

Knowledge, Attitude, and Practice of Cervical Cancer Screening among Female Staff of Delta State University, Abraka, Nigeria: A Cross-Sectional Study.

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Abstract

Introduction: Cervical cancer remains a significant public health concern in Nigeria with significant mortality associated with poor screening uptake and late diagnosis. This study aimed to assess the knowledge, attitudes, and practices regarding cervical cancer screening among female staff at Delta State University, Abraka, Nigeria.

Methods: A cross-sectional study design and multistage sampling technique were utilized to collect data from 315 respondents using a researcher-administered questionnaire. Data was analysed using IBM-SPSS Statistics version 26. Descriptive and inferential analyses were performed, and the level of significance was set at $p < 0.05$.

Results: The mean age of respondents was 39 ± 8 years, and the majority were married (67%) and had a tertiary education (79%). Seventy-five-point nine percent of respondents reported awareness of cervical cancer, while 65.1% knew about screening tests, with the Pap smear being the most recognized test (61.6%). Overall, 47.9% of respondents had good knowledge of cervical cancer screening, 95.2% had a positive attitude towards screening, and only 21.3% had ever undergone screening. Awareness of cervical cancer ($p < 0.001$), knowledge of cervical cancer screening ($p = 0.003$), faculty ($p = 0.041$), type of employment ($p = 0.011$), and type of staff ($p = 0.003$) were significantly associated with the practice of cervical cancer screening.

Conclusion: There were poor knowledge and practice of cervical cancer screening among the study participants. However, there was a general positive attitude toward screening. It is therefore recommended that interventions to enhance cervical cancer screening should be tailored towards improving knowledge and accessibility to screening.

Keywords: Attitude; Cervical cancer; Delta State University; Knowledge; Practice; Screening.

1. Introduction

Cervical cancer is a leading public health concern globally, especially in low- and middle-income countries (LMICs), where it accounts for nearly 90% of cervical cancer-related mortality.¹ Ranked as the fourth most common cancer in women, it is projected to cause over 500,000 deaths annually by 2030, with Sub-Saharan Africa bearing the heaviest burden.² The disease primarily arises from persistent infection with high-risk human papillomavirus (HPV) types, particularly 16 and 18, which account for approximately 70% of global cases.^{3,4} Its long latency period allows for early intervention through screening, which can effectively detect precancerous changes and prevent progression to invasive cancer.⁵

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Despite the preventable nature of cervical cancer, multiple risk factors contribute to its persistence. These include early onset of sexual activity, multiple sexual partners, multiparity, prolonged use of oral contraceptives, smoking, immunosuppression (notably due to HIV), and sexual activity spanning over a decade.^{4,6} Cultural practices, socioeconomic disparities, and low health literacy further compound the risk.⁶

While awareness of cervical cancer is reportedly high among certain sub-populations in Nigeria, such as university students, a comprehensive understanding of screening procedures and personal risk remains low.^{7,8} These deficiencies in awareness are deeply rooted in societal beliefs and limited access to healthcare, significantly undermining timely diagnosis and treatment.⁸

Globally, 661,021 new cases and 348,189 deaths from cervical cancer were reported in 2022, with the majority occurring in LMICs.¹ In Africa, cervical cancer represents 22% of all female cancers, with countries such as Malawi and Zimbabwe experiencing the highest incidence rates worldwide.⁹ Nigeria ranks among the most affected nations, with an estimated 14,943 new cases and 10,403 deaths in 2020, and an age-standardized incidence rate of 27.2 per 100,000 women.^{10,11} These statistics reflect the systemic challenges of healthcare delivery in Nigeria, including inadequate infrastructure, weak policy implementation, and insufficient public health education.¹²

Although the World Health Organization (WHO) recommends routine cervical cancer screening for women aged 30 to 49 using Pap smears, HPV DNA testing, or visual inspection with acetic acid (VIA)², uptake in Nigeria remains alarmingly low at 2–15% which is far below the global target of 70%.⁸ This shortfall is attributed to multifaceted barriers, including economic hardship, limited access to screening centers, sociocultural myths linking screening to promiscuity, and fear of positive diagnoses.^{7,8} Alarmingly, even healthcare professionals, who are expected to be well-informed, display low screening participation, indicating that knowledge gaps persist across educational strata.¹³

