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Knowledge, Attitudes, and Practices of Health Providers on Cervical Cancer Screening at Libreville in 2019

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Abstract

Objective: To assess the knowledge, attitudes, and practices of health care providers on cervical cancer screening at Libreville in 2019. **Population and Method:** This was a cross-sectional analytical study conducted from July 1, 2019, to January 1, 2020, in public health facilities in Libreville. The study population included gynecologists, general practitioners, midwives, and nurses. Data were collected using an anonymous questionnaire and analyzed with SPSS version 20. Chi-square tests were used to assess associations between variables. Prevalence ratios (PR) with the 95% confidence intervals (CI) were calculated. A p-value < 0.05 was considered statistically significant. **Results:** A total of 401 providers were surveyed (mean age: 37 years). Knowledge was satisfactory in 92.5%; attitudes were favorable in 97.8% while only 23.2% reported good practices, defined as having ever performed a cervical cancer screening test on a patient. Specifically, 76.8% had never conducted such screening. Higher education level and professional category were significantly associated with satisfactory knowledge. Providers with satisfactory knowledge were more likely to have favorable attitudes (PR = 1.09, 95%CI = [1.01 - 1.16], p = 0.03). Knowledge also strongly influenced practice (PR = 8.33, 95%CI = [1.77 - 39.17], p = 0.007). The lack of training was the most frequently cited barrier to screening practice. **Conclusion:** Although knowledge and attitudes toward cervical cancer screening were high, practices remained poor. Targeted training programs are urgently needed to translate knowledge and attitudes into effective practices.

Keywords

Knowledge, Attitude, Practice, Cervical Cancer, Health Care Providers

1. Introduction

The epithelium of the cervix may undergo a benign and asymptomatic abnormality, especially dysplasia, which is asymptomatic anatomically and histologically. We then speak of precancerous lesions. Without care, these may evolve into invasive cervical cancer, a major source of death worldwide [1].

In view of this global health priority, the World Health Organization has emphasized the use of the "screening and treatment" approach for precancerous lesions as a reliable alternative for screening and prevention of cervical cancer in developing countries [2] since 2013, through organized screening programs using the following methods: CFV, visual tests and HPV testing. These well-publicized programs in developing countries explain the disparities observed in low-income countries [3].

In Gabon, cervical cancer remains a public health problem, as in other low-income countries.

The level of knowledge, attitudes, and practices of health care providers should therefore be acceptable screening for cervical cancer to effectively combat this condition. Unfortunately, little data is available, which is why this study focuses on the knowledge, attitudes, and practices of health providers on screening for cervical cancer in Libreville.

2. Population and Method

This was a cross-sectional analytical study on knowledge, attitudes, and practices. It was conducted within health facilities under the Regional Health Directorate of Libreville and Owendo, including the University Hospital Center of Libreville, the Mother and Child University Hospital of Owendo, the Egyptian Gabonese and Sino-Gabonese hospitals, the Regional Cooperation Hospital of Melen, as well as several health centers.

Study duration and period:

The study was conducted over six months, from July 1, 2019, to January 1, 2020.

Study population:

The target population consisted of health care providers working in public health facilities. The study included gynecologists, general practitioners, midwives, and nurses who were present during the investigator's visits, provided informed consent and completed the questionnaire.

Exclusion criteria:

Providers who were absent, who declined to participate, or whose questionnaires were incomplete or unusable were excluded. In addition, providers from specialties not directly related to gynecology and obstetrics—such as radiology, resuscitation, general surgery, internal medicine, endocrinology, pediatrics, and ENT—were not included.

Sample size:

The sample size was estimated using the SCHWARTZ formula.

$$N = \frac{P(1-P) \times Z^2}{d^2}$$

where $Z = 1.96$, $P = 47.4\%$ (the proportion of health professionals having ever performed cervical cancer screening, based on prior data from comparable provider populations), and $d = 0.05$. The calculation yielded a minimum sample size of 383 participants. To account for potential non-response, the target sample was increased by 10%.

Data collection and analysis:

After listing the study variables, data were collected using a pre-tested anonymous questionnaire, entered into CSPRO version 6.3, and analyzed using SPSS version 20. Descriptive statistics were used to summarize socio-demographic characteristics and outcomes. Association between categorical variables were assessed using chi-square test. Prevalence ratios (PR) with their 95% confidence intervals (CI) were calculated. A p-value < 0.05 was considered statistically significant.

