Original Article

Knowledge of cervical cancer, its screening and risk factors among Women in Gbaiko Minna, Niger State, Nigeria

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ABSTRACT

Cervical cancer is the most common vaginal tract cancer in Nigeria and one of the leading causes of death among female population. Cancer of the cervix is preceded by a curable premalignant stage which can be detected by screening. The disease can also be prevented by Human papillomavirus vaccination. Women, who live in low-resource environment, have poor health behaviors and little understanding about reproductive health. These women have an increased risk of cervical cancer. In Gbaiko-Bosso LGA, Niger State, Nigeria, women's knowledge and practices regarding cervical cancer and cervical cancer screening was evaluated in this study. A total of 150 subjects were chosen using a convenience sampling technique. A series of structured questionnaires was used to gather the data. It recorded respondents' sociodemographic traits, knowledge of risk factors for cervical cancer, knowledge of cervical cancer screening and uptake of screening services. With a level of statistical significance set at $P < 0.05$, the data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 23. With a mean age of 29, the respondents were divided into 44.7% housewives, 27.3% students, 6.0% civil servants, and 22% farmers. A total of 17.3% of the participants had completed higher education. 86.7% respondents were ignorant of the risks factors associated with cervical cancer. Only 7.3% had taken a cervical cancer screening test, despite the fact that 12.7% of them were aware of the disease. According to the study, there is a lack of understanding about cervical cancer and cervical cancer screening among the respondents; as a result, there is a need for greater awareness-raising and health education initiatives on cervical cancer prevention among these women.

Key Words: Cervical cancer, Cancer Knowledge, Women, Cancer Screening, Risk Factors, Prevention.

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INTRODUCTION

Cervical cancer refers to the uncontrolled growth of cells originating in the cervix, which is the lower part of the uterus connecting to the vagina. The cervix comprises two main sections: the ectocervix, visible during gynecological exams and covered by flat, thin squamous cells, and the endocervix, a tubular structure linking the uterus and vagina

lined with mucus-secreting columnar glandular cells.

The squamocolumnar junction, where the ectocervix meets the endocervix, is the primary site where cervical cancer typically begins [1]. Research indicates that the Human Papillomavirus (HPV) causes over 90% of cervical cancer cases worldwide and contributes to 80% of precancerous abnormalities in the cervix [2]. HPV, a widespread sexually transmitted infection, can affect the genital area, throat, and skin. Almost all sexually active individuals, regardless of gender or orientation, contract HPV within a few years of becoming sexually active, usually without symptoms. While the immune system often clears the virus, persistent infection in some individuals can lead to abnormal changes in cervical cells, eventually resulting in cancer. This progression usually spans 15 to 20 years.

Cervical cancer generally develops slowly, beginning with cellular changes referred to as dysplasia. If left untreated, these abnormal cells may become cancerous and spread further into the cervix and surrounding regions [1]. In 2018, there were 570,000 new cases of cervical cancer and 311,000 related deaths, while in 2020, there were 604,000 new cases, this figure rose to approximately 660,000 by 2022 [3]. Cervical cancer remains the second most prevalent cancer among women in developing countries [4]. A significant disparity exists between high-income and low- to middle-income countries, where 94% of cervical cancer deaths occur. Regions such as Sub-Saharan Africa, South-East Asia, and Central America bear the highest burden of this disease [3]. Factors like inadequate access to vaccinations, screening, and treatment, as well as HIV prevalence, socioeconomic conditions, and gender disparities, contribute to these regional differences.

Females infected with HIV are more prone to cervical cancer than the general population, with the virus linked to 5% of global cases [5]. Sociocultural factors like early marriage, along with poverty adds to women's susceptibility to cervical cancer. Women in urban slums with limited resources and education are often less aware of cervical cancer and its prevention methods [6].

Globally, a female succumbs to cervical cancer every two minutes, and one in ten women is diagnosed with the disease [7]. Universal age-standardized incidence rate of the disease is estimated at 13.1 per 100,000 women, accompanied by significant regional variations, ranging from under 2 to 75 per 100,000 in parts of eastern, western, and southern Africa. Eswatini has the highest incidence, with 6.5% of women developing the disease before age 75. Globally, the average age of diagnosis is 53 years, ranging from 44 years in Vanuatu to 68 years in Singapore. Similarly, the global average age of death from cervical cancer is 59, with variations from 45 years in Vanuatu to 76 years in Martinique [8].

In Nigeria, approximately 60.9 million women aged 15 years and older are at risk of cervical cancer [9]. At any moment in time, approximately 3.5% of females in the society are infected with HPV-16 or 18, which are responsible for 66.9% of invasive cervical cancer cases. The incidence rate in Nigeria is approximately 250 cases per 100,000 females [10].

