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Barriers and Facilitators Influencing Cervical and Breast Cancer Screening Among Healthcare Professionals in the Cape Coast Metropolis, Ghana: An Explanatory Mixed- Methods Study

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Abstract

Background

Cervical and breast cancers remain major public health challenges globally and account for substantial morbidity and mortality among women, particularly in low- and middle-income countries (LMICs). Healthcare professionals play a critical role in promoting cancer prevention, early detection, and screening; however, participation in cancer screening among healthcare professionals remains suboptimal in many settings. This study explored barriers and facilitators influencing cervical and breast cancer screening among healthcare professionals in the Cape Coast Metropolis of Ghana using an explanatory mixed-methods approach.

Methods

An explanatory sequential mixed-methods study was conducted among healthcare professionals working in selected health facilities within the Cape Coast Metropolis. The quantitative component involved 517 healthcare professionals who completed structured questionnaires assessing health-system factors, screening intentions, recommendation behaviors, perceived barriers, and suggested interventions. Qualitative data was obtained through in-depth interviews with healthcare professionals purposively selected from different professional groups. Quantitative data were analyzed using descriptive statistics, while qualitative data were analyzed using Braun and Clarke's thematic analysis framework.

Results

Most participants reported the availability of onsite cervical (63.0%) and breast (61.9%) cancer screening services; however, only 23.0% indicated that their institutions provided protected work time or formal support for screening attendance. More than half (53.6%) expressed willingness to undergo screening within the next 12 months, while 56.1% regularly recommended screening to patients. The main barriers to screening were lack of time, fear of diagnosis, confidentiality concerns, and financial constraints. Qualitative analysis generated four themes: knowledge and awareness of cancer screening; attitudes, beliefs and perceptions toward screening; structural and workplace barriers; and motivators and strategies for improving screening uptake.

Conclusion

This mixed-methods study demonstrates that barriers and facilitators to cervical and breast cancer screening among healthcare professionals extend beyond individual knowledge and attitudes to include workplace and health-system influences. Integrated findings highlighted the importance of workload

management, confidential screening pathways, affordable screening services, and institutional support in promoting screening participation.

Introduction

Cervical and breast cancers remain major public health concerns worldwide and are among the leading causes of cancer-related morbidity and mortality among women. According to the International Agency for Research on Cancer (IARC), breast cancer is the most frequently diagnosed cancer globally, while cervical cancer remains the fourth most common cancer among women, accounting for substantial disease burden, particularly in low- and middle-income countries (LMICs) (1, 2). Although advances in screening, early detection, and treatment have contributed to declining mortality rates in many high-income countries, women in sub-Saharan Africa continue to experience disproportionately high mortality due to delayed diagnosis and limited access to preventive services (3).

The World Health Organization (WHO) identifies cervical cancer as one of the few cancers that can be effectively prevented through regular screening and early treatment of precancerous lesions (4). Similarly, breast cancer outcomes can be significantly improved through early detection strategies, including breast self-examination, clinical breast examination, and mammography where available (5). Despite these recommendations, screening coverage remains low across many African countries, including Ghana (6).

In Ghana, cervical and breast cancers constitute two of the most common cancers affecting women. The Ghana National Cancer Control Strategy emphasizes the importance of strengthening cancer prevention, early detection, and screening services as part of national efforts to reduce cancer-related morbidity and mortality (7). Nevertheless, previous studies have reported persistently low uptake of cancer screening services among Ghanaian women despite increasing awareness campaigns (8, 9).

Healthcare professionals occupy a unique position within the healthcare system as providers of health education, advocates for preventive care, and role models for health-seeking behavior. Evidence suggests that healthcare providers who personally engage in preventive health practices are more likely to recommend such practices to their patients (10). Consequently, cancer screening intentions and recommendations among healthcare professionals may influence both their personal health outcomes and the screening behaviors of the populations they serve.

Paradoxically, several studies conducted in Ghana and other LMICs have demonstrated that healthcare professionals often exhibit lower-than-expected participation in cancer screening despite possessing adequate knowledge regarding cancer prevention and early detection (11, 12). Existing research has largely focused on knowledge levels, prevalence of screening uptake, and demographic predictors of screening behavior. However, less attention has been paid to the complex interplay of workplace, institutional, sociocultural, and psychological factors that influence screening among healthcare professionals.

Understanding these factors is particularly important because healthcare professionals face unique occupational challenges, including heavy workloads, shift schedules, workplace stress, confidentiality concerns, and organizational constraints that may affect their ability to access preventive healthcare services. Furthermore, quantitative studies alone may not adequately capture the contextual factors and lived experiences underlying screening behaviors.

To address this gap, the present study employed an explanatory mixed-methods approach to examine barriers and facilitators influencing cervical and breast cancer screening among healthcare professionals in the Cape Coast Metropolis of Ghana. Specifically, the study explored health-system factors, screening intentions, perceived barriers, and potential strategies for improving screening adherence while simultaneously examining healthcare professionals' experiences and perceptions regarding cancer screening. Findings from this study may inform the development of targeted interventions and workplace policies aimed at improving cancer screening participation among healthcare professionals and strengthening cancer prevention efforts in Ghana.

Methods

Study design

This study employed an explanatory sequential mixed-methods design. The quantitative phase was conducted first to identify health-system factors, barriers, intentions, and proposed strategies related to cervical and breast cancer screening adherence among healthcare professionals. The qualitative phase subsequently explored participants' experiences and perceptions to provide contextual explanations and deeper insight into the observed quantitative findings. Integration of findings occurred during interpretation and discussion.

Study setting

The study was conducted in four selected public and private hospitals within the Cape Coast Metropolis of the Central Region of Ghana, namely; the Cape Coast Teaching Hospital, The University of Cape Coast Hospital, the Baiden Ghartey Hospital, and the PPAG Hospital. Cape Coast serves as a major educational and healthcare hub in the region and hosts multiple facilities providing primary, secondary, and specialist healthcare services.

Study population

The study population comprised of healthcare professionals working in the selected hospitals, including medical doctors, nurses, midwives, pharmacists/pharmacy technicians, medical laboratory scientists, and allied health professionals. Participants were eligible if they were actively employed in the facility during the study period and had worked in the facility for at least six months.

Determination of sample size (Quantitative)

The sample size for the quantitative component was estimated using Cochran's formula for cross-sectional studies (13) : $n_0 = (Z^2 \times p \times (1 - p) / e^2$

Where: n_0 = required sample size for a large population; Z = standard normal deviate corresponding to the desired confidence level (1.96 for 95% confidence); p = estimated proportion of the population with the characteristic of interest; 1 − p = proportion without the characteristic of interest; e = margin of error (precision).

A prevalence (p) of 50% was assumed because no previous study had reported the prevalence of cervical and breast cancer screening adherence among healthcare professionals in the study area. Using a 95% confidence level (Z = 1.96) and a margin of error of 5% (d = 0.05), the minimum sample size was calculated as $n_0 = (1.96^2 \times 0.5 \times (1 - 0.5) / 0.05^2$; $n_0 = (3.8416 \times 0.25) / 0.0025$; $n_0 = 384.16$. Therefore, the minimum required sample size was 384 participants before adjustment for non-response. To account for possible non-response and incomplete questionnaires, an additional 10% was added, yielding a minimum required sample size of approximately 423 healthcare professionals. A total of 517 healthcare professionals were ultimately recruited and included in the quantitative analysis.

Sampling procedure

A multistage sampling procedure was employed to recruit participants. In the first stage, eligible hospitals within the Cape Coast Metropolis were identified and included in the study. The total sample size was then allocated proportionately to each facility based on the number of eligible healthcare professionals working in the facility. In the second stage, healthcare professionals within each facility were stratified according to professional cadre, including doctors, nurses/midwives, pharmacists, laboratory scientists, and allied health professionals. The number of participants selected from each cadre was determined using proportional allocation. Finally, simple random sampling was used within each stratum to select eligible participants until the required sample size was attained. A total of 380 participants were recruited from the Cape Coast Teaching Hospital, 75 from the UCC Hospital, 40 from the Baiden Ghartey Hospiatl, and 22 from the PPAG Hospital.

Quantitative component

A structured self-administered questionnaire was used to collect quantitative data from healthcare professionals. The questionnaire captured sociodemographic information, health-system factors related to screening services, screening intentions and recommendation behaviors, perceived barriers to screening, and suggested strategies for improving screening uptake. Perceived barriers to screening were measured using six items rated on a five-point barrier severity scale, ranging from 1 (*Not a barrier*) to 5 (*Major barrier*). A composite barrier score was computed by summing the responses across all six items. The median barrier score (17) was used as the cut-off point to categorize participants into low

perceived barriers (≤ 17) and high perceived barriers (> 17). Higher scores indicated greater perceived barriers to cervical and breast cancer screening. This binary outcome variable was subsequently used in logistic regression analyses to identify factors associated with perceived screening barriers. Intention to undergo screening was measured using a five-point likelihood scale ranging from *Very unlikely* to *Very likely*, with higher scores indicating a stronger intention to undergo screening. Recommendation behavior was assessed using a five-point frequency scale ranging from *Never* to *Always*, with higher scores indicating more frequent recommendation of cancer screening to patients. The instrument used for this study was developed by the research team following a review of relevant literature on cancer screening among healthcare workers and was pretested among 30 healthcare professionals in a facility outside the study area. A total of 517 healthcare professionals completed the survey. The final English-language questionnaire is provided as Supplementary File (S1).

Qualitative component

Following the quantitative survey, in-depth interviews were conducted with healthcare professionals purposively selected from different professional categories to ensure variation in age, profession, and years of experience. Participants were selected to provide diverse perspectives on cancer screening experiences, barriers, and facilitators. Interviews were conducted using a semi-structured guide covering knowledge of cancer screening, attitudes and beliefs, workplace experiences, sociocultural influences, and recommendations for improving screening adherence. Interviews were audio-recorded with participants' permission and transcribed verbatim.

Qualitative participants were selected purposively to ensure representation across different professional cadres and healthcare facilities. Data collection and analysis occurred concurrently, allowing emerging concepts to be monitored throughout the interview process. Interviews were conducted until thematic saturation was achieved, defined as the point at which no new codes, categories, or themes were identified from successive interviews. A total of fifteen participants were interviewed.

Data collection procedure

Trained research assistants administered the questionnaires during working hours after obtaining informed consent. Completed questionnaires were reviewed daily for completeness and consistency. Qualitative interviews were conducted in private locations within the health facilities to ensure confidentiality and lasted approximately 15–20 minutes each.

Data analysis

Quantitative data was entered into Microsoft Excel, cleaned, and exported to Stata version 14 for analysis. Descriptive statistics were used to summarize health-system factors, screening intentions,

recommendation behaviors, barriers, and suggested interventions. Categorical variables were presented as frequencies and percentages.

Qualitative data were analyzed using Braun and Clarke's thematic analysis framework (14). Transcripts were read repeatedly to achieve familiarity with the data. Initial codes were generated, and were grouped into categories, and broader themes and subthemes were developed through iterative review. Coding and theme development were conducted independently by members of the research team, and discrepancies were resolved through discussion to enhance credibility.

Trustworthiness was established using Lincoln and Guba's criteria of credibility, dependability, confirmability, and transferability (15). Credibility was enhanced through verbatim transcription, repeated reading of transcripts, and collaborative review of codes and themes by the research team. Dependability was ensured through a systematic analytical process guided by Braun and Clarke's thematic analysis framework and maintenance of an audit trail. Confirmability was promoted through independent coding, team discussions, and reflexive notetaking throughout the analytical process. Transferability was enhanced by providing detailed descriptions of the study setting, participants, and research procedures to allow readers to determine the applicability of the findings to similar contexts.

Integration of quantitative and qualitative findings

Integration occurred during interpretation. Quantitative findings identified the major barriers and facilitators to screening, while qualitative findings were used to explain and contextualize these patterns. Areas of convergence and complementarity between the two data sources were examined to develop a comprehensive understanding of cancer screening intentions among healthcare professionals.

Results

Health system factors influencing screening

Most participants reported that their workplace offered onsite cervical cancer screening (63.0%) and onsite breast cancer screening (61.9%). However, only 23.0% indicated that their facility provided a protected time to attend screening appointments, while 58.1% reported that such support was unavailable. Regarding training, 44.6% had received formal training on cancer screening within the previous five years, whereas 55.4% had not, with details shown in Table 1.

Table 1
Health system factors influencing screening

variables	f	%
Workplace Onsite Cervical Cancer		
Yes	318	62.97
No	107	21.19
Don't Know	80	15.84
Workplace Onsite Breast Cancer		
Yes	307	61.9
No	122	24.6
Don't Know	67	13.51
Facility provides protected time for screening		
Yes	112	23
No	283	58.11
Don't Know	92	18.89
Formal Training Cancer Screening In Last 5 Years		
Yes	220	44.62
No	273	55.38

Intention and recommendation regarding screening

Overall, 53.6% of participants reported that they were likely or very likely to undergo cancer screening within the next 12 months, whereas 27.9% were unlikely or very unlikely to do so (Table 2). With respect to recommendation behavior, 56.1% reported that they often or always recommended cancer screening to patients, while only 4.4% indicated that they never recommended screening.

Table 2
Intention and recommendation behavior of participants on cervical and breast cancer screening.

Variables	f	%
Likelihood to go for screening in the next 12 months		
Very unlikely	86	17.13
unlikely	54	10.76
Neutral	93	18.53
likely	187	37.25
very likely	82	16.33
Recommend screening to patients		
Never	22	4.39
Rarely	88	17.56
Sometimes	110	21.96
often	194	38.72
Always	87	17.37

Perceived barriers to screening

Perceived barriers were assessed using a composite score derived from six Likert-scale items. Participants were categorized into low and high perceived barrier groups using the median score of 17 as the cut-off point. Multivariable logistic regression analysis showed that no significant associations were observed for age, professional cadre, or years of professional experience (Table 3).

Table 3
Association between sociodemographic and barriers to screening

Characteristics	COR (95%CI)	P value	AOR(95%CI	P value
Age groups				
20–29	1		1	
30–39	1.08 (0.72–1.46)	0.943	1.12 (0.74–1.68)	0.596
40–49	2.33 (1.10–4.90)	0.026	2.08 (0.86–4.97)	0.100
50–59	0.66 (0.11–4.3.99)	0.648	4.62 (0.27–80.02)	0.293
Professional Cadre				
Doctor	1		1	
Nurse/midwife	0.89 (0.39–2.04)	0.791	0.89 (0.37–2.11)	0.798
Pharmacist	1.03 (0.35–2.99)	0.96	0.85 (0.27–2.61)	0.773
Lab Scientist	2.54 (0.55–11.77)	0.234	2.69 (0.56–12.98)	0.216
Allied Health	0.85 (0.14–5.07)	0.855	2.39 (0.21-27.00)	0.479
Other	0.12 (0.01–1.14)	0.065	0.08 (0.01–1.34)	0.062
Years of Experience				
< 1	1		1	
1 to 5	0.67 (0.42–1.07)	0.09	0.64 (0.39–1.05)	0.076
6 to 10	0.72 (0.40–1.28)	0.262	0.63 (0.33–1.20)	0.157
11 to 15	1.64 (0.78–3.46)	0.191	1.30 (0.55–3.06)	0.544

Participants' responses on most important obstacles to screening and suggested improvements

Responses to the open-ended question regarding the most important obstacle to screening revealed that time constraints were the most frequently cited challenge (32.8%), followed by fear of diagnosis (20.1%), confidentiality concerns (17.0%), and financial barriers (16.0%). Participants also identified stigma and lack of knowledge as barriers, although these were less frequently mentioned, as shown in Table 4.

Table 4
Obstacles to screening and suggestions for improvement

Variables	f	%
Main obstacles To Screening		
Time	139	32.78
Cost/fund	68	16.04
Fear	85	20.05
Confidentiality	72	16.98
Stigma	20	4.72
Time and Confidentiality	6	1.42
Cost and Confidentiality	9	5.42
Lack Of Knowledge	17	4.01
Fear and cost	5	1.18
Other	3	0.71
Suggestions To Improve Screening Adherence		
Affordable Screening	107	25.18
Education	153	36
Safe confidentiality environment	85	20
Reduced workload	32	7.53
Mandatory test and others	48	11.29

Qualitative results

A thematic analysis using Braun and Clarke's thematic approach was conducted. The findings can be presented under four major themes and several sub-themes that explain determinants of cervical and breast cancer screening adherence among healthcare professionals in the Cape Coast Metropolis.

Participant characteristics

Fifteen healthcare professionals participated in the interviews, comprising midwives, registered nurses, enrolled nurses, a community health nurse, a health assistant, and a medical doctor. Participants had between 1 and 21 years of professional experience and varying levels of involvement in cancer screening and health promotion activities.

Sociodemographic characteristics of study participants interviewed

Fifteen healthcare professionals participated in the qualitative interviews (Table 5). The sample comprised midwives (n = 4), nurses (n = 3), enrolled nurses (n = 2), medical doctors (n = 2), pharmacists (n = 2), a community health nurse (n = 1), and a health assistant (n = 1). Participants had varying levels of professional experience, with most having 6–10 years of practice (n = 5). This diversity of professional backgrounds and experience levels provided a broad range of perspectives on cancer screening adherence among healthcare professionals.

Table 5
Sociodemographic characteristics of study participants interviewed

Variable	f
Profession	
Midwives	4
Nurses	3
Enrolled Nurses	2
Medical doctor	2
Pharmacist	2
Community Health Nurse	1
Health Assistant	1
Years of Practice	
1 to 5 years	4
6 to 10	5
11–15	3
16 and above	3

Themes and sub-themes of the interview

The thematic analysis identified four major themes related to cancer screening among participants, with sub-themes under each major theme, with details as shown in Table 6.

Table 6
Themes and sub-themes identified

Theme	Sub-themes
Knowledge and Awareness of Cancer Screening	General awareness of screening methods; Inadequate continuing education; Need for specialized education and research
Attitudes, Beliefs and Perceptions toward Cancer Screening	Importance of early detection; Fear of diagnosis; Stigma and social judgment; Cultural and spiritual beliefs
Structural and Workplace Barriers to Screening	Workload and lack of time; Privacy and confidentiality concerns; Limited access to services; Financial constraints
Motivators and Strategies for Improving Screening Uptake	Institutionalized screening programs; Education and reminders; Peer influence and role modeling; Free and accessible services; Policy enforcement and mandatory screening

Theme 1: Knowledge and awareness of cancer screening

This theme describes participants' understanding of cervical and breast cancer screening and their perceptions regarding the level of awareness among healthcare professionals.

Sub-theme 1.1: general awareness of screening methods

Most participants demonstrated fair to good knowledge of cervical and breast cancer screening methods, including Pap smear, HPV testing, breast self-examination (BSE), clinical breast examination (CBE), and mammography. Participants reported acquiring knowledge through professional training, workplace experience, and participation in health promotion activities. "I have fair knowledge of cervical and breast cancer screening methods such as the Pap smear, HPV testing, breast self-examination and clinical breast examination." (C1); "My knowledge on cervical cancer and breast cancer screening is fairly good from both training and practice." (C2).

Sub-theme 1.2: inadequate continuous professional education

Despite general awareness, several participants believed that healthcare professionals were not adequately updated on current screening guidelines due to limited refresher training and continuing professional education. Some participants recounted as follows: "Many healthcare professionals in Ghana are not fully updated on current screening guidelines due to limited professional continuing education." (C1). Another also disclosed "We hear about it in school but refresher training is limited." (C2)

Sub-theme 1.3: Need for specialized education and research

Some participants suggested establishing dedicated teams responsible for cancer-related research, education, and staff sensitization. "If a special team will be trained for that screening and reminding the staff and doing research and presentations, there will be more knowledge about it." (C11)

Theme 2: attitudes, beliefs and perceptions toward cancer screening

This theme captures participants' views, emotions, fears, and sociocultural influences affecting screening participation.

Sub-theme 2.1: recognition of the importance of early detection

Participants generally viewed screening positively and acknowledged its role in early diagnosis, timely treatment, and improved survival. "Cancer screening is very important because it promotes early detection and improves treatment outcomes." (C1); another participant also said "It helps you with early treatment if you have it." (C4)

Sub-theme 2.2: fear of positive diagnosis

Fear emerged as one of the strongest deterrents to screening. Healthcare professionals reported anxiety about discovering they might have cancer. "Some healthcare professionals avoid screening because of fear of positive diagnosis." (C1); another one also said "What if I go and do it and it comes out that I am also involved?" (C9)

Sub-theme 2.3: stigma and perceived social judgment

Participants described stigma surrounding cancer diagnoses, including concerns about how colleagues and society might perceive them. "People will say that she has breast cancer, so still there is stigma." (C11); "Some colleagues fear that if they are diagnosed it will affect their work and reputation." (C2).

Sub-theme 2.4: cultural and spiritual beliefs

Some respondents indicated that cancer is occasionally perceived as a spiritual attack, curse, or consequence of immoral behavior, which discourages screening. "There are cultural beliefs that cancer is a spiritual attack." (C2); "Some may think they are cursed, or it has spiritual connections." (C15); another participant also disclosed "Some people think those having that condition were involved in sexual immorality," (C10),

Theme 3: structural and workplace barriers to screening

This theme reflects organizational and healthcare-system factors that hinder screening adherence.

Sub-theme 3.1: workload and lack of time

Almost all participants identified heavy workloads, shift schedules, staff shortages, and burnout as major barriers. One participant said, "We work long shifts and have to find time during working hours to go for screening." (C2); another one also highlighted on time "We are always taking care of others but we get little time for ourselves," (C6); and workload "Healthcare professionals are burnt out, so going for such screenings becomes extra workload," (C9).

Sub-theme 3.2: privacy and confidentiality concerns

Many participants expressed discomfort about being screened by colleagues in their own facilities due to fears of confidentiality breaches. "Some healthcare professionals may feel uncomfortable being screened by colleagues." (C1); "You might think the person will inform another colleague about your present status." (C3); "Everybody will get to know that I have this condition, so it is better to keep it to myself," (C7).

Sub-theme 3.3: limited access and availability of services

Participants highlighted inadequate screening centers, inconvenient schedules, and poor accessibility as barriers. "Limited screening centers too." (C1); "Since I worked here, it is only last year that my facility was doing the screening," (C14).

Sub-theme 3.4: financial constraints

Although less frequently mentioned, some participants noted that screening costs and follow-up care expenses may discourage participation. "Follow-up care can be expensive." (C2); "There should be free healthcare for health workers," (C6).

Theme 4: motivators and strategies for improving screening uptake

This theme captures factors that encourage screening participation and recommendations for improving adherence.

Sub-theme 4.1: institutionalized screening programs

Participants consistently advocated for integrating screening into workplace wellness programs and routine staff health assessments. "Screening should be made part of our annual staff health checkup." (C2); "There should be a timetable that will allow facilitators to undergo screening at regular intervals," (C5).

Sub-theme 4.2: education, awareness and reminders

Continuous education and regular reminders were identified as key strategies for maintaining awareness and encouraging screening behavior. "Regular education on cancer prevention and reminders from

institutions." (C1); "We still need education as a form of reminding us," (C10).

Sub-theme 4.3: peer influence and positive role modeling

Participants reported that observing colleagues, supervisors, and peers undergoing screening could motivate others. "Positive testimonies from colleagues motivate healthcare professionals." (C1); "Seeing colleagues and senior staff going for screening motivates others," (C2).

Sub-theme 4.4: free, accessible and convenient screening services

Healthcare professionals recommended free or subsidized services, outreach screening at workplaces, and dedicated screening units. "Availability of free or subsidized screening services." (C1); "We should have a place set like a unit for breast and cervical cancer screening," (C11).

Sub-theme 4.5: policy enforcement and mandatory screening

Some participants proposed making screening mandatory or linking it to staff appraisal and professional renewal processes. "They should make it compulsory for all health professionals." (C8); "If it is made mandatory like a yearly thing, it will be a motivation factor." (C9)

Integration of quantitative and qualitative findings

The integrated findings demonstrated substantial convergence between the quantitative and qualitative components of the study (Table 7). Across both datasets, time constraints emerged as a major barrier to screening, with participants attributing this challenge to heavy workloads and competing professional responsibilities. Similarly, fear of diagnosis and confidentiality concerns identified in the quantitative findings were further explained through qualitative narratives describing anxiety about positive screening results and discomfort with being screened by colleagues within the same facility. Financial barriers