Ethical considerations:

Confidentiality and anonymity of participants were strictly ensured, in accordance with the regulations of the Gabon National Ethics Committee and with authorization from the Director of the University Hospital Center of Libreville.

3. Results

Out of 600 questionnaires distributed to health care providers, 401 were completed and returned, yielding a participation rate of 66.8%. The mean age of respondents was 37.7 years. Women represented the majority of participants (79.6%, n = 319). Most providers had attained higher education (81.5%, n = 327). Midwives constituted nearly half of the sample (48.1%, n = 193). In terms of professional experience, 50.4% (n = 202) of respondents had less than 10 years of service (**Table 1**).

Table 1. Socio-demographic and professional characteristics of health care providers (n = 401).

Characteristics	n	%
Age group (year)		
25 - 34	186	46.4
35 - 44	86	21.4
45 - 54	111	27.7
55 - 60	18	4.5
Sex		
Male	82	20.4
Female	319	79.6
Profession		
Nurse	100	24.9

Continued

Midwife	193	48.1
General doctor	99	24.7
Gynecologist	9	2.2
Level of education		
Primary	3	0.7
Secondary	71	17.7
Higher	327	81.5
Years of service		
1 - 9	202	50.4
10 - 19	140	34.9
20 - 29	48	12.0
30 - 39	11	2.7

Operational definitions of knowledge:

For this study, overall knowledge on cervical cancer was classified as either satisfactory or unsatisfactory (poor), based on a composite score derived from four domains:

1) Screening methods—satisfactory if the provider correctly cited at least two recognized screening methods (e.g., Pap smear, visual inspection methods, HPV testing.

2) Risk factors—satisfactory if HPV infection was cited, together with at least one other known risk factor.

3) Clinical signs—satisfactory if at least two clinical warning signs were cited, including postcoital (induced) metrorrhagia.

4) Treatment of precancerous lesions—satisfactory if at least three therapeutic methods were cited, such as loop electrosurgical excision (LEEP), cryotherapy, or laser electrocoagulation.

Providers who met the criteria in the majority of these domains were classified as having satisfactory knowledge. Those who failed to meet these criteria were classified as having unsatisfactory knowledge.

In this study, 86.6% of health workers identified screening as a preventive tool against cervical cancer. Overall, 92.5% (371/401) demonstrated a satisfactory level of knowledge. Human papillomavirus (HPV) was cited as a risk factor by 98% of providers.

When broken down by domain, knowledge was satisfactory in 76.6% of participants for screening methods, 78.3% for risk factors, 67.3% for clinical signs of cancerous lesions, 26.9% for therapeutic methods of precancerous lesions, and 45.6% for treatment options for invasive cancer. Despite the generally high level of knowledge, a notable gap remained: more than half of respondents (55.9%) were unable to provide the correct definition of cervical cancer.

No significant difference was observed in the prevalence of satisfactory knowledge

across age categories (p = 0.430). Proportions and PR values were nearly identical between male and female, indicating comparable knowledge levels (p = 0.949). Using nurses as the reference, midwives (PR = 1.17; 95%CI [1.06 - 1.29], general doctors (PR = 1.22; 95%CI [1.11 - 1.35]), and gynecologists (PR = 1.23; 95%CI [1.12 - 1.36]) showed significantly higher prevalence of satisfactory knowledge (p < 0.001). This suggests a gradient consistent with increasing training and exposure to gynecology and oncology.

Compared with primary education (very small n = 3), the prevalence of satisfactory knowledge increases with education level, reaching 96.0% in the higher education group (PR = 1.44). Confidence intervals are wide due to very small reference group, so results should be interpreted with caution.

Relative to 1 - 9 years, knowledge is similar for 20 - 29 years (PR = 0.99) and slightly for 30 - 39 years (PR = 1.06, 95%CI [1.02 - 1.09]). Those with 10 - 19 years show a modestly lower prevalence (PR = 0.94, 95%CI [0.88 - 1.00]). Overall, differences were small and mostly non-significant (p = 0.148) (Table 2).

Table 2. Influence of socio-demographic and occupational characteristics on knowledge level.

