnar junction links cervix squamous and columnar cells. This called the transition zone because tall columnar cells often become flat squamous cells throughout puberty and childbearing. Most cervical cancers and precancerous changes occur in the transition zone (American Cancer Society, 2013; Canadian Cancer Society 2017).

Flattened cervix epithelial cells cause numerous cervical cancers. In second place is glandular epithelial adenocarcinoma. Early cervical cancer may be asymptomatic and seldom impact other cell types (American Cancer Society, 2010). Cervical cancer is malignant. Cancer may begin with vaginal bleeding and develop symptoms (Saonere, 2010). Preventable reproductive health issues are a major public health issue in developing nations. Third most common cancer world wide and second killer of women in developing nations (Albert et al., 2012).

Developed countries catch 75% of patients early, while undeveloped countries detect 75% late, when treatment is unlikely. In 2008, 529,000 cervical cancer cases and 274,000 deaths were estimated. Over one million women worldwide have cervical cancer, most of whom are undiagnosed or untreated (World Health Organization, 2002). This study would examine women for cervical lesions in Barkin Ladi, Plateau State.

2. LITERATURE REVIEW

Cervix cancer

Cervix cell alterations progress with cervical cancer. Untreated cervical cancer grows irregularly and invades organs. As expected, “invasive cervical cancer,” which spreads malignant cervical cells, kills (Tuteur & Associates, 2007). Cervical smears can detect precancerous changes early, making it one of the few preventable diseases (American Cancer Society, 2010). This study seeks to discover abnormal cervix changes in Barkin Ladi, Plateau State, women.
Epidemiology cervical cancer

Cervical cancer threatens 50.33 million Nigerian women over 15. Current estimates suggest 14943 cervical cancer cases and 10403 deaths annually. The second most frequent cancer in Nigerian women aged 15–44 is cervical cancer. Institut Català d'Oncologia Avda (2018) says that 3.5% of women have HPV-16/18 infection and 66.9% of invasive cervical cancers are HPV-related. Cervical cancer ranks sixth in female cancer mortality worldwide. It kills 1 in 123 women and 9 in 100,000, according to WHO (2006).

Cervical cancer risk factors

Sexually transmitted HPV

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Most pre-cancerous and malignant cervical lesions are caused by high-risk or oncogenic HPV (Wardak, 2016). HPV 16 and 18 cause most cervical malignancies. High-risk variants like HPV 16 are widespread in humans (Bruni et al., 2010). Sex spreads the disease, which creates squamous intraepithelial lesions. Immunological treatment removes most lesions in 6–12 months. Few of these lesions cause cancer (Zur, 2002).

The Human Immune Virus

High-risk HPV types are more common in HIV-positive women (Ferenczy et al., 2003; Palefsky, 2007). HSV-2 antibodies in serum are associated to invasive cervical carcinoma (Smith et al., 2002). Reproductive and Sexual Factors

Sexual Partners

Multiple sexual partners raise cervical cancer risk (Castellsagué et al., 2003; Liu, 2015). HPV infection usually increases risk.

Behavioral Factors

Smoking is a significant risk factor for CIN 3 and invasive cervical cancer, according to numerous studies. Cervical cancer is associated to smoking (Fonseca-Moutinho, 2011;

Hildesheim, 2001; Kim, 2012; Plummer, 2003)

Obesity

Obesity increases cervical cancer and hormonal risk factor-associated adenocarcinoma (Lacey et al., 2003; Lee, 2013; Poorolajal & Jenabi, 2016). A case control study found a 2-fold higher incidence of cervical cancer in obese and overweight women (BMI ≥ 30 and BMI ≥ 25) (Lacey et al., 2003).

HPV infection research has produced safe and effective cervical cancer vaccines (Crosbie et al., 2013). The HPV vaccination is available since 2006. Coverage varies widely for these vaccines in many countries (Herrero et al., 2015).

Cervical cancer disease presentation

Premalignant lesions and micro-invasive uterine cervix carcinoma rarely cause symptoms. Aggressive cancer often affects women (American Cancer Society, 2004).

Discharge: Vaginal discharge with blood spots or minor hemorrhage between periods may suggest cervical cancer.

Post-coital bleeding is common. Intercourse pain may indicate cervical cancer. Leucorrhea, dysuria, irregular bleeding, and lymph node spread to pelvic, inguinal, iliac, and aortic nodes early on, but blood spread to liver, lungs, and bone later.

Cervical cancer treatment

Cervical cancer treatment depends on stage. Cancer phases show growth, invasion, and spread. If a cure is impossible, treatment may limit disease growth, spread, damage, and recurrence. Symptom relief is sometimes palliative care (American Cancer Society, 2004).

3. METHODOLOGY

This research was conducted in Bakin Ladi Local Government Area of Plateau State, Nigeria, in the Plateau North Senatorial Zone, along with Bassa, Jos East, Jos North, Jos South, and Riyom. The headquarters are located in Gwol at 9°32′00″N 8°54′00″E. It has 1,032 km2 and 175,267 residents at the 2006 census. This town houses Plateau State Polytechnic. Barkin Ladi LGA's natives are Beroms. Area postal code is 932.