Cervical cancer is highly treatable due to its lengthy pre-invasive phase. Early detection and treatment are critical for reducing mortality. Population-wide

screening using Pap smears, a key secondary prevention strategy, significantly increases survival rates by identifying cancer early. In high-income countries with effective screening programs, up to 80% of cervical cancers can be prevented. However, limited access to widespread screening contributes to higher mortality rates in developing nations [11]. Given that women form a significant part of the population, it is essential to understand how specific sociodemographic factors influence their awareness, attitudes, and practices towards cervical cancer screening. Understanding community perspectives is a vital first step in promoting participation in screening programs.

The cervical cancer control program in Gbaiko, Minna, Niger State, and many other parts of the Country is not well-established. Many women are ignorant of the disease. Most women have never heard about cervical cancer screening. In government tertiary facilities, women who report with gynecological problems get opportunistic screening. Unfavourable outcomes arise because most occurrences of the disease are discovered late.

This study focused on the female population in Gbaiko, Niger State, examining their awareness of cervical cancer and cervical cancer screening practices. Enhancing awareness is a critical step toward improving screening participation, and understanding the traits of individuals with lower awareness can aid in designing targeted interventions. By expanding cervical cancer screening efforts, especially in underserved communities, more cases of invasive cervical cancer can be detected and treated.

MATERIALS AND METHODS

The study design was a descriptive cross-sectional study with the study population comprising of females aged 15 years and above residing in any of the communities in Gbaiko-Bosso LGA of Niger State, Nigeria. Inclusion criteria were all females aged 15 years and above residing in Gbaiko who gave consent. The exclusion criteria were all females residing in Gbaiko who refused to give consent and females below the age of 15. Convenience sampling technique was used to collect the required sample size for the study.

Stage 1: selection of communities: A purposeful sampling method was applied to select the two communities in Gbaiko Minna Niger State.

Stage 2: selection of households. Households were selected from each of the communities using systematic sampling method.

Stage 3: selection of Respondents. In each of the selected households, an eligible respondent for the study was selected for administration of the questionnaire, where there are many eligible respondents; one or two are selected randomly.

For Sampling tool, this study employed a self-administered, pre-tested questionnaire consisting of four sections: Section A (sociodemographic details), Section B (knowledge of cervical cancer and screening), Section C (risk factors for cervical cancer), and Section D (attitude toward cervical cancer screening). The questionnaire featured closed-ended questions written in English. Also, the Validity checks for face and content were conducted on the tool. The instrument was validated by subject-matter experts. The result of the reliability test carried out on

the questionnaire using the Cronbach's Alpha Coefficient showed that the instrument is statistically good for the research since the value of Cronbach's Alpha is equal to 0.938, the instrument have 94% efficiency to answer the research questions.

Data collection and analysis

Community volunteers facilitated the interpretation of the questionnaire for responders and gathered the necessary data. Chi-Square, mean score, and percentage were the statistical tools used in the investigation. $p < 0.05$ was set as the threshold for statistical significance.

The data collected from the surveys were presented in tables and analysed using percentages and frequency counts. SPSS version 23 was utilized for data analysis. All surveys were properly completed, collected, and deemed suitable for the study's objectives, resulting in a 100% return rate.

Table 1 presents the demographic information of the respondents. The majority of participants were between the ages of 15 and 40, with a mean age of 29. Regarding marital status, 5 (3.3%) were widowed, 3 (2.0%) were separated, 49 (32.7%) were single, and 93 (62.0%) were married. Only 26 (17.3%) had completed higher education. In terms of religion, 64 (42.7%) identified as Christians, while 86 (57.3%) were Muslims. The Gbagyi tribe was the largest group, comprising 101 (67.3%) of the respondents, with the remaining participants belonging to the Nupe, Hausa, Igbo, and Yoruba tribes. Employment data showed that 67 (44.7%) of the women were housewives, 41 (27.3%) were students, 18 (12%) worked in various businesses, 9 (6.0%) were civil servants, and 8 (6.6%) were farmers. On average, 121 (80.7%) of respondents earned less than #100,000 annually, while 23 (15.3%) earned between #100,000 and #500,000. None of the respondents smoked or consumed alcohol

RESULTS

Table 1 Socio-Demographic characteristics of the respondents (N = 150)

		Frequency	Percent (%)
Age (years)	15-20	20	13.3
	21-25	19	12.7
	26-30	20	13.3
	31-35	30	20.0
	36-40	27	18.0
	41-45	13	8.7
	46 and above	21	14.0
	Total	150	100
Marital Status	Single	49	32.7
	Married	93	62.0
	Separated	3	2.0
	Widowed	5	3.3
Educational Level	No formal Education	74	49.3
	Primary	12	8.0
	Secondary	38	25.3
	Tertiary	26	17.3
Religion	Islam	86	57.3
	Christianity	64	42.7

