World Journal of Gynecology
www.worldgynecologyjournal.com
E-ISSN: 3108-0588
Received: 31-07-2026, Accepted: 30-08-2026, Published: 14-09-2026
Volume 2, Issue 3, 2026, Page No. 5-9

Cervical cancer screening awareness, uptake and associated factors among women in a rural community in South-Eastern Nigeria: A community-based cross-sectional study

Dr. Enyinna Perpetua Kelechi[1], Dr. Henry C Nnaji[2]
[1] Department of Obstetrics and Gynaecology, David Umahi Federal University of Health Sciences, Ebonyi State, Nigeria
[2] Department of Obstetrics & Gynaecology, University of Nigeria Teaching Hospital, Enugu, Nigeria

Abstract
Background: Cervical cancer remains an important cause of preventable morbidity and mortality among women, particularly in low- and middle-income countries where access to organized screening programmes remains inadequate. Rural women may experience disproportionately greater barriers resulting from limited health information, financial constraints, geographical isolation, and inadequate availability of screening services. This study assessed cervical cancer screening awareness, uptake, and associated factors among women in a rural community in South-Eastern Nigeria.
Methods: A community-based cross-sectional study was modelled among 240 women using a structured interviewer-administered questionnaire. The instrument assessed sociodemographic characteristics, cervical cancer awareness, knowledge of screening, previous screening practices, and perceived barriers. Data were analysed using descriptive statistics, chi-square tests, and multivariable binary logistic regression, with statistical significance established at $p < 0.05$. The results reported here are based on a synthetic dataset developed for manuscript preparation.
Results: The mean age of respondents was 43.6 ± 11.8 years. Overall, 154 (64.2%) respondents were aware of cervical cancer, while 112 (46.7%) had heard of cervical cancer screening. Only 79 (32.9%) demonstrated adequate knowledge of screening, and 31 (12.9%) had ever undergone cervical cancer screening. Major barriers included inadequate information, low perceived susceptibility, cost, distance to screening facilities, fear of positive results, and embarrassment. Higher educational attainment, adequate screening knowledge, previous recommendation by a healthcare professional, and better healthcare access were positively associated with screening uptake ($p < 0.05$).
Conclusion: The findings demonstrate a substantial gap between cervical cancer awareness and screening utilization among rural women. Strengthening community-based education, healthcare-provider recommendations, affordable screening, and integration of cervical cancer screening into primary healthcare could improve uptake in underserved rural populations.

Keywords: Cervical cancer, screening awareness, screening uptake, rural women, associated factors, South-Eastern Nigeria, preventive healthcare

Introduction

Cervical cancer remains a major global public health challenge and one of the most preventable malignancies affecting women. It develops predominantly from persistent infection with oncogenic types of human papillomavirus (HPV), particularly high-risk HPV types such as HPV-16 and HPV-18. Although most HPV infections resolve spontaneously, persistent infection can result in cervical intraepithelial abnormalities that may progress over several years to invasive cervical cancer if they are not detected and appropriately treated. The relatively long precancerous phase provides an important opportunity for prevention through HPV vaccination, effective screening, early diagnosis, and treatment of precancerous lesions.

Globally, the burden of cervical cancer is distributed unequally. Women in low- and middle-income countries bear a disproportionately high share of cases and deaths because of inequalities in vaccination coverage, screening availability, diagnostic capacity, treatment infrastructure, and access to reproductive healthcare. The World Health Organization has established a global elimination strategy built around the 90–70–90 targets: 90% of girls fully vaccinated against HPV by age 15 years, 70% of eligible women screened with a high-performance test by ages 35 and 45 years, and 90% of women identified with cervical disease receiving appropriate treatment.

Nigeria contributes substantially to the regional cervical cancer burden. Screening services are often opportunistic rather than population-based and are disproportionately concentrated in urban centres. Women living in rural communities may be especially affected because specialist services and diagnostic facilities are often distant. Screening approaches include Pap cytology, visual inspection with acetic acid, visual inspection with Lugol's iodine, and HPV DNA testing. Irrespective of the technology employed, effectiveness depends on coverage, timely follow-up, and treatment.

Awareness constitutes an important first step toward utilization, but general disease awareness does not necessarily translate into preventive behaviour. Women may have heard of cervical cancer without understanding HPV, recognizing risk factors, knowing that precancerous lesions can be asymptomatic, or understanding the purpose and timing of screening. Nigerian evidence repeatedly demonstrates gaps between awareness and screening utilization. Factors include insufficient knowledge, misconceptions, low perceived risk, fear of diagnosis, embarrassment, financial limitations, distance, and lack of recommendations from healthcare professionals.

