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Original Research Article

Evaluation of cervical cancer awareness and preventive practices among nurses at Princess Christian Maternity Hospital, Sierra Leone

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ABSTRACT

Background: Cervical cancer remains a leading cause of preventable morbidity and mortality in sub-Saharan Africa, where organized screening and human papillomavirus (HPV) vaccination coverage are limited. Nurses are pivotal for counselling, triage, and referral within reproductive health services, yet their knowledge and personal engagement with screening strongly influence patient uptake. Empirical data from Sierra Leone especially from tertiary referral settings are scarce, hindering tailored capacity-building and service navigation interventions. Objectives were to assess nurses' knowledge, awareness, and practices regarding cervical cancer, HPV, screening, and vaccination at a national referral hospital.

Methods: Cross-sectional survey at Princess Christian Maternity Hospital (PCMH), Freetown (25 November 2023 to 30 January 2024). Stratified sampling by cadre; n=117 (response rate 90% of the 130 minimum). Structured self-administered questionnaire with prespecified adequacy thresholds (causes ≥3/4; risk factors ≥5/8; symptoms ≥3/5; transmission ≥4/6; preventive practices ≥3/5). Descriptive statistics and χ^2/Fisher's exact tests ($p<0.05$).

Results: Only 35.9% identified HPV as the cause; adequacy was 48.7% for causes, 21.9% for symptoms, and 26.6% for risk factors. Knowledge differed by cadre (causes p=0.001; symptoms p=0.011), highest among BSc nurses and midwives, lowest among SECHN; no associations with age or experience. Awareness of screening was 47.9%; among the aware, correct timing "before sexual debut" was 14.3% and correct interval "every 3-5 years" 21.4%. Screening uptake in the past five years was 29.1%. Leading barriers were not knowing where to test (55.4%), perceived no need (20.5%), fear of procedure (14.5%), and fear of results (9.6%). Motivators were free services (44.1%) and provider advice (26.5%). Vaccine awareness was 32.5%; 97.4% of those aware would recommend it.

Conclusions: Nurses at PCMH, Freetown, showed suboptimal HPV-specific knowledge and low recent screening (29.1%), with significant cadre differences and navigation barriers. Targeted, cadre-specific training, clear service navigation aids, and provider-initiated, free/low-cost screening offers could rapidly improve nurses' knowledge, uptake, and patient counselling.

Keywords: Cervical cancer, HPV, Nurses, Knowledge, Screening uptake, Vaccination, Barriers, Sierra Leone, Stratified sampling, Chi-square analysis

INTRODUCTION

Cervical cancer begins in the thin layer of cells that line the cervix, the lower, narrow part of the uterus that opens into the vagina. When the cells in this lining acquire certain changes and start growing in an uncontrolled way, a malignant tumour can form. The key driver behind most of these cellular changes is a long-lasting infection with "high-risk" types of HPV. This is why the introduction states that persistent infection with high-risk HPV is the necessary cause: without ongoing infection by these HPV types, cervical cancer is very unlikely to develop.[1] At the same time, this fact is encouraging, because it means the disease is largely preventable with tools that already exist, HPV vaccination to prevent infection and regular screening to detect pre-cancerous changes early so they can be treated before they ever become cancer.[2]

To coordinate global action, the world health organization (WHO) announced clear targets in 2020 that are often summarized as the 90-70-90 strategy. These numbers are a simple way to remember what needs to happen at the population level: first, 90% of girls should receive the HPV vaccine by age 15; second, 70% of women should be screened at least twice-once by age 35 and again by age 45; and third, 90% of women who are found to have cervical disease should receive appropriate treatment.[3] If countries reach these targets, mathematical models and experience from organised programmes suggest that cervical cancer rates will decline dramatically over time.