In Nigeria, institutional challenges further impede preventive efforts. While the National Strategic Plan for Cancer Control (2023–2027) emphasizes expanding screening programs, implementation remains inconsistent.¹⁴ University environments, such as Delta State University (DELSU), Abraka, offer unique opportunities to study cervical cancer awareness and preventive practices among a presumed literate and accessible population. Yet, empirical evidence suggests otherwise. A study among DELSU and Niger Delta University students reported screening rates of only 0.8% and 12.1%, respectively, despite relatively high awareness levels^{15,16}. Similarly, nearly 90% of female civil servants in Jos had never undergone a Pap smear.¹⁷ These discrepancies reveal a troubling knowledge-attitude-practice (KAP) gap, even in educated populations.

There is a dearth of localized studies exploring cervical cancer screening behaviours among female university staff in Nigeria, a group presumed to have better access to health information and services. Existing literature disproportionately focuses on students or urban populations, overlooking women in semi-urban educational settings like DELSU, who may face unique structural and social barriers. Furthermore, little is known about how institutional culture and occupational roles influence screening uptake in academic environments. Addressing this gap is critical to developing targeted, context-specific, evidence-based interventions.

Understanding the KAP dynamics among female university staff is not only a public health imperative but also a strategic opportunity for advancing cancer control in LMICs. These women often serve as gatekeepers of information within their families and communities. Therefore, improving their knowledge and screening behaviours can yield cascading benefits. Additionally, findings from such studies can inform institutional health policies, including workplace screening initiatives and health education programs, which may be more cost-effective and sustainable in the long term.

This study thus investigates the knowledge, attitudes, and practices regarding cervical cancer and its screening among female staff at Delta State University, Abraka. The aim is to assess awareness levels, identify barriers to screening, and explore sociocultural determinants of preventive behaviours. Insights from this research will inform culturally sensitive and institutionally feasible strategies to enhance screening uptake, aligning with Nigeria's cancer control priorities and the WHO's global cervical cancer elimination agenda.²

2. Methodology

2.1. Study Area

This study was conducted in Delta State University (DELSU), Abraka, a multi-campus public university located in Ethiope East Local Government Area of Delta State, Southern Nigeria. Abraka, the host community, is a semi-urban town renowned for its academic and tourist attractions, including the Abraka Beach and natural spring waters. The university has the main campus in Abraka, and satellite campuses in Oleh, Warri, and Oghara, where the faculties of law, basic clinical sciences, and clinical medicine are located, respectively.¹⁸

The university has eleven faculties, namely: Basic Medical Sciences, Science, Social Sciences, Arts, Pharmacy, Agriculture, Education, Management Sciences, Law, Basic Clinical Science, and Clinical Medicine. It employs over 2,000 staff, with female staff constituting approximately 40% of the workforce.¹⁹ The university community reflects Nigeria's diverse ethnic composition, with predominant groups including Urhobo, Igbo, Isoko, and Yoruba. Healthcare services for staff are provided through the university's health center, which offers basic primary care but lacks specialized oncology or screening services¹⁹. Referrals for advanced care are made to the Delta State University Teaching Hospital (DELSUTH) in Oghara, about 45 kilometers away.

2.2. Study Design and Participants

A descriptive cross-sectional study design was employed to collect data from academic and non-academic female staff members of the Delta State University, Abraka campus, Delta State, between July and September 2024.

All consenting female staff of the University Abraka campus who were physically present were included in the study. Temporary or contract staff without formal university employment records were excluded from the study.

2.3. Sampling Procedure

A multistage sampling technique was employed to ensure representativeness across faculties and staff categories.

2.3.1. Stage 1: Faculty Stratification

All eleven faculties and administrative units at the Abraka campus were included. Administrative staff were categorized separately to account for non-academic roles.

2.3.2. Stage 2: Proportional Allocation

The sample size was proportionally allocated to each faculty based on the estimated number of female staff. Staff lists were obtained from human resources departments, with adjustments to avoid oversampling in departments with fewer than 10 female staff.