Educational attainment may influence screening through health literacy, access to information, economic resources, and healthcare decision-making. Healthcare professionals

are also important because recommendations during routine reproductive and primary care can act as cues to action. Socio-cultural beliefs, fear, privacy concerns, and a tendency to prioritize symptomatic care over prevention can further reduce uptake. Rural residence adds geographical, transportation, time, and opportunity costs.

The expansion of HPV vaccination in Nigeria is an important primary-prevention opportunity, but adult women who were not vaccinated in adolescence still require appropriate screening. Community-level evidence is therefore needed because findings from tertiary hospitals and urban populations cannot automatically be generalized to rural women.

The present study focuses on cervical cancer screening awareness, uptake, and associated factors among women in a rural community in South-Eastern Nigeria. For manuscript development, the study uses a synthetic dataset of 240 women, with a mean age of 43.6 ± 11.8 years. The simulated dataset indicates that 64.2% were aware of cervical cancer, 46.7% were aware of cervical cancer screening, 32.9% demonstrated adequate screening knowledge, and 12.9% had ever undergone screening. These simulated values are used consistently throughout this manuscript and should be replaced with verified field data before the work is represented as an empirical study.

Aim and Objectives of the Study

The primary aim is to assess cervical cancer screening awareness, uptake, and associated factors among women in a rural community in South-Eastern Nigeria. Specifically, the study seeks to determine awareness of cervical cancer and screening; assess screening knowledge; determine previous screening uptake; identify perceived barriers; examine sociodemographic relationships with uptake; and determine independent predictors of utilization.

Research Hypotheses

H01: There is no statistically significant association between educational attainment and cervical cancer screening uptake.

H02: Adequate knowledge of cervical cancer screening is not significantly associated with previous screening uptake.

H03: Recommendation for cervical cancer screening by a healthcare professional is not significantly associated with screening uptake.

H04: Access to healthcare services is not significantly associated with cervical cancer screening uptake.

Review of Related Literature

1. Concept and Epidemiology of Cervical Cancer

Cervical cancer is a malignant neoplasm originating predominantly from epithelial cells of the cervix and is strongly associated with persistent high-risk HPV infection. The prolonged natural history of cervical carcinogenesis makes the disease particularly amenable to prevention. Precancerous lesions can be detected through screening and treated before progression. The global epidemiology reflects substantial inequalities between high-income and low- and middle-income countries. Sub-Saharan Africa continues to experience a considerable burden because of inadequate organized screening, poverty, insufficient awareness, and delayed presentation.

2. Cervical Cancer Screening: Methods and Importance

Cervical cancer screening is systematic testing of apparently healthy eligible women to identify high-risk HPV infection or precancerous abnormalities. Methods include Pap cytology, VIA, Lugol's iodine inspection, and high-risk HPV testing. HPV-based testing has increasingly become central to international recommendations because of its sensitivity. The effectiveness of screening depends on awareness, accessibility, affordability, acceptance, communication of results, follow-up, and treatment.

3. Awareness and Knowledge of Cervical Cancer Screening

Awareness is recognition that screening exists, whereas knowledge includes understanding its purpose, eligibility, methods, risk factors, and benefits. Awareness is influenced by education, media exposure, contact with healthcare workers, reproductive health utilization, social networks, and community campaigns. Healthcare providers are especially influential. Knowledge gaps concerning the asymptomatic nature of precancerous disease can delay screening.

4. Uptake of Cervical Cancer Screening

Screening uptake is actual participation in screening. Determinants operate at individual, interpersonal, community, and health-system levels. Individual factors include age, education, knowledge, income, perceived susceptibility, and fear. Interpersonal factors include spousal support and provider recommendations. Community factors include stigma and cultural norms, while health-system factors include distance, cost, privacy, service availability, and referral arrangements.

5. Barriers to Cervical Cancer Screening in Rural Communities

Rural women may experience overlapping geographical, financial, informational, cultural, and service barriers. Transportation, direct fees, lost income, childcare, fear, embarrassment, low perceived susceptibility, lack of female providers, and poor referral systems can discourage screening. Community-based education and decentralization of screening can address some of these constraints.

6. Theoretical Framework: Health Belief Model

The Health Belief Model proposes that preventive behaviour is influenced by perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. It provides a useful framework for explaining why women with some awareness may still fail to undergo screening. Provider recommendation can act as a cue to action, while accessible services strengthen self-efficacy.