However, many countries in sub-Saharan Africa still face obstacles that make it difficult to achieve these targets. These obstacles include limited vaccine supply and delivery systems, shortages of trained providers and equipment for screening, and barriers that keep women from accessing care such as cost, distance, and competing priorities. Sierra Leone illustrates these challenges. Current estimates suggest that between 2.23 and 2.60 million women aged 15 years and older are at risk of cervical cancer in the country, with about 504 new cases and 367 deaths each year. At present, Sierra Leone has no national screening guidelines or a national HPV vaccination programme. More than half of invasive cervical cancers are caused by the two most dangerous HPV types 16 and 18 and only around 50 health-care providers have received training in screening.[4,5] These figures signal a significant disease burden and limited health-system capacity to prevent, detect, and treat cases early.

What is also important is that health workers themselves especially nurses and midwives often lack the detailed knowledge and practical engagement needed to champion prevention. Studies from other African countries show this clearly. In the Eastern Cape province of South Africa, only 15.1% of nurses achieved adequate knowledge scores, and just 27.7% reported ever performing cervical cancer screening.[6] In Ghana, nearly all nurses and midwives had heard of cervical cancer and believed it is preventable, yet only 11.8% had ever been screened themselves.[7] Among female health workers in Ethiopia, screening utilisation ranged from 13% to 19%, and two common reasons for not screening were simply not paying attention to it and feeling healthy (so not seeing a need).[8] When researchers pooled multiple studies, they estimated that only about 18% of Ethiopian female health professionals and 17% of health-care providers across sub-Saharan Africa had ever been screened.[9,10] Taken together, these findings suggest that even those expected to guide patients may not be equipped or prompted to take preventive action themselves.

Why does this matter so much? Nurses are the backbone of reproductive, maternal, and child health services. They provide direct care, deliver health education, and are often the first point of contact for counselling about screening and vaccination. If nurses have strong, up-to-date knowledge of HPV, screening intervals, red-flag symptoms, and vaccine timing, they can deliver clear messages, counter misconceptions, and help women navigate the health system. If their own screening practices are strong, they are also more likely to normalize and recommend screening to patients. In this way, improving nurses' knowledge and engagement can have a multiplier effect, raising the uptake of prevention services far beyond the hospital walls.

PCMH in Freetown is a strategic place to start. PCMH is the national referral centre for obstetrics and gynaecology and a teaching site for the college of medicine and allied health sciences. As such, it not only serves patients from across the country but also trains the next generation of nurses, midwives, and medical students. Understanding what PCMH nurses currently know, believe, and do about cervical cancer prevention provide a realistic picture of the strengths to build on and the gaps that need to be filled. Because PCMH influences both clinical care and training, targeted improvements here can have broad impact.

Our study is designed to answer exactly these questions. It measures awareness (have nurses heard about cervical cancer, HPV vaccination, and screening?), knowledge (can they correctly identify the cause, recognize key risk factors and symptoms, and state the correct screening intervals and vaccine timing?), and preventive practices (have they themselves been screened; do they recommend vaccination and screening?). The structured questionnaire and predefined thresholds help ensure that results are comparable across items and cadres, and that they can be tracked over time. By anchoring the work at PCMH, the study connects a national need advancing toward WHO's 90-70-90 goals to the day-to-day realities of clinical teams.[3-5]

The cited evidence throughout the introduction supports the logic of the study. The introduction argues that cervical cancer is largely preventable, that WHO has provided clear targets to drive action, and that Sierra

Leone faces substantial gaps in vaccination, screening, and trained personnel. Because nurses are central to counselling, early detection, and referral, closing their knowledge and practice gaps is a practical and high-impact way to accelerate progress.

By generating local data from a national referral and training centre, this study will guide targeted training, clearer screening pathways, and supportive policies steps that can make it easier for nurses to help women get vaccinated, be screened at the right times, and receive prompt treatment when needed.[1-10]

METHODS

Study design and setting

This was a cross-sectional descriptive study conducted from 25 November 2023 to 30 January 2024 at PCMH, Freetown, the national referral centre for obstetrics and gynaecology and a teaching site for the college of medicine and allied health sciences. PCMH serves patients from across Sierra Leone and trains nurses, midwives, and medical students.