2.3.3. Stage 3: Systematic Random Sampling

Within each faculty, participants were selected using a sampling interval of 2. For example, if a faculty had 60 female staff, every second staff member on the alphabetically ordered list was selected until the allocated sample size for that faculty was reached. This method minimized selection bias while ensuring equal opportunity for inclusion.

2.4. Sample Size Determination

The minimum sample size for this study was calculated using Cochran's formula²⁰. Based on the prevalence of knowledge of cervical cancer of 75.9% from a previous study²¹. With an error margin of 5% and a standard normal deviate of 1.96 at a 95% confidence level, the minimum sample size was 287. Considering a non-response rate of 10%, the sample size for this study was increased to 315.

2.5. Study Instrument and Data Collection Method

Data collection was done using a pre-tested semi-structured researcher-administered questionnaire. The questionnaire consisted of four sections: respondents' socio-demographic characteristics, knowledge of cervical cancer, knowledge of cervical cancer screening, attitudes towards cervical cancer screening, and practice of cervical cancer screening tests. The questionnaire was validated by experts in the field who reviewed the study instrument to ensure face and content validity. To ensure reliability, the instrument was pretested among 20 female staff of the Federal University of

Petroleum Resources, Effurun, Delta State, which provided necessary feedback to refine the questions. The test-retest method was used, and the resulting correlation coefficient was 0.9, indicating high reliability.

2.6. Data Analysis and Management

The collected data were sorted and analyzed using IBM-SPSS version 26. Both descriptive and inferential statistics were done, and results were presented using frequency tables and cross-tabulations. Continuous variables were summarized using mean and standard deviation, and categorical variables were summarized using frequencies and percentages. Chi-square was used to test for significant association between independent and dependent variables, with level of significance set at $p < 0.05$. Knowledge and attitude were assessed by scoring, summing, and rating knowledge and attitude questions. Respondents having a total knowledge score of less than 50% were regarded as having poor knowledge, while 50% or above were considered as having good knowledge. Similarly, attitude was assessed using a Likert scale, with responses scored, summed, and rated as a negative (poor) attitude if less than 50% of the total attitude score, while a positive (good) attitude is equivalent to 50% or more.

2.7. Ethical Consideration

Ethical approval (HREC/PAN/2024/039/0652) for the study was obtained from the Health Research Ethics Committee of Delta State University Teaching Hospital, Oghara. Permission was also granted by the heads of the respective departments selected for the study. Informed consent was obtained from each participant prior to data collection. Participation was voluntary, and respondents were assured of the confidentiality and anonymity of their responses. The study was conducted in accordance with the principles of the Declaration of Helsinki.

3. Results

3.1. Socio-Demographics Characteristics

The mean age was 39 years, and the standard deviation was 8 years. Most respondents were Christians, 307 (97.8%), and married, 211 (67.0%). Most of the respondents were of Urhobo ethnic group 142 (45.1%), and Igbo 38 (12.1%). Majority 249 (79.0%) had tertiary education, 197 (62.9%) were non-academic staff, and 117 (37.3%) were academic staff. Most of the respondents, 203 (64.4%), were junior staff, while the remaining 112 (35.6%) were senior staff (Table 1).

3.2. Awareness and Knowledge of Cervical Cancer

Most respondents, 239 (76%), have heard about cervical cancer, while 76 (24%) have no knowledge about cervical cancer. The major sources of information regarding cervical cancer were the internet 105 (43.9%), mass media 94 (39.3%) and hospital 74 (31.0%). Overall, 161 (51.1%) respondents had good knowledge of cervical cancer while 154 (48.9%) had poor knowledge of cervical cancer (Tables 2a and 2b).

3.3. Knowledge of Cervical Cancer Screening

Most respondents 205 (65.1%) were aware of cervical cancer screening, of which 194 (61.6%) knew about pap smear test, 84 (26.8%) knew about HPV DNA testing, 32 (10.2%) knew about colposcopy, 23 (7.3%) knew about Visual inspection with acetic acid (VIA), and 22 (7.0%) knew about Visual inspection with Lugol's iodine (VILI). Most respondents, 128 (40.6%), knew that the suitable age for cervical cancer screening is above 21 years, while 235 (74.6%) knew that the interval between two consecutive screenings is between 3-5 years. Overall, 151 (47.9%) had good knowledge of cervical cancer screening, while 164 (52.1%) had poor knowledge of cervical cancer screening (Table 3).