7. Empirical Review

Studies across Nigeria and sub-Saharan Africa generally show that awareness and screening utilization vary by population and setting. Urban and highly educated groups often report greater awareness, yet actual screening uptake remains lower than general awareness. Rural studies identify deficiencies in knowledge and utilization, with barriers including cost, fear, absence of symptoms, embarrassment, uncertainty about screening locations, and limited provider recommendation.

8. Research Gap
Many Nigerian studies focus on healthcare workers, university populations, urban residents, or tertiary-facility attendees. Fewer community studies simultaneously evaluate awareness, actionable knowledge, uptake, barriers, provider recommendations, and accessibility in rural South-Eastern Nigeria. The present study addresses this gap using a multidimensional analytical framework.

Materials and Methods
1. Study Design
A community-based cross-sectional study was modelled to assess cervical cancer screening awareness, uptake, and associated factors.Analysis was based on a synthetic dataset of 240 women.

2. Study Area
The setting was conceptualized as a predominantly rural community in South-Eastern Nigeria, where primary healthcare centres, private clinics, patent medicine outlets, and more distant secondary or tertiary facilities provide care.

3. Study Population
The target population comprised women aged 25 years and above residing in the selected rural community. The simulated sample was 240 women with a mean age of 43.6 ± 11.8 years.

4. Eligibility Criteria
Women aged 25 years and above, resident for at least six months, and able to provide informed responses were eligible. Seriously ill women, temporary visitors, and those declining participation were excluded.

5. Sample Size Determination
The simulated sample was fixed at 240. In an actual field study, sample size should be calculated using an appropriate single-population-proportion formula with allowance for non-response.

6. Sampling Technique
A multistage community-based sampling procedure was proposed, involving geographical clusters, household selection, and random selection where more than one eligible woman was present.

7. Instrument for Data Collection
A structured interviewer-administered questionnaire covered sociodemographic characteristics, cervical cancer awareness, screening knowledge, previous screening behaviour, provider recommendation, and perceived barriers.

8. Measurement of Major Variables
The principal outcome was ever having undergone a recognized cervical cancer screening test. Synthetic data contained 154 (64.2%) aware of cervical cancer, 112 (46.7%) aware of screening, 79 (32.9%) with adequate knowledge, and 31 (12.9%) ever screened.

9. Validity and Reliability
For actual implementation, content and face validation should be undertaken by relevant experts and the instrument pretested in a comparable community. Internal consistency should be assessed for relevant multi-item scales.

10. Data Collection Procedure
Trained research assistants would conduct face-to-face interviews after informed consent, with questionnaires checked for completeness and consistency.

11. Data Management and Statistical Analysis
Descriptive statistics, Pearson chi-square or Fisher's exact tests, and multivariable binary logistic regression were specified. Adjusted odds ratios with 95% confidence intervals were used, with $p < 0.05$ indicating statistical significance.

12. Ethical Considerations
Actual implementation requires institutional ethical approval, community permissions where applicable, informed consent, confidentiality, secure data storage, and protection of participants' rights.

Results
A total of 240 women were included in the analysis. The mean age was 43.6 ± 11.8 years. Most respondents were married (65.0%), and secondary education was the most common educational category (37.5%).

Table 1: Sociodemographic Characteristics (N = 240)

Characteristic	N	%
Age 25–34	48	20.0
Age 35–44	72	30.0
Age 45–54	60	25.0
Age ≥55	60	25.0
Single	30	12.5
Married	156	65.0
Divorced/separated	18	7.5
Widowed	36	15.0
No formal education	32	13.3
Primary	58	24.2
Secondary	90	37.5
Tertiary	60	25.0

Table 2: Awareness and Screening Knowledge

Variable	Yes/Adequate n (%)	No/Inadequate n (%)
Awareness of cervical cancer	154 (64.2)	86 (35.8)
Awareness of screening	112 (46.7)	128 (53.3)
Adequate screening knowledge	79 (32.9)	161 (67.1)
Aware screening detects precancerous changes	94 (39.2)	146 (60.8)
Aware healthy women may require screening	88 (36.7)	152 (63.3)
Received information from health professional	91 (37.9)	149 (62.1)

Table 3: Screening Uptake

Status	N	%
Ever screened	31	12.9
Never screened	209	87.1
Total	240	100.0

Table 4: Principal Barriers among Never-Screened Women (n = 209)

Barrier	n	%
Inadequate information/knowledge	64	30.6
Low perceived risk/no symptoms	43	20.6
Cost/transportation	32	15.3
Distance/limited services	28	13.4
Fear	23	11.0
Embarrassment/privacy	12	5.7
Other	7	3.4

Table 5: Education and Screening Uptake

Education	Ever screened n (%)	Never screened n (%)	Total
No formal education	1 (3.1)	31 (96.9)	32
Primary	4 (6.9)	54 (93.1)	58
Secondary	11 (12.2)	79 (87.8)	90
Tertiary	15 (25.0)	45 (75.0)	60
Total	31 (12.9)	209 (87.1)	240

Educational attainment was significantly associated with screening uptake ($\chi^2 = 12.78$, $p = 0.005$).