Ethnicity	Gbagyi	101	67.3
	Nupe	28	18.7
	Hausa	8	10.7
	Others	5	3.3
Occupation	Students	41	27.3
	Housewife	67	44.7
	Agriculture	8	6.6
	Business	18	12.0
	Civil servant	9	6.0
	Others	5	3.4
Average Income	< #100000	121	80.7
	#100000 - #500000	23	15.3
	#501000 - #2M	1	0.7
	#2.1 - #5M	4	2.7
	>#5M	1	0.7
Smoking	Never	150	100
Alcohol	Never	150	100

Knowledge of cervical cancer and cervical cancer screening

Table 2 presents the respondents' knowledge of cervical cancer and its screening in the study area. The majority of participants 87.30% were unaware of what cervical cancer is or how to screen for it. Only 7.3% of the respondents had undergone a cervical cancer screening test, while 12.7% were familiar with it. These findings indicate that there is a lack of sufficient knowledge about cervical cancer and its screening among the respondents in the study area.

Table 2: Respondents knowledge of cervical cancer and cervical cancer screening

	Yes	No	No Idea	FX	Mean
	(3)	(2)	(1)		
Have you ever heard of Cervical Cancer Have you ever heard of Cervical Cancer screening	19(12.7)	129(86.0)	2(1.3)	317	2.1133
	19(12.7)	129(86.0)	2(1.3)	317	2.1133
Have you ever had a Pap test? A Pap test is a genital (pelvic) examination performed by a physician	11(7.3)	138(92.0)	1(0.6)	310	2.0667
Healthy adult women should have a Pap tests every three years	19(12.7)	5(3.3)	126(84.0)	193	1.2867
Pap tests are not important for women aged 40 and above	1(0.7)	15(10.0)	134(89.3)	167	1.1133
Only women who have had many sexual partners need to have Pap tests	3(2.0)	14(9.3)	133(88.7)	170	1.1333
The purpose of a Pap tests is to detect early signs of cervical cancer	16(10.7)	0(0.0)	134(89.3)	182	1.2133

	Yes	No	No Idea		
Pap tests are necessary even if there is no family history of cervical cancer	17(11.3)	0(0.0)	133(88.7)	184	1.2267
Cervical cancer is curable if detected early	15(10)	0(0.0)	135(90.0)	180	1.2

Table 3 illustrates the respondents' awareness of the risk factors for cervical cancer in the study area. A substantial majority 92.7% of those surveyed were unaware of the risk factors associated with cervical cancer. The responses highlight a significant lack of knowledge regarding the risk factors for cervical cancer among the respondents in the study area.

Table 3: Respondents Knowledge of risk factors for cancer

	Yes	No	No Idea	FX	Mean
	(3)	(2)	(1)		
Human Papilloma Virus (HPV) infection	11(7.3)	11(7.3)	128(85.4)	183	1.22
Tobacco smoking	10(6.7)	14(9.3)	126(84)	184	1.2267
Multiple sexual partners	8(5.3)	16(10.7)	126(84)	182	1.2133
Early sexual activity	4(2.7)	18(12)	128(85.3)	176	1.1733
A weakened immune system	10(6.7)	15(10.0)	125(83.3)	185	1.2333
Other sexually transmitted infections	12(8.0)	13(8.7)	125(83.3)	187	1.2467
Family history of cervical cancer	10(6.7)	14(9.3)	126(84.0)	184	1.2267
Long term use of contraceptive	8(5.3)	13(8.7)	129(86.0)	179	1.1933

Table 4 presents the respondents history of Pap test. Majority of the respondents 92.66% have never screened for cervical cancer. Only few have participated in a Pap test screening at some points in their life.

Table 4: Respondents History of Pap test

When was the last time that you had a Pap test?	Frequency	Percentage
Never had one	139	92.66
In the last 12 months	3	2
In the last 3 years	5	3.33
More than 6 years ago	3	2
Total	150	100.0

Table 5 presents the respondents' frequency of Pap test screening. A substantial majority 92.66% have never participated in a Pap test screening, few 1.33% screens every three years, 2.0% screens every six years while 4% screens every seven years and above.

Table 5: Respondents Frequency of Pap test.

How often do you have a Pap test	Frequency	Percentage
Never had one	139	92.66
Every 3 years	2	1.33
Every 6 years	3	2.0
More than 7 years	6	4
Total	150	100.0

Age, educational level, and occupation all significantly affected the knowledge about cervical cancer and cervical cancer screening, as shown by Table 6, P-value of 0.045 for Pearson Chi-Square, which is below the 0.05 significance level. The idea that respondents' age, level of education, and line of work have no discernible impact on their awareness of cervical cancer and cervical cancer screening was thus disproved.