3.4. Attitude towards Cervical Cancer Screening

A good majority of the respondents believed that cervical cancer screening was essential for sexually active women, 229 (73.2%), and were confident in the effectiveness of the cervical cancer screening tests to detect abnormalities or early signs of cancer, 226 (72.0%). More than half of the respondents, 171 (54.5%), did not see cervical cancer screening as conflicting with their religious beliefs. The majority of the respondents disagreed with the notion that cervical cancer screening was merely "looking for trouble," 183 (58.5%), and rejected the idea that cervical cancer screening implied promiscuity, 205 (65.3%). A few respondents agreed that the fear of results prevented them from screening, accounting for 44 (14.0%). In comparison, most of them disagreed with the statement that undergoing cervical cancer screening is not beneficial to health, 203 (64.3%). Overall, the majority of respondents, 300 (95.2%), had a positive (good) attitude toward cervical cancer (Table 4).

3.5. Practice of Cervical Cancer among Respondents

A vast majority of respondents, 248 (78.7%), have never undergone cervical cancer screening, while only 67 (21.3%) have participated in screening. Among those who have been screened (n=67), the main reasons for doing so were medical advice/recommendation (56.7%), availability of free screening (37.3%), and personal volition (3%); while 14.9% had no reason for undergoing screening. For those who have never undergone screening (n=248), the common reasons for not screening include not seeing the need for screening (41.5%), lack of awareness about cervical cancer screening (26.2%), concerns about the costs (22.2%), ignorance of places where screening is done (16.5%) and fear of outcome (13.7%). When asked about future screening intentions, 177 (56.1%) respondents expressed the intention to consider cervical cancer screening in the future, while 138 (43.8%) indicated they would not (Table 5).

3.6. Factors Associated with the Practice of Cervical Cancer Screening

Among those with good knowledge of cervical cancer screening, 51 (33.8%) respondents had undergone screening, and 100 (66.2%) had not. Similarly, among those with poor knowledge of cervical cancer screening, 16 (9.8%) had undergone screening and 148 (90.2%) had not. The association between knowledge of cervical screening and practice of cervical cancer screening was statistically significant ($\chi^2 = 27.084$; $p < 0.001$). Other significant factors associated with practice of cervical cancer screening include faculty with the Faculty of Basic Medical Science exhibiting the highest screening rate at 31.5% ($\chi^2 = 18.936$; $p = 0.041$); employment type with academic staff having a higher screening rate of 29.3% compared to 16.8% for non-academic staff ($\chi^2 = 6.412$; $p = 0.011$) and type of staff with senior staff having a higher screening rate (30.4%) compared to junior staff (16.3%) ($\chi^2 = 8.570$; $p = 0.003$) (table 6).

Table 1 Socio-demographic Characteristics of Respondents

Variable	Category	Frequency (n=315)	Percentage (%)
Age in years	18-29	45	14.3
	30-39	132	41.9
	40-49	99	31.4
	50-60	39	12.4
	Mean (SD)	39 (8)	
Marital status of respondents	Single	73	23.2
	Married	211	67
	Divorced	11	3.5
	Widowed	11	3.5
	Separated	9	2.9
Educational level of respondents	Primary	9	2.9
	Secondary	57	18.1
	Tertiary	249	79
Faculty of Respondents	Basic medical sciences	54	17.1
	Faculty of Science	67	21.3
	Faculty of Social Sciences	16	5.1
	Faculty of Arts	29	9.2
	Faculty of Pharmacy	6	1.9
	Faculty of Agriculture	13	4.1
	Faculty of Education	43	13.7
	Faculty of Management Sciences	15	4.8
	Basic clinical sciences	12	3.8

	Faculty of clinical medicine	13	4.1
	Administrative Staff	47	14.9
Employment type	Academics	118	37.5
	Non-academics	197	62.5
Staff type	Senior staff	112	35.6
	Junior staff	203	64.4
Religion	Christian	307	97.5
	Islam	6	1.9
	African traditional religion	2	0.6
Ethnicity	Igbo	38	12.1
	Ijaw	17	5.4
	Ika	8	2.5
	Isoko	33	10.5
	Itsekiri	9	2.9
	Ukwani	8	2.5
	Urhobo	158	50.2
	Yoruba	17	5.4
	Others	27	8.6
Number of children	0 – 2	194	61.6
	3 – 5	112	35.6
	6 – 8	7	2.2
	9 – 12	2	0.6