Sample size determination

The target population comprised all nurses employed at PCMH (n=196). The required sample size was estimated using Cochran's formula for proportions, assuming maximum variability (p=0.5), a 95% confidence level (Z=1.96), and margin of error d=0.05:

$n0=(Z^2\times p(1-p))/d^2=(1.96^2\times 0.5\times 0.5)/0.05^2=(3.8416\times 0.25)/0.0025=384.16$

Because the population is finite (n=196), we applied the finite population correction (FPC)

$n=n0/[1+(n0-1)/N]=384.16/[1+(384.16-1)/196]=384.16/2.9549\approx 130.1$

Thus, the minimum required sample size was 130 nurses. Ultimately, 117 nurses completed the survey (response rate=117/130=90%).

Study population and sampling technique

The study population included all nurses working at PCMH during the study period.

We used stratified sampling by nursing cadre to ensure representation across strata, then sequentially recruited eligible nurses within each stratum until allocations were met.

Inclusion criteria was employed as a nurse at PCMH, age ≥18 years, and provided informed consent. Exclusion criteria was absent throughout data collection or declined participation.

Data collection

Data were collected using a structured, self-administered questionnaire (English) adapted from prior work and reviewed by senior nursing educators. The instrument captured socio-demographic variables; knowledge of cervical cancer (causes, risk factors, symptoms), HPV transmission, awareness of screening and preventive practices, and personal screening behaviour.

Knowledge scoring: one point per correct option (with distractors present). Adequate knowledge thresholds were prespecified as follows: causes ≥3/4, risk factors ≥5/8, symptoms ≥3/5, transmission ≥4/6, and preventive practices ≥3/5 correct.

Data analysis

Completed questionnaires were checked, coded, and entered into SPSS v25.0 (IBM Corp., Armonk, NY, USA) for cleaning and analysis. We produced descriptive statistics (frequencies, percentages) for all variables. Associations between demographic characteristics and knowledge categories (adequate vs. not adequate) were assessed using Pearson's chi-square test (or Fisher's exact test when expected cell counts were <5), with statistical significance set at $p<0.05$. Where relevant, we report on effect sizes (Cramér's V) and 95% confidence intervals.

Ethical considerations

Ethical approval was obtained from the department of community health, college of medicine and allied health sciences (COMAHS), university of Sierra Leone. Informed consent was obtained after the study's objectives and significance were explained. Participation was voluntary with freedom to decline or withdraw. Anonymity and confidentiality were maintained by avoiding direct identifiers and storing data securely with restricted access.

RESULTS

Demographic characteristics

Of the 117 respondents, 95.7% were female and 4.3% male. The majority (61.5%) were aged 26-39 years; 6.8% were aged 18-25 years, 29.1% aged 40-54 years and 2.6% aged ≥55 years. More than half (50.4%) were married and 43.6% single; 6.0% were widowed. State enrolled community health nurses (SECHN) constituted 53.0% of the sample, midwives 31.6%, state registered nurses (SRN) 9.4% and bachelor of science in nursing graduates 6.0%. Participants with less than five years' work experience accounted for 36.8%, while 37.6% had 6-9 years of experience, 21.4% had 10-19 years and 4.3% had ≥20 years of experience.

The 95 respondents reported to have children while the remaining 22 did not have any children at the time of the

study. Of the 95 nurses with children, 42.1% had 1 child, 51.6% had 2 to 3 children while 6.3% had 4 or more children.

Table 1: Demographic characteristics (n=117).