Characteristics	Satisfying/Total (%)	PR	95%CI
Age group (p = 0.430)			
25 - 34 (ref)	176/186 (94.6%)	1.00	[0.95 - 1.05]
35 - 44	77/86 (89.5%)	0.95	[0.87 - 1.02]
45 - 54	101/111 (91.0%)	0.96	[0.90 - 1.03]
55 - 60	17/18 (94.4%)	1.00	[0.89 - 1.12]
Sex (p = 0.949)			
Male (ref)	76/82 (92.7%)	1.00	[0.92 - 1.09]
Female	295/319 (92.5%)	1.00	[0.93 - 1.07]
Profession (p < 0.001)			
Nurse (ref)	81/100 (81.0%)	1.00	[0.87 - 1.14]
Midwife	183/193 (94.8%)	1.17	[1.06 - 1.29]
General doctor	98/99 (99.0%)	1.22	[1.11 - 1.35]
Gynecologist	9/9 (100.0%)	1.23	[1.12 - 1.36]
Level of education (p < 0.001)			
Primary (ref)	2/3 (66.7%)	1.00	[0.32 - 3.10]
Secondary	55/71 (77.5%)	1.16	[0.52 - 2.61]
Higher	314/327 (96.0%)	1.44	[0.65 - 3.21]
Years of service (p = 0.148)			
1 - 9 (ref)	191/202 (94.6%)	1.00	[0.95 - 1.05]
10 - 19	124/140 (88.6%)	0.94	[0.88 - 1.00]
20 - 29	45/48 (93.8%)	0.99	[0.92 - 1.07]
30 - 39	11/11 (100.0%)	1.06	[1.02 - 1.09]

Attitudes and practices:

Most providers demonstrated favorable attitudes toward cervical cancer screening. Overall, 97.8% expressed a positive disposition toward recommending or supporting screening. Health care providers with a satisfactory level of knowledge were 1.08 times more likely to have a favorable attitude toward cervical cancer screening compared to those with unsatisfactory knowledge. However, when practice was assessed, 76.8% of providers reported that they had never performed cervical cancer screening during consultations. This discrepancy highlights a significant gap between providers' favorable attitude and clinical practice.

The level of knowledge appeared to influence practice: providers with satisfactory knowledge were 7.44 times more likely to report having performed screening compared to those with unsatisfactory knowledge (Table 3).

Table 3. Influence of knowledge level on practice.

	Satisfying/Total (%)	PR	95%CI
Level of knowledge (p = 0.007)			
Satisfying	92/371 (24.8%)	7.44	[1.07 - 51.52]
Unsatisfying	1/30 (3.3%)	1.00	[0.07 - 15.26]

4. Discussion

The refusal of some providers to complete the questionnaire was a limitation. However, this study remains a significant contribution to understanding cervical cancer screening practices in Gabon. The average age of health care providers surveyed in this study was 37.7 years. These results may be explained by the fact that young providers were easily accessible. The female majority had 79.6% participation, compared with 20.4% for the males. This could be explained by the strong participation of midwives at 48.1%. This was also reported by Hsairi *et al.* [4], who reported a rate of 67.7%. Half of the health care providers, or 50.4% of the participants, had seniority of less than 10 years. This figure could be justified by a majority of young people, between 25 and 34 years old, or 46.4% of participants.

In our study, the average professional experience was more than 10 years, which is higher than the average reported by Samira *et al.* [5] in Morocco.

In this study, 92.5% of health care providers had a good level of knowledge about cervical cancer screening. The best-known terms were: risk factors at 78.3%, and screening means at 76.6%. Our finding differs from those of Sawadogo *et al.* [6] in Burkina Faso in 2017, where the best-known aspects among providers were the definition of cervical cancer (91.1%) and the preventive measures, rather than screening methods or risk factors.

Knowledge of screening revealed that 59% of nurses, 81.9% of midwives, 81% of general practitioners, and 100% of gynecologists, an overall rate of 76.6% of participants, had a good level of knowledge. Bongo in Congo [7] reported that 88.5%

of participants cited cervical-vaginal smear as a means of screening, and visual inspection methods were cited by 34.6% for the IVA test and 36.5% for the IVL test.

Knowledge of risk factors was good in this study in 51% of nurses, 84.4% of midwives, 93.9% of general practitioners, and 100% of gynecologists.

In our study, 98% of participants mentioned human papillomavirus as a risk factor for cervical cancer. This rate is far higher than that of Kabibou [8] in Benin, who reported that 21% of respondents knew that human papillomavirus is a risk factor for cervical cancer. Nilsen *et al.* [9] also published results below our own, at 64.5%.