Table 2a Knowledge of Risk Factors of Cervical Cancer

Variables	Category	Frequency (n=315)	Percentage
Awareness of cervical cancer			
	Yes	239	75.9
	No	76	24.1
*Source of Information Regarding Cervical Cancer (n=239)	Friends/relatives	72	30.1
	Mass media (TV/Radio)	94	39.3
	Hospital	74	31.0
	Internet	105	43.9
	Religious organization	15	6.3
	Community outreach	13	5.4
	Educational lectures	51	21.3
	Books	31	13.0

Knowledge of Risk Factors of Cervical Cancer			
Early age at first sexual intercourse	Yes	145	46.0
	No	21	6.7
	I don't know	149	47.3
Multiple sex partners	Yes	177	56.2
	No	15	4.8
	I don't know	123	39.0
Never been pregnant	Yes	15	4.8
	No	79	25.1
	I don't know	221	70.2
Having many pregnancies	Yes	56	17.8
	No	50	15.9
	I don't know	209	66.3
Termination of pregnancies (e.g., abortion)	Yes	103	32.7
	No	40	12.7
	I don't know	172	54.6
Prolonged use of oral contraceptives	Yes	117	37.1
	No	26	8.3
	I don't know	172	54.6
Early age at first delivery.	Yes	77	24.4
	No	43	13.7
	I don't know	195	61.9
Prolonged use of condom	Yes	55	17.5
	No	50	15.9
	I don't know	210	66.7

*Multiple response

Table 2b Knowledge of Symptoms of Cervical Cancer

Variables	Category	Frequency (n=239)	Percentage (%)
Foul smelling vaginal discharge	Yes	151	47.9
	No	17	5.4
	I don't know	147	46.7
Headache	Yes	30	9.5
	No	93	29.5
	I don't know	192	61.0
Heavy vaginal bleeding	Yes	172	54.6
	No	12	3.8
	I don't know	131	41.6

Vomiting	Yes	42	13.3
	No	79	25.1
	I don't know	194	61.6
Vaginal bleeding in between menstrual periods	Yes	153	48.6
	No	17	5.4
	I don't know	145	46.0
Bleeding after menopause.	Yes	128	40.6
	No	15	4.8
	I don't know	172	54.6
Weight loss	Yes	80	25.4
	No	43	13.7
	I don't know	192	61.0
Abdominal/pelvic pain	Yes	131	41.6
	No	37	11.7
	I don't know	147	46.7
Breast discharge	Yes	28	8.9
	No	77	24.4
	I don't know	210	66.7
Overall knowledge of cervical cancer			
	Good knowledge	161	51.1%
	Poor knowledge	154	48.9%

Table 3 Knowledge of Cervical Cancer Screening

Variables	Category	Frequency (n=315)	Percentage
Have you heard about cervical cancer screening tests?	Yes	205	65.1
	No	108	34.3
	Do not know	2	0.6
Knowledge of specific methods of screening			
Pap Smear	Yes	194	61.6
	No	12	3.8
	Do not know	109	34.6
HPV DNA Testing	Yes	84	26.7
	No	39	12.4
	Do not know	192	60.9
Colposcopy	Yes	32	10.2
	No	47	14.9

	Do not know	236	74.9
Visual Inspection with Acetic Acid (VIA)	Yes	23	7.3
	No	44	14.0
	Do not know	248	78.7
Visual Inspection with Lugol's Iodine	Yes	22	7.0
	No	45	14.3
	Do not know	248	78.7
What age do you think is suitable for screening for cervical cancer?	Below 18	50	16.0
	Above 18	69	22.0
	Below 21	68	21.4
	Above 21	128	40.6
What is the interval between two consecutive screenings?	1-2 years	43	13.7
	3-5 years	235	74.6
	6-8 years	37	11.7
Is cervical cancer screening beneficial to women who are sexually active?	Yes	220	69.8
	No	16	5.1
	I don't know	79	25.1
Do you know where cervical cancer screening can be done?	Yes	164	52.2
	No	46	14.4
	I don't know	105	33.4
Overall knowledge of cervical cancer screening	Good knowledge	151	47.9
	Poor knowledge	164	52.1