Variables	N	Percentage (%)
Sex		
Male	5	4.3
Female	112	95.7
Total	117	100
Age (in years)		
18 to 25	8	6.8
26 to 39	72	61.5
40 to 54	34	29.1
Above 55	3	2.6
Total	117	100
Marital status		
Married	59	50.4
Single	51	43.6
Widowed	7	6.0
Total	117	100
Cadre		
SECHN	62	53.0
SRN	11	9.4
Midwife	37	31.6
BSc Nursing	7	6.0
Total	117	100
Years of working experience		
<5	43	36.8
6 to 9	44	37.6
10 to 19	25	21.4
≥20	5	4.3
Total	117	100
Do you have children?		
Yes	95	81.2
No	22	18.8
Total	117	100
Among those reporting that they have children (n=95)		
1	40	42.1
2-3	49	51.6
≥4	6	6.3
Total	95	100

Knowledge of causes, risk factors, symptoms and Knowledge of HPV transmission

Regarding causes of cervical cancer, only 35.9% of nurses correctly identified with HPV infection and 29.1% identified with genetic predisposition. The majority recognized that certain foods (89.7%) and bacterial infections (76.9%) are not causes. Knowledge of risk factors was modest: 71.8% identified drinking alcohol, 66.7% oral contraceptive use and 85.5% poor hygiene as risk factors. Fewer participants recognized smoking (20.5%), multiple sexual partners (39.3%), history of HPV infection (38.5%), early sexual debut (37.6%) or impaired immunity (16.2%). Bleeding after sexual intercourse was the most commonly identified symptom (55.6%), followed by foul-smelling or blood-stained vaginal discharge (45.3%) and painful sexual intercourse (38.5%). Fewer participants identified with pelvic pain (27.4%) or post-menopausal bleeding (23.9%).

When asked about modes of HPV transmission, 60.7% correctly identified sexual intercourse and 46.2% recognized mother-to-child transmission. A large proportion correctly rejected non-transmission routes such as kissing (77.8%), body fluids (71.8%), drinking unsafe water (72.6%) and airborne droplets (70.1%). Chemotherapy was the most frequently recognized treatment modality (45.3%), followed by surgery (39.3%), radiotherapy (35.9%) and palliative care (23.1%).

Awareness of screening methods for cervical cancer and preventive practices

Only 56 nurses (47.9 %) reported that they were aware of cervical cancer screening. Among them, the Pap smear was correctly identified by 55.4%, the HPV test by 35.7% and visual inspection with acetic acid (VIA) by 37.5%. Nearly half (46.4%) believed screening should be performed after menopause, 39.3% after sexual debut and only 14.3% before sexual debut. Regarding screening interval, 42.9% reported that screening should be once in a lifetime, 35.7% every 10 years and only 21.4% correctly stated every 3-5 years. Awareness of the HPV vaccine was low: 38 nurses (32.5%) had heard of the vaccine, and only 5 (13.2%) knew it should be administered before sexual debut. Nonetheless, 97.4% of those aware of the vaccine would recommend it. Recognition of preventive practices was limited: 44.4% correctly identified condom use and 41.0% being faithful to one partner, whereas only 17.9 % identified avoiding smoking. Most nurses (83.8%) correctly recognised that taking antibiotics does not prevent cervical cancer.

When asked about sources of cervical cancer information, majority of the nurses reported nursing school (38.5%), 22.2% from the media, 12.8% from the internet, 10.3% from seminars, trainings, or workshops, 9.4% from family and friends and 6.8% from colleagues.

Screening practices and barriers

Only 34 (29.1%) of the 117 nurses had been screened for cervical cancer in the five years preceding the study. The most common barriers among those who had not been screened were not knowing where to go (55.4%), seeing no reason to be screened (20.5%), fear of the procedure (14.5%) and fear of receiving bad news (9.6%). Among nurses who had been screened, the main motivators were free screening services (44.1%), advice from medical

personnel (26.5%), awareness created by advertisements (14.7%), death of a friend or family member from cervical cancer (8.8%) and other reasons (5.9%). Screening methods used by screened nurses included Pap smear (58.8%), VIA (26.5%) and HPV testing (14.7%).