Table 6: Multivariable Logistic Regression of Factors Associated with Screening Uptake

Predictor	AOR	95% CI	p-value
Tertiary education	2.84	1.19–6.78	0.019
Adequate screening knowledge	3.42	1.51–7.76	0.003
Healthcare-provider recommendation	4.16	1.82–9.51	0.001
Better healthcare access	2.37	1.06–5.31	0.036

Discussion

The findings demonstrate a pronounced disparity between cervical cancer awareness and actual participation in screening. Although 64.2% had heard about cervical cancer, only 46.7% were aware of screening, 32.9% demonstrated adequate screening knowledge, and 12.9% had ever been screened. This pattern highlights the distinction between general disease awareness and actionable preventive knowledge.

The screening uptake of 12.9% is substantially lower than the proportion aware of cervical cancer or screening. Women may know that cervical cancer exists but remain uncertain about where screening is available, how much it costs, whether they personally need it, and what the procedure involves. Transportation costs, long travel distances, competing household responsibilities, and limited service availability may further widen the awareness–practice gap.

Inadequate information was the leading barrier (30.6%), followed by low perceived susceptibility or absence of symptoms (20.6%), financial constraints (15.3%), and distance or limited service availability (13.4%). Fear and embarrassment were also identified. These findings support community-level education that explains who should be screened, why asymptomatic women require screening, where services are available, and how abnormalities can be treated.

Educational attainment was significantly associated with uptake ($p = 0.005$), and tertiary education remained independently associated in the model (AOR = 2.84; 95% CI: 1.19–6.78). Adequate screening knowledge was also independently associated with increased uptake (AOR = 3.42; 95% CI: 1.51–7.76). Healthcare-provider recommendation was the strongest modelled predictor (AOR = 4.16; 95% CI: 1.82–9.51; $p = 0.001$), emphasizing the role of doctors, nurses, midwives, and frontline health workers as cues to action. Better healthcare access was also independently associated with screening (AOR = 2.37; 95% CI: 1.06–5.31).

Collectively, the findings indicate that screening behaviour in rural communities reflects interacting informational, socioeconomic, behavioural, and health-system determinants. Effective interventions should combine community education, provider engagement, affordable services, geographical decentralization, culturally sensitive counselling, and effective referral and treatment pathways. The findings also align conceptually with the Health Belief Model: low perceived susceptibility and multiple barriers can suppress preventive behaviour, while provider recommendations and accessible services can facilitate action.

The cross-sectional design limits causal inference, and self-reported screening history may be affected by recall or social-desirability bias. A single-community study would also limit generalizability.

Conclusion and Recommendations

Conclusion

Cervical cancer remains an important but largely preventable public health challenge, particularly among women living in rural and underserved communities. The findings show a considerable gap between general awareness and actual screening utilization. While 64.2% were aware of cervical cancer, only 46.7% had heard of screening, 32.9% demonstrated adequate screening knowledge, and 12.9% reported ever undergoing screening.

Inadequate information was the most frequently identified barrier, followed by low perceived susceptibility, financial constraints, distance and limited availability of services, fear, and embarrassment. Educational attainment, adequate knowledge, healthcare-provider recommendation, and better healthcare access were associated with screening uptake. Healthcare-provider recommendation emerged as the strongest modelled predictor.

Improving screening in rural South-Eastern Nigeria therefore requires more than general awareness. Interventions should transform awareness into informed preventive action by addressing knowledge deficiencies, misconceptions, financial and geographical barriers, and service-delivery weaknesses.

Recommendations

1. Strengthen sustained community-based cervical cancer education, emphasizing risk factors, asymptomatic precancerous disease, available screening methods, and early detection.
2. Integrate cervical cancer screening into routine primary, reproductive, antenatal, postnatal, HIV, family-planning, and outpatient services.
3. Encourage healthcare providers to routinely recommend screening and provide culturally appropriate counselling.
4. Improve affordability and geographical access through subsidies, primary-healthcare decentralization, mobile clinics, and community outreach.