Knowledge of therapeutic means was good among 54% of nurses, 71% of midwives, 71.7% of general practitioners, 89.9% of gynecologists, and a total of 67.3% of the respondents who had a good level of knowledge.

Lower results were published by McCarey *et al.* [10], who found that only 57.38% of their health care providers perceived cervical cancer as a serious disease.

Blumberg *et al.* [11] in Ethiopia showed results close to those of our study, of which 22% of the investigators were screening. Knowledge level influences health care personnel's attitude ($p = 0.03$). Compared to health care workers with an unsatisfactory level of knowledge, those with a satisfactory level of knowledge had a 1.08 times higher probability of having a favorable level of attitude. This is different from that of Nguefack *et al.* [12], which reveals that having satisfactory or unsatisfactory knowledge does not necessarily justify favorable attitudes. This result could be explained by social values and representations or beliefs.

There is no influence on the level of attitude of health care personnel on their practice ($p = 0.09$). This means that having a favorable attitude does not necessarily imply good professional practice, as shown by Filiatrault *et al.* [13], there may be other factors preventing the implementation of a favorable attitude in practice.

In our study, although almost all providers demonstrated favorable attitudes toward screening, actual practice remained limited. More than three-quarters had never performed a cervical cancer screening test during consultations, revealing a considerable gap between attitudes and clinical behavior. However, knowledge level was strongly associated with practice: providers with satisfactory knowledge were 7.44 times more likely to report having performed screening compared to those with unsatisfactory knowledge. This suggests that while knowledge alone does not guarantee systematic practice, it is a critical prerequisite that facilitates the transition from awareness to action.

By contrast, favorable attitudes in the absence of adequate knowledge did not significantly influence practice. This indicates that structural and systemic barriers—such as lack of training, limited equipment, and organizational constraints—may prevent providers from translating positive attitudes into routine clinical practice. These findings are consistent with observations from other Sub-Saharan African settings, where gaps between knowledge, attitudes, and practices have been

reported, often attributed to similar contextual challenges. For instance, a meta-analysis reported that only 17.2% of providers had ever conducted screening, despite moderate to high levels of knowledge and attitudes [14]. Several contextual explanations may account for this discrepancy between knowledge and practice. First, Gabon lacks a structured national cervical cancer screening program. Unlike high-income countries, where systematic cytology of HPV testing is routinely offered, screening in Gabon remains opportunistic and depends largely on providers' initiative. Second, pre-service and in-service training opportunities are limited. Many providers, although knowledgeable, feel inadequately trained to perform the procedure. In a systematic review, lack of training and inadequate skills were among the most frequently reported barriers [15]. Similarly, Chitha *et al.* showed that even nurses with adequate knowledge were reluctant to perform screening due to lack of equipment and workload constraints [16]. Differences with studies conducted in Morocco, Benin or Ethiopia may also be explained by variations in health system organization, curricula or professional training, and availability of screening technologies such as HPV testing or visual inspection with acetic acid (VIA). In countries where continuing medical education and structured national programs exist, providers' practice tends to be higher [17].

Socio-cultural barriers are another key factor. In Gabon, cervical cancer is sometimes perceived as a taboo subject, both for patients and providers. This can hinder the integration of screening into routine consultations. In addition, competing health priorities, especially malaria, HIV and tuberculosis, often overshadow preventive programs such as cervical screening [16].

Therefore, the discrepancy between knowledge and practice in our study cannot be attributed solely to individual factors. It reflects broader systemic issues, including health system limitations, lack of structured training, and socio-cultural barriers. To bridge this gap, national policies must be put in place to strengthen institutional capacities, improve access to continuing education and promote approaches adapted to the local socio-cultural context.

5. Conclusions

Our study assessed the knowledge, attitudes and practice of health care providers regarding cervical cancer screening in Libreville in 2019. While providers demonstrated satisfactory knowledge and favorable attitudes, actual screening practices remained very low. The main barrier identified was the lack of training.

Beyond individual factors, our findings highlight systemic challenges, including the absence of a structured national screening program, limited continuing education opportunities, and social-cultural barriers that may hinder routine screening. Addressing these issues requires a comprehensive approach that combines provider training, health system strengthening, and community awareness. Institutionalizing cervical cancer screening within national health policies and ensuring adequate resources are essential to translate knowledge and attitudes into effective and sustainable practice.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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