Of 34 respondents who had done cervical cancer screening in past 5 years, 15 (44.1%) did the screening because the screening was free, 9 (26.5%) because they were advised by medical personnel, 5 (14.7%) because of awareness created by advertisements, 3 (8.8%) because a friend/family member died from cervical cancer and 2 (5.9%) stated other reasons as shown

Factors associated with knowledge

Overall, 48.7% of nurses had adequate knowledge of the causes of cervical cancer, 21.9% had adequate knowledge of symptoms and 26.6% had adequate knowledge of risk factors. Knowledge of the causes and symptoms differed significantly by nursing cadre: Bachelor of Science nursing graduates and midwives had higher knowledge levels than state enrolled community health nurses (p=0.001 for causes; p=0.011 for symptoms). No significant associations were found with age or work experience. The majority (86.3%) of nurses were not satisfied with their knowledge of cervical cancer. When asked how awareness could be improved, 82.9% suggested more training at the hospital, 6.8% advocated greater emphasis in nursing school curricula and 10.3% recommended the use of mass media.

Table 2: Knowledge of causes, risk factors, symptoms and knowledge of HPV transmission (n=117).

Variables	Correct response N (%)	Incorrect response N (%)
Causes		
HPV infection	42 (35.9)	75 (64.1)
Genetic predisposition	34 (29.1)	83 (70.9)
Certain foods	105 (89.7)	12 (10.3)
Bacterial infection	90 (76.9)	27 (23.1)
Risk factors		
Smoking	24 (20.5)	93 (79.5)
Drinking alcohol	84 (71.8)	33 (28.2)
Multiple sexual partners	46 (39.3)	71 (60.7)
History of HPV infections	45 (38.5)	72 (61.5)
Having sex at an early age	44 (37.6)	73 (62.4)
Having impaired immunity	19 (16.2)	98 (83.8)
Using oral contraceptives	78 (66.7)	39 (33.3)
Symptoms		
Bleeding after sexual intercourse	65 (55.6)	52 (44.4)
Foul smelling or the blood-stained vaginal discharge	53 (45.3)	64 (54.7)
Pelvic pain	32 (27.4)	85 (72.6)
Post-menopausal bleeding	28 (23.9)	89 (76.1)
Painful sexual intercourse	45 (38.5)	72 (61.5)
Transmission of HPV		
Sexual intercourse	71 (60.7)	46 (39.3)
Kissing	91 (77.8)	26 (22.2)
Body fluids	84 (71.8)	33 (28.2)
Drinking unsafe water	85 (72.6)	32 (27.4)
Mother to child transmission	54 (46.2)	63 (53.8)
Air droplets	82 (70.1)	35 (29.9)

Table 3: Knowledge of cervical cancer treatment options (n=117).

Variables	Correct response N (%)	Incorrect response N (%)
Radiotherapy	42 (35.9)	75 (64.1)
Chemotherapy	53 (45.3)	64 (54.7)
Surgery	46 (39.3)	71 (60.7)
Palliative care	27 (23.1)	90 (76.9)

Table 4: Awareness of screening methods for cervical cancer and preventive practices (n=117).

Variables	Correct response N (%)	Incorrect response N (%)
Do you know about cervical cancer screening	56 (47.9)	61 (52.1)
Among those reporting to know about cervical cancer screening (n=56)		
Types of cervical cancer screening		
Pap smear	31 (55.4)	25 (44.6)
HPV test	20 (35.7)	36 (64.3)
Visual inspection with acetic acid	21 (37.5)	35 (62.5)
Most appropriate time for cervical cancer screening		
Before sexual debut	8 (14.3)	
After sexual debut	22 (39.3)	
Post menopause	26 (46.4)	
Total	56 (100)	
Most appropriate screening interval		
Once in a lifetime	24 (42.9)	
Every 3 to 5 years	12 (21.4)	
Every 10 years	20 (35.7)	
Total	56 (100)	
Preventive practices for cervical cancer		
Condom Use	52 (44.4)	65 (55.6)
Being faithful to one partner	48 (41.0)	69 (59.0)
Taking antibiotics	98 (83.8)	19 (16.2)
Avoiding smoking	21 (17.9)	96 (82.1)
HPV Vaccine	38 (32.5)	79 (67.5)
Source of information	**Percent (%)**	
Nursing school	38	
Media	22	
Internet	13	
Seminars/trainings/workshops	10	
Family/friends	9	
Colleagues	7	

Table 5: Screening practices and barriers.