Study Design

This descriptive cross-sectional research screened females in Barkin Ladi LGA, Plateau State, for cervical lesions.

Ethical Consideration

All participants gave written consent for this study, and the Director of Health Barkin Ladi Local Government Area of Plateau State gave approval.

Population study

The research included women from Barkin Ladi LGA, Plateau State.

Sample size and data collection

The sample size was calculated using the following formula $N = Z^2 P (1-P)/e^2$ (Charan & Biswas, 2013). Where, N is the minimum sample size, P is the prevalence value, e is the absolute precision of the study which is 0.05. and Z is the area under normal curve corresponding to 95% confidence interval = 1.96. Using 19.8% prevalence of cervical

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dysplasia in a previous study done amongst women who were attending the Family Planning and Gynaecology clinics in Usman Dan-Fodio University Teaching Hospital Sokoto (Daniel et al., 2013).

Given n = p (1-P) Z2, e^2

Where n = sample size, Z = confidence level statistic, P = predicted prevalence/proportion, and

e = margin of error.

Sixty-five endo-cervical smears were investigated from 260 volunteer women in Foron, Fan, Heipang, and Gassa at government-owned primary health care facilities. Four female medical laboratory scientists from the Jos University Teaching Hospital (JUTH) and the National Veterinary Research Institute (NVRI) Vom and health workers from Primary Health Care Centres gathered samples. Participants completed structured questionnaires to provide biographical and other information.

After opening the endo-cervical canal using a sterile Speculum, a sterile Ayre Spatula was softly scraped across the cervix's squamo-columnar junction at 360 degrees. Wet samples were smeared on sterile microscope glass slides and preserved in 95% alcohol. After collecting samples, the Jos University Teaching Hospital Histopathology Laboratory received the slides promptly. They were then stained with Papanicolou and inspected under an x40 light microscope. All samples were processed per Papanicolaou in Asthana (2014). Popenicolaou stain uses acidic and basic dyes. Acidic dye stains cell basics whereas basic dye stains acidic components.

Inclusion Criteria

21–70-year-old women

Criteria for Exclusion

The study excluded pregnant women, women under reproductive age, and women over 70. Menstruating women and those with cervical cancer or hysterectomy were also excluded.

Data analysis

Carefully revising all items ensured data accuracy and completeness before coding and analyzing it with SSPS version 25.0. Information was given in tables. Hypotheses were assessed using Chi Square and ANOVA at α=0.05 confidence interval and p-value significance level.

Results

Of 260 volunteer women screened for cervical lesions, 53 (20.4%) were positive and 207 (79.6%) were negative.

Table 1: Awareness of Cervical Cancer by Respondents

Have you heard of cervical cancer?	Frequency (%)
Yes	178 (68.5)
No	59 (22.7)
Undecided	23 (8.8)
Total	260 (100)

Table 1 represents the awareness of cervical cancer by respondents. it shows that 178(68.5%) of the respondents have heard of cancer of the cervix, 59 (22.8%) never heard of the disease while 23 (8.8%) of the respondents were unsure.

Table 2: Distribution of Premalignant Lesions among Women in Barkin Ladi LGA

Location	Number Examined	Number Infected (%)	Number Not Infected (%)	χ^2	P value
Foron Mission	65	6 (2.3)	59 (22.7)	11.64	0.009
Foron Junction	65	20 (7.7)	45 (17.3)		
Heipang District	65	17 (6.5)	48 (18.5)		
Gassa District	65	10 (3.8)	55 (21.2)		
Total	260	53 (20.4)	207 (79.7)		

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Table 2 is cervical lesions among women in Barkin Ladi Local Government of Plateau State. Out of the 53 persons with cervical lesions, the area with the highest number 20 (7.7%) was from Maraban Foron while area with least cases was Foron Mission with 6 (2.3%). There was significant difference in the spread of cervical lesions among the women, p <0.05.

Table 3: Age Distribution of Premalignant Lesions

Age Group	Number Examined	LSIL (%)	HSIL (%)	Negative Smear (%)	χ^2	p Value
≤ 20	4	1 (25.0)	0 (0.0)	3 (75.0)	12.31	0.26
21-30	78	11 (14.1)	3 (3.9)	64 (82.1)		
31-40	95	14 (14.7)	3 (3.2)	78 (82.1)		
41-50	55	7 (12.7)	5 (9.0)	43 (78.2)		
51-60	18	2(11.1)	4 (22.2)	12 (66.7)		
≥ 61	10	2 (20.0)	1 (10.0)	7 (70.0)		
Total	260	37 (14.3)	16 (6.2)	207 (79.6)		

Key:

LSIL: Low Grade Intraepithelial Lesions

HSIL: High Grade Intraepithelial Lesions

The result of cervical lesions based on age is contained in table 3. The age group ≤ 20 had the highest number with Low Grade Intraepithelial Neoplasia 1 (25%) while the least was in the age group 51-60 years with 2 (11.1%). Presentation with High grade intraepithelial Neoplasia within the age group 51-60 years as 4 (22.2%).