Table 4 Attitude of Respondents towards Cervical Cancer screening

Variables	Category	Frequency (n=315)	Percentage
Cervical cancer screening is essential for women who are sexually active	Agree	229	73.2
	Neutral	66	20.8
	Disagree	20	5.8
I am confident in the ability of cervical cancer screening tests to detect potential abnormalities or early signs of the cancer	Agree	226	72.0
	Neutral	73	23.2
	Disagree	15	4.8
Cervical cancer screening tests are against my religious and cultural beliefs	Agree	30	9.5
	Neutral	113	36.0
	Disagree	172	54.5
Undergoing cervical cancer screening is merely looking for trouble	Agree	24	7.7
	Neutral	106	33.9

	Disagree	185	58.4
Undergoing cervical cancer screening shows that a woman is promiscuous	Agree	22	7.0
	Neutral	87	27.7
	Disagree	205	65.3
Fear of the results has prevented me from undergoing cervical cancer screening	Agree	44	14.0
	Neutral	143	45.5
	Disagree	128	40.5
Undergoing cervical cancer screening is not beneficial to your health	Agree	27	8.6
	Neutral	85	27.1
	Disagree	203	64.3
Overall Attitude towards Cervical Cancer Screening	Positive	300	95.2
	Negative	15	4.8

Table 5 Practice of Cervical Cancer Screening among Respondents

Variables	Categories	Frequency (n=315)	Percentage (%)
Have you ever undergone cervical cancer screening? (n=315)	Yes	67	21.3
	No	248	78.7
*Reasons for cervical cancer screening (n=67)	The screening was free	25	37.3
	Based on medical advised/recommendation	38	56.7
	Personal volition	2	2.9
	No reason	10	14.9
Have you ever experienced any discomfort or concerns during a cervical cancer (n=67)	Yes	14	21.0
	No	53	79.0
*Reasons for not screening (n= 248)	I have never heard about Cervical cancer screening	65	26.2
	I did not see the need	103	41.5
	I do not know where the screening is done	41	16.5
	I think it is very expensive	55	22.2
	I think I am underaged	21	8.5
	I think I've passed the age	19	7.7
	I'm afraid of the outcome	34	13.7
	It is embarrassing	17	6.9
	Personal reasons	4	1.6
	I am healthy	2	0.8
	No specific reason	8	3.2

Do you consider cervical cancer screening in future (n=315)	Yes	177	56.1
	No	138	43.8

*Multiple response

Table 6 Factors associated with Practice of Cervical Cancer Screening

Variables	Screened (%)	Not screened (%)	X ²	P-value
Age in years			6.036	0.110
18-29	8(17.8)	37(82.2)		
30-39	21(16.0)	110(84.0)		
40-49	26(26.3)	73(73.7)		
50-60	12(30.8)	27(69.2)		
Marital status			2.771	0.597
Single	13(18.1)	59(81.9)		
Married	50(23.7)	161(76.3)		
Divorced	1(9.1)	10(90.9)		
Widowed	2(18.2)	9(81.8)		
Separated	1(11.1)	8(88.9)		
Educational level			5.671	0.059
Primary	1(11.1)	8(88.9)		
Secondary	6(10.5)	51(89.5)		
Tertiary	60(24.1)	189(75.9)		
Faculty*			18.936	0.041
Basic Medical Science	17(31.5)	37(68.5)		
Faculty of Science	13(19.7)	53(80.3)		
Faculty of Social Sciences	2(12.5)	14(87.5)		
Faculty of Arts	6(20.7)	23(79.3)		
Faculty of Pharmacy	3(50.0)	3(50.0)		
Faculty of Agriculture	3(23.1)	10(76.9)		
Faculty of Education	7(16.3)	36(83.7)		
Faculty of Management Sciences	3(20.0)	12(80.0)		
Basic clinical science	1(8.3)	11(91.7)		
Clinical medicine	7(53.8)	6(46.2)		
Administrative Staff	5(10.6)	42(89.4)		
Employment type*			6.412	0.011
Academic	34(28.8)	84(71.2)		
Non academic	33(16.8)	164(83.2)		
Staff type*			8.570	0.003
Senior staff	34(30.4)	78(69.6)		
Junior staff	33(16.3)	170(83.7)		
Religion			2.218	0.330
Christian	67(21.8)	240(78.2)		
Islam	0(0.0)	6(100.0)		
African traditional religion	0(0.0)	2(100.0)		
Awareness of cervical cancer*			20.779	<0.001