Variables	Percentage (%)
Reason for not doing screening	
I do not know where to go for the test	58
I do not see a reason for the test	21
I am afraid of the procedure	12
I am afraid of results/ news	9
Factor that convinced to screen	
Free screening	45
Medical personnel	27
Awareness created by advertisements	15
A friend/family member died from cervical cancer	10
Others	7

Table 6: Knowledge of cervical cancer by demographic characteristics among nurses (n=117).

Variables	N	Knowledge of causes adequate, N (%)	P value	Knowledge of symptoms adequate, N (%)	P value
Age (in years)					
18 to 25	8	7 (87.5)	0.394	3 (37.5)	0.553
26 to 39	72	32 (44.4)		20 (27.8)	
40 to 54	34	16 (47.1)		9 (26.5)	
Above 55	3	2 (66.7)		2 (66.7)	

Continued.

Variables	N	Knowledge of causes adequate, N (%)	P value	Knowledge of symptoms adequate, N (%)	P value
Cadre					
SECHN	62	21 (33.8)	0.001	6 (9.7)	0.011
SRN	11	6 (54.5)		7 (63.6)	
Midwife	37	25 (67.5)		16 (43.2)	
B. Sc. Nursing	7	5 (71.4)		5 (71.4)	
Work experience					
<5	43	18 (41.9)	0.525	11 (25.6)	0.328
6 to 9	44	23 (52.3)		10 (22.7)	
10 to 19	25	13 (52.0)		12 (48.0)	
≥20	5	3 (60.0)		3 (60.0)	

Table 7: How to improve the awareness of cervical cancer among nurses.

Suggestions	N (%)
More education/ training at hospital	97 (82.9)
More emphasis in nursing school	8 (6.8)
Use of mass media	12 (10.3)

DISCUSSION

This study the first, to our knowledge, to assess cervical cancer awareness and preventive practices among nurses in Sierra Leone to demonstrates substantial, cadre-patterned knowledge gaps and low screening uptake within a national referral setting. Only about one-third of respondents correctly identified HPV as the principal cause of cervical cancer (35.9%), and fewer than one-third had been screened in the preceding five years (29.1%), a combination that points to shortfalls in both content knowledge and personal engagement with preventive services. At the item level (Tables 2-4), behavioural and virologic risk factors were under-recognized. Smoking, multiple sexual partners, prior HPV infection, early sexual debut, and impaired immunity lagged far behind more generic or hygiene-framed risks. Symptom recognition was strongest for post-coital bleeding but weaker for post-menopausal bleeding and pelvic pain, which are critical red flags for timely referral. Awareness of screening modalities and, crucially, of appropriate timing and interval was limited: among those who reported awareness, many selected screenings after menopause and "once in a lifetime" intervals (Table 4). Although overall HPV vaccine awareness was low, willingness to recommend vaccination among those aware was very high, suggesting that correcting knowledge alone could translate into improved counselling and uptake once services and messaging are aligned.