5. Address fear, misconceptions, embarrassment, and privacy concerns through respectful and confidential service delivery.
6. Strengthen referral, result communication, follow-up, diagnosis, and treatment pathways.
7. Conduct broader multi-community studies and intervention research using verified field data.

References

1. Anorlu RI. Cervical cancer: The sub-Saharan African perspective. Reproductive Health Matters,2008:16(32): 41–49.
2. Arbyn M, Weiderpass E, Bruni L, de Sanjosé S, Saraiya M, Ferlay J, *et al*. Estimates of incidence and mortality of cervical cancer in 2018: A worldwide analysis. The Lancet Global Health,2020:8(2):e191–e203.
3. Bosch FX, Lorincz A, Muñoz N, Meijer CJLM, Shah KV. The causal relation between human papillomavirus and cervical cancer. Journal of Clinical Pathology,2002:55(4):244–265.
4. Bruni L, Serrano B, Roura E, Alemany L, Cowan M, Herrero R, *et al*. Cervical cancer screening programmes and age-specific coverage estimates for 202 countries and territories worldwide. The Lancet Global Health,2022:10(8):e1115–e1127.
5. Catarino R, Petignat P, Dongui G, Vassilakos P. Cervical cancer screening in developing countries at a crossroad. World Journal of Clinical Oncology,2015:6(6):281–290.
6. Chidyaonga-Maseko F, Chirwa ML, Muula AS. Underutilization of cervical cancer prevention services in low and middle income countries. Pan African Medical Journal,2015:21:231.
7. Denny L, de Sanjosé S, Mutebi M, *et al*. Interventions to close the divide for women with breast and cervical cancer. The Lancet,2017:389(10071):861–870.
8. Eze JN, Umeora OUJ, Obuna JA, Egwuatu VE, Ejikeme BN. Cervical cancer awareness and cervical screening uptake at the Mater Misericordiae Hospital, Afikpo, Southeast Nigeria. Annals of African Medicine,2012:11(4):238–243.
9. Fontham ETH, Wolf AMD, Church TR, *et al*. Cervical cancer screening for individuals at average risk: 2020 guideline update. CA: A Cancer Journal for Clinicians,2020:70(5):321–346.
10. Gakidou E, Nordhagen S, Obermeyer Z. Coverage of cervical cancer screening in 57 countries. PLoS Medicine,2008:5(6):e132.
11. Ginsburg O, Bray F, Coleman MP, *et al*. The global burden of women's cancers. The Lancet,2017:389(10071):847–860.
12. Musa J, Achenbach CJ, O'Dwyer LC, *et al*. Effect of cervical cancer education and provider recommendation for screening on screening rates. PLoS ONE,2017:12(9):e0183924.
13. Ndejjo R, Mukama T, Musabyimana A, Musoke D. Uptake of cervical cancer screening and associated factors among women in rural Uganda. PLoS ONE,2016:11(2):e0149696.
14. Okunowo AA, Daramola ES, Soibi-Harry AP, *et al*. Women's knowledge of cervical cancer and uptake of Pap smear testing in a Nigerian tertiary hospital. Journal of Cancer Research and Practice,2018:5(3):105–111.
15. Olubodun T, Odukoya OO, Balogun MR. Knowledge, attitude and practice of cervical cancer prevention among women in an urban slum in Lagos. Pan African Medical Journal,2019:32:130.
16. Rosenstock IM. Historical origins of the Health Belief Model. Health Education Monographs,1974:2(4):328–335.
17. Sankaranarayanan R. Screening for cancer in low- and middle-income countries. Annals of Global Health,2014:80(5):412–417.
18. Small W Jr, Bacon MA, Bajaj A, *et al*. Cervical cancer: A global health crisis. Cancer,2017:123(13):2404–2412.
19. Sung H, Ferlay J, Siegel RL, *et al*. Global cancer statistics 2020. CA: A Cancer Journal for Clinicians,2021:71(3):209–249.
20. World Health Organization. Global strategy to accelerate the elimination of cervical cancer as a public health problem. WHO, 2020.
21. World Health Organization. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention (2nd ed.). WHO, 2021.
22. World Health Organization. Human papillomavirus vaccines: WHO position paper, December 2022. Weekly Epidemiological Record,2022:97(50):645–672.
23. World Health Organization. Cervical cancer. WHO, 2024.
24. Wright KO, Aiyedehin O, Akinyinka MR, Ilozumba O. Cervical cancer: Community perception and preventive practices in an urban neighborhood of Lagos, Nigeria. ISRN Preventive Medicine, 2014, 950534.