Yes	65(27.2)	174(72.8)		
No	2(2.8)	74(97.4)		
Knowledge of cervical cancer screening *			27.084	<0.001
Poor knowledge	16(9.8)	148(90.2)		
Good knowledge	51(33.8)	100(66.2)		
Attitude toward cervical cancer screening*			0.199	0.655
Negative attitude	2(13.3)	13(86.7)		
Positive attitude	65(21.7)	235(78.3)		
Number of children			3.520	0.318
0-2	39(20.1)	155(79.9)		
3-5	28(25.0)	84(75.0)		
6-8	0(0.0)	7(100.0)		
9-12	0(0.0)	2(100.0)		

*Significant at $p < 0.05$

4. Discussion

The sociodemographic profile of participants in this study offers a critical context for interpreting cervical cancer screening behaviours. The mean age (39 years) places respondents within WHO's recommended screening cohort (30–49 years).²² The predominance of married respondents (67.0%) diverges from urban studies in Lagos, where 61.9% were single.²³ The high proportion of tertiary-educated participants (79.0%) contrasts sharply with Nigerian national surveys, where only 15% of women have post-secondary education. However, this aligns with university-based studies, in which 68% of female university staff in the Niger Delta had tertiary qualifications.²⁴

This study revealed that a vast majority of participants were aware of cervical cancer, and only about half of the respondents demonstrated good knowledge of risk factors and symptoms, aligning with studies in Lagos,²³ and Ethiopia.²⁵ This finding implies that awareness is rarely translated into a comprehensive understanding. For instance, 54.6% of respondents were unaware that postmenopausal bleeding is a symptom, mirroring findings in other parts of Nigeria where knowledge of risk factors is low.²⁶ Similarly, more than half of the respondents were unaware that foul-smelling vaginal discharge and early sexual debut are symptoms and risk factors of cervical cancer, respectively. This finding corroborates previous studies in Lagos²³ and Saudi Arabia.²⁷ The most common sources of information in this study regarding cervical cancer were the internet and mass media, which agrees with a previous study in Nigeria, where the major source of information was electronic media such as the internet, radio, and television.²³ Thus, these channels should be utilized more in disseminating critical information regarding cervical cancer and its screening. Although about three-quarters of respondents were aware of cervical cancer, only slightly more than two-thirds were aware of its screening, while fewer participants were aware of specific screening methods. The most common screening methods that participants were aware of included Pap smear (61.6%), HPV DNA Testing (26.7%), and colposcopy (10.2%). The implication of this finding is that simpler, less invasive procedures like VIA and VILI, which could be done in primary health centres, were less popular as a method of screening. This underscores the need for awareness campaigns regarding cervical cancer screening with VIA to improve screening rates as well as knowledge of symptoms and risk factors.

A striking majority of respondents held a positive attitude toward screening, consistent with several international and local studies, for example, in Saudi Arabia, where 84.8% of female health professionals acknowledged the importance of screening.²⁷ Fear of results (14.0%) and cultural stigma linked screening to promiscuity (7.0%) emerged as key deterrents, consistent with barriers identified in rural Uganda²⁸ and Northern Nigeria.²⁹ This finding implies that the study participants have a good attitude towards screening and will easily embrace it if made available on campus.

Despite the overwhelmingly positive attitudes, less than a quarter had undergone screening, highlighting systemic and sociocultural barriers such as cost, fear of results, and stigmatization. However, the screening rate of 21.3% observed in this study exceeds Nigeria's national average of 1.6%–15%, but mirrors 26.2% in Saudi Arabia, and pales in comparison to rates in Ethiopia (38.1%) and Brazil (75%).^{8,27,30-31} This disparity underscores the influence of country-specific healthcare infrastructure. For example, Brazil's Unified Health System provides free screening, while Ethiopia's

community health worker model improves access in rural areas. Conversely, Nigeria's reliance on donor-funded campaigns creates fragmented, unsustainable services. The observation that less than a quarter of respondents had participated in screening, while more than half expressed willingness to consider screening in the future, highlights a low current participation rate in cervical cancer screening but a high willingness to screen in the future. Thus, interventions can be targeted at translating willingness to screen into actual screening by making screening facilities readily available in the university health facility.