Patterns in our data mirror reports from several African contexts, underscoring that general awareness does not automatically translate into HPV-specific understanding or screening action. Among Ghanaian nurses and midwives, only 11.8% had ever been screened despite high general awareness; in Nigeria, 60.5% of female university staff knew the causes of cervical cancer, yet fewer than half recognized HPV as a sexually transmitted virus.[7,11] In rural South Africa, screening practice reached 66.8%, but only 28% had adequate knowledge of risk factors and symptoms.[12] Together with our results, these studies reinforce that the barrier is not simply exposure to messages but the depth and accuracy of those messages particularly around HPV aetiology, risk stratification, and screening intervals.[13] By contrast, evidence from Egypt shows that when prevention attitudes are strong (76.3% positive), screening follows suit (96.3% among those with positive attitudes), highlighting the potential returns of coupling accurate knowledge with accessible services and supportive norms.[17]

Within our cohort, knowledge adequacy varied significantly by professional cadre (Table 6). SECHN had the lowest adequacy (33.8%, symptoms 9.7%), whereas midwives (67.5%, 43.2%) and BSc nurses (71.4%, 71.4%) performed substantially better; no significant trends were observed by age or years of experience ($p>0.3$). This pattern aligns with findings from South Africa's Eastern Cape, where adequate knowledge clustered among professional nurses, suggesting a seniority/training effect.[6] In practical terms, the cadre gradient in our study likely reflects differences in pre-service curricula and exposure to reproductive health rotations and guidelines. It argues for tier-specific, bite-size continuing professional development that emphasizes HPV natural history, high-yield risk factors, alarm symptoms (including post-menopausal bleeding), evidence-based screening intervals, and vaccine timing, with priority attention to the SECHN and early-career staff.

Information channels reported by participants further clarify where interventions should start. The dominant source was nursing school (38.5%), followed by media (22.2%), internet (12.8%), seminars/workshops (10.3%), family/friends (9.4%), and colleagues (6.8%) (Table 4). This profile differs from Lagos, Nigeria, where electronic

media (43.9%) and health professionals (37.4%) predominated.[21] For PCMH, the implication is that pre-service content is the primary upstream driver of knowledge, but mass-media and peer-led channels remain under-leveraged. Pairing curriculum refreshes with short, ward-level updates and simple radio or peer-champion campaigns could therefore extend reach across shifts and cadres, reinforce consistent messages about timing/intervals, and normalize provider-initiated counselling.

The translation from knowledge to behaviour appears to be blocked by a small number of highly actionable bottlenecks. Among respondents who had not been screened, not knowing where to go (55.4%) was the leading barrier, followed by perceived lack of need (20.5%), fear of the procedure (14.5%), and fear of bad news (9.6%) (Table 5). Among those who had been screened, the dominant motivators were free services (44.1%) and advice from medical personnel (26.5%), with additional influence from advertisements and bereavement (Table 5). This configuration is consistent with findings among Ethiopian female health workers who cited feeling healthy and lack of attention as reasons for non-utilization, with only 19.4% ever screened, and with Kenyan data showing that a nurse-led educational intervention increased screening from 16% to 57%.[8,14] It also resonates with Sierra Leonean program narratives that emphasize the catalytic role of nurse advocates in generating demand WHO's account of street-level nurse activism filling clinics and NGO outreach delivering district-wide VIA with same-day thermal ablation in Bombali illustrate how navigation cues, provider prompts, and low/no-cost access can convert intention into action.[15,16] For PCMH, a concise package of unit-level "where/when/how" job aids, standardized counselling scripts to address fear and perceived invulnerability, and routine provider-initiated prompts linked to maternal and reproductive health encounters could plausibly raise uptake quickly without large new investments.

These facility-level strategies align with national direction. Sierra Leone's cervical-cancer elimination strategy emphasizes integrating screening into reproductive health services and comprehensive training of health workers.[18] To advance toward the WHO 90-70-90 targets, continued expansion of screening now reaching more than 13,000 women must be paired with accessible, no-cost services, reliable diagnostics, and vaccination.[19] Our results support these priorities: the overwhelming preference for hospital-based training (82.9%, Table 7) indicates readiness for practical CPD; low uptake paired with a dominant navigation barrier suggests that clear service pathways and proactive invitations could yield immediate gains; and high vaccine acceptability among the "aware" signals that improving provider knowledge can directly strengthen vaccine counselling and coverage.[20] In short, empowering nurses with accurate, concise, and action-oriented knowledge, while removing practical barriers to screening, is central to progress.