Table 6: Chi-Square Tests, showing significant influence of Age, Educational level and Occupation on the knowledge of Cervical Cancer and Cervical Cancer screening.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.720[a]	12	0.045
Likelihood Ratio	18.296	12	0.107
Linear-by-Linear Association	0.006	1	0.939
N of Valid Cases	150		

The results of the Chi-Square analysis are displayed in Table 7, which indicates that knowledge of the risk factors for cervical cancer is not significantly impacted by age, occupation, or educational attainment. According to the table, the P-value for Pearson Chi-Square is 0.964, which is greater than the 0.05 significant levels. This suggests that age, occupation, and educational attainment have no discernible effects on knowledge of the risk factors for cervical cancer.

Table 7: Chi-Square Tests, showing no significant influence of Age, Educational level and Occupation on the knowledge of risk factors for Cervical Cancer.

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.348[a]	27	0.964
Likelihood Ratio	17.430	27	0.920
Linear-by-Linear Association	4.963	1	0.026
N of Valid Cases	150		

a. 37 cells (92.5%) have expected count less than 5. The minimum expected count is 0.02.

DISCUSSIONS

This report highlights a significant gap in the knowledge of cervical cancer among women in the study area, with only 12.7% of respondents being aware of the disease. Similar trends have been observed in other regions, where awareness of cervical cancer and its prevention remains low, particularly among low-income women. For example, a study by Balogun *et al* [12] reported that only 4.2% of women in the urban slums of Lagos were aware of cervical cancer, while Bathija *et al* [13] found that just 7.5% of women in Old Hubli, Karnataka, India, had knowledge of the condition. In contrast, Ezenwa *et al* [14] found a much higher awareness rate of 79.6% among women in Lagos's Shomolu local government area, likely due to better access to health education.

The disparity in awareness between this study (12.7%) and the Shomolu study (79.6%) can be attributed to differences in educational levels and access to health information. In a study in Owerri, Imo State, about fifty two percent of the respondents were aware of cervical cancer screening, with 74.5% having received tertiary education [15]. The findings emphasize the importance of better public education campaigns about cervical cancer, using platforms such as the internet, media, and community outreach in religious and healthcare settings. It is crucial to engage qualified medical professionals to provide accurate and detailed information, which would empower women to make informed decisions.

Additionally, the study found that many respondents did not perceive themselves as being at risk for cervical cancer, with only 11.3% acknowledging potential risk. This is consistent with findings from Chinakaa *et al* [16], where only 11.1% of participants in a hospital setting in Abakaliki thought they were at risk.

The study also revealed very low participation in cervical cancer screening, with only 7.3% of respondents having undergone a cervical screening test. This is consistent with other studies in Nigeria, such as Balogun *et al* [12], which found no cervical cancer screenings in some Lagos slums, and Nwozor *et al* [17], which reported only 1.8% of participants in Onitsha had been screened. This low participation rate is consistent with the global trend of higher screening rates in wealthier countries. For example, in the UK, 91% of women have had at least one cervical cancer screening test [18]. Further compounding the issue, none of the study participants had received the HPV vaccine, nor had they vaccinated their daughters. This contrasts with a survey by Ugwu *et al* [19], where nearly half of female healthcare workers in Enugu had vaccinated their daughters, highlighting the role of better access to services and greater awareness in vaccine uptake.

To improve cervical cancer prevention, the study suggests that increasing female staffing, enhancing healthcare facilities, and reducing the costs of screening services could help boost participation.

Given the increasing incidence of cervical cancer-related morbidity and mortality, it is crucial that educational initiatives targeting women across all age groups be implemented to reduce the impact of this preventable disease.

CONCLUSION AND RECOMMENDATIONS

The survey revealed that only a small percentage of women were aware of the risk factors for cervical cancer, with the majority demonstrating insufficient

knowledge about the disease. Participation in both HPV vaccination and cervical cancer screening was extremely low. However, most respondents expressed willingness to participate in screening and to receive vaccination. This highlights a need for increased awareness and public education campaigns focused on cervical cancer using various channels such as health talks, town criers, phone calls, and SMS. For this underserved group, enhancing access to cervical cancer prevention programs is essential to improving health outcomes.

DECLARATIONS

Author's Contribution

JOF conceptualized the study, NUA assisted in the design of the study. JA, VOR and JA participated in the field work and data collection. OHU performed the data analysis and data interpretation. JOF prepared the manuscript, reviewed by NN, PA and AHO. All authors contributed to the development of the final manuscript and approved its submission.

Disclosure of Conflict of Interest

None

Ethics Approval and Informed Consent

Ethical approval for this study was granted by the Research Ethics Committee of National Open University of Nigeria and the Mai-Anguwan of the Gbaiko community in Bosso LGA Niger State. All participants were duly informed of the objectives of the study and signed an informed consent form. Participation was voluntary.

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