Furthermore, financial constraints (22.5%) and lack of information (26.6%) were predominant barriers, reflecting broader systemic failures in Nigeria's healthcare system. Similar findings were reported in Lagos slums, where only 0.7% of women could access screening.³² Unlike high-income countries like the UK, where free national screening programs achieve up to 85.7% coverage³³, Nigeria's out-of-pocket payment model excludes low-income populations. Additionally, the absence of onsite screening facilities at DELSU forced staff to travel 45 km to DELSUTH, exacerbating inequities for non-academic staff and junior staff, respectively, and thus could account for the higher proportion of unscreened respondents among these categories of staff.

With regards to factors influencing screening practices, a striking disparity emerged across employment categories and faculties, with academic and medical faculty staff showing significantly higher screening rates. This observation underscores the role of occupational exposure to health information and health behaviour. The finding that Academic staff and Basic Medical Science faculty members had significantly higher screening rates also corroborates a previous study conducted among students at Delta State University.¹⁶ It also echoes trends among educated women in northern India.³⁴ This highlights the role of occupational exposure to medical information in driving preventive behaviour. However, even within this educated cohort, screening uptake lagged behind figures from Ethiopia (38.1%) and India (30.9%)^{30,34}, suggesting that institutional policies such as mandatory health check-ups or onsite screening could further bridge gaps.

The findings of this study have challenged the assumption that education alone guarantees preventive health behaviours, emphasizing the need for targeted interventions. To bridge the knowledge-practice gap, we recommend institutional policies that prioritize subsidized screening, culturally sensitive education campaigns to dismantle stigma, and integration of HPV vaccination into workplace health programs. Addressing these barriers aligns with Nigeria's National Strategic Plan for Cancer Control and global efforts toward the WHO's 2030 cervical cancer elimination targets. By empowering educated populations to translate awareness into action, this study advocates for a holistic approach that combines individual, institutional, and policy-level strategies to reduce cervical cancer burden in Nigeria.

Limitations

This study focused solely on the female staff of Delta State University, Abraka, and may limit generalization to the state and Nigeria at large.

5. Conclusion

This study underscores a critical dissonance between awareness and practice in cervical cancer prevention among female staff at Delta State University Abraka, Nigeria. Although a large proportion of participants were aware of cervical cancer, only half demonstrated comprehensive knowledge of its risk factors and symptoms, revealing significant gaps in health literacy. Despite the overwhelmingly positive attitudes towards screening, only a few had undergone screening. The significant factors associated with screening practices include faculty, employment type, staff type, awareness of cervical cancer, and knowledge of cervical cancer screening. We therefore recommend workplace screening, increased funding to subsidize screening, and culturally sensitive education campaigns as part of efforts to enhance overall knowledge and accessibility to cervical cancer screening.

Compliance with Ethical Standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Ethical approval (HREC/PAN/2024/039/0652) for the study was obtained from the Health Research Ethics Committee of Delta State University Teaching Hospital, Oghara. Permission was also granted by the heads of the respective departments selected for the study.

Statement of informed consent

Informed consent was obtained from each participant prior to data collection. Participation was voluntary, and respondents were assured of the confidentiality and anonymity of their responses. The study was conducted in accordance with the principles of the Declaration of Helsinki.

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Availability of research data

Authors are available and ready to supply the data upon any requests through the corresponding author.

Authors' Contribution

IME, MIN, HVA, and NSA conceptualized and designed the study. EOO, OEO, POO, and OOO were involved in data collection/acquisition; IME, MIN, HA, and NSA analyzed the data. All authors (IME, MIN, HVA, NSA, EOO, OEO, POO, and OOO) were involved in writing and revising the manuscript for intellectual content. All authors read and approved the final manuscript and agreed to be accountable for all aspects of the work.

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