Table 4: Distribution of Premalignant Lesions Based on Body Mass Index

BMI	Number Examined	LSIL (%)	HSIL (%)	Negative Smear (%)	F	p Value
<18.5	23	2 (8.7)	1 (4.3)	20 (87.0)	0.5822	0.630
18.5-24.9	122	21 (17.2)	8 (6.6)	93 (76.2)		
25.5-29.9	71	10 (14.1)	5 (7.0)	56 (78.9)		
>30	44	4 (9.1)	2 (4.5)	38 (86.4)		
Total	260	37 (14.3)	16 (6.2)	207 (79.6)		

Key:

BMI: Body Mass Index

LSIL: Low Grade Intraepithelial Lesions

HSIL: High Grade Intraepithelial Lesions

Table 4 is the spread of cervical lesions based Body Mass Index. The Table reveals women with Body Mass Index between 18.5-24.9 had 21 (17.2%) of Low Grade Lesions. Those within BMI of 25.5-29.9 had 5 (7.0%) HSIL and 10 (14.1) LSIL. Analysis of variance (ANOVA) revealed no statistically significant difference in the spread of cervical lesions among women with varying BMI F, 0.392 p>0.05

Table 5: Cervical Lesions in Women Based on Occupation

Occupational Status	Number Examined	Number Infected (%)	Number Not Infected (%)	χ^2	P value
Civil Servant	60	16 (26.7)	44 (73.3)	9.64	0.008
Self Employed	163	24 (14.7)	139 (85.2)		
Un-employed	37	13 (35.1)	24 (64.9)		
Total	260	53 (20.4)	207 (79.6)		

Table 5 is the cervical lesions based on occupation. The unemployed had the highest number of lesions 13 (35.5%) while the self-employed had 24 (14.7%).

Table 6: Cervical lesions among women Based on Use of Oral

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Contraceptives

Contraceptive Usage	Number Infected (%)	Number Not Infected (%)	χ^2	P value
Yes	29 (54.7)	156 (75.4)	8.75	0.003
No	24 (45.2)	51 (24.6)		
Total	53 (20.4)	207 (79.6)		

Table 6 indicates that women who used contraceptives for birth control presented with more lesions 29 (54.7%) compared to women who did not use oral birth control pills having 24 (45.2%). Cervical lesions in women in relation to use of oral birth control was statistically significant $p < 0.05$.

4. DISCUSSION

Early detection and treatment of cervical intraepithelial neoplasia can prevent cervical cancer. This investigation found 20.4% cervical cytological abnormalities. It is much higher than 10.8% in Benue State Nigeria (Ngwibete et al., 2024), 2.2%, 17.9%, and 39.7% in Enugu, Gombe, and Jos, respectively. Most women (79.6%) in this research had normal smear. This is within the global range but lower than Plateau state, Nigeria's 83.1% normal smear rate (Daru et al., 2020).

This study's high percentage of abnormal smears highlights the necessity for frequent cervical smear screening in women to reduce cervical cancer in our environment. Abnormal cervical smears were most common in women aged 25+, with 22.2% of cases in the 51-60 age range, and 0% in the < 20 age group. Overall, precursor lesions include LGSIL 37 (14.3%) and HSIL 16 (6.2%). This distribution pattern is lower than another Nigerian research using LGSIL (37.8%) and HSIL (15.6%) (Obuba et al., 2023).

Several studies in Nigeria and other parts of the world reported LGSIL as the commonest premalignant cervical abnormality observed in women studied (Utoo et al., 2016; Wang et al., 2017; Magaji et al., 2017). Contrary to the present finding, Duru et al., found HGSIL as the commonest abnormality among the women studied (2015). LGSIL is a precancerous lesion characterized by a shorter and less observable clinical course, with cell changes associated with HPV. Many studies link LGSIL to low-risk HPV infection (Wang et al., 2012). HGSIL becomes aggressive cancer if left untreated, although LGSIL may regress spontaneously in many individuals (Kyernum et al., 2019; WHO, 2002). Women can get CIN at any age, although most do so between 25 and 35 (Kyernum et al., 2019; Kumar, 2022).

5. CONCLUSION

This study found a moderate frequency of cervical lesions in Barkin Ladi LGA, Plateau State, women. Cervical lesions were substantially linked with age, profession, contraceptive usage, and HPV infection. These findings emphasize the need for tailored cervical cancer screening and education initiatives to increase early diagnosis and lower regional cervical cancer risk.

6. RECOMMENDATIONS

1. There is need to the Plateau State ministry of Health to conduct extensive education campaigns on cervical cancer, its risk factors, and early detection. This should focus on rural and underprivileged women.

2. There is need for urgent Public health interventions should focus on jobless women and those with risk factors like contraceptive usage. Screen and counsel these groups first.

3. There is need improved access to healthcare especially in remote locations so as to access healthcare, particularly cervical lesion screening.

4. To minimize the long-term risk of cervical cancer in future generations, especially young women, policymakers should support HPV vaccination programs.

5. Further Research: To further understand cervical cancer risk in rural areas, HPV prevalence and cervical lesions should be studied.

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