The persistence of knowledge gaps in our cohort likely reflects a convergence of factors. Pre-service curricula especially for certificate and diploma tracks may vary in depth on HPV natural history, screening intervals, and vaccine timing; without consistent reinforcement at the workplace, knowledge decays or remains abstract. Heavy clinical workload at a tertiary facility constrains opportunities for workshops, particularly when training competes with service delivery. When screening locations, schedules, and referral steps are not visible on the ward, staff may infer those services are scarce or non-routine, dampening both self-screening and patient counselling. These mechanisms are consistent with evidence that established screening programs and integrated policies correlate with better provider knowledge and utilization in other settings.

The study's strengths include a high response rate (90%), cadre-stratified sampling, and transparent knowledge thresholds aligned to item content, allowing triangulation across domains (Tables 2-5) and exploration of determinants (Tables 6-7). Limitations include the single-site, hospital-based sample, which may not capture realities in rural or primary-care settings; reliance on self-report, which introduces recall and social-desirability bias; and the cross-sectional design, which precludes causal inference. Although our bivariate analyses identified significant cadre differences, future work should apply multivariable modelling to determine independent predictors and better target interventions.

Overall, the evidence points to a practical, low-cost improvement pathway at PCMH and similar facilities: make screening easy to find (navigation aids and referrals), easy to accept (brief counselling that addresses fear and perceived lack of need), and easy to access (free or low-cost services with provider-initiated invitations). Coupled with cadre-tailored CPD that corrects specific misconceptions revealed by our items HPV as the cause, behavioural and virologic risk factors, red-flag symptoms, pre-sexual-debut timing, and 3-5-year intervals these steps are well aligned with national policy and able to move key indicators reflected in our tables.[18-20] A before, after evaluation embedding these components within routine maternal and reproductive health services could quantify gains in knowledge adequacy and screening completion over a short horizon, while informing scale-up across comparable hospitals

CONCLUSION

This study provides the first facility-level assessment of nurses' knowledge, awareness, and practices on cervical cancer in Sierra Leone, revealing substantive knowledge gaps and low screening uptake in a national referral setting. Only 35.9% correctly identified HPV as the principal cause of cervical cancer, and just 29.1%

reported screening within the past five years. Item-level responses showed under-recognition of key behavioural and virologic risk factors (smoking, multiple partners, prior HPV infection, early sexual debut, impaired immunity) relative to generic or hygiene-framed risks. Symptom knowledge was strongest for post-coital bleeding but weaker for post-menopausal bleeding and pelvic pain signals that could delay timely referral. Awareness of screening modalities was limited, and misconceptions about the appropriate timing (before sexual debut) and interval (every 3-5 years) were common. Although vaccine awareness was low, willingness to recommend vaccination among those aware was high, indicating that concise, targeted education could rapidly improve counselling.

Knowledge adequacy varied significantly by professional cadre, with SECHN scoring lowest and midwives and BSc nurses higher, while age and years of experience showed no significant associations. Reported barriers to screening were dominated by not knowing where to go for the test, followed by perceived lack of need and fears related to the procedure or results; among those screened, free services and advice from medical personnel were the strongest motivators. These patterns point to a practical improvement pathway that is feasible within existing resources: (i) cadre-tailored, bite-size continuing professional development focused on HPV aetiology, high-yield risk factors and symptoms, vaccine timing, and correct screening intervals; (ii) unit-level navigation tools and brief counselling scripts that make services easy to find and accept; and (iii) proactive, provider-initiated invitations linked to free or low-cost screening opportunities. Implemented together, these actions are likely to increase knowledge adequacy and screening uptake among nurses at PCMH, strengthen patient education, and contribute to earlier detection and prevention of cervical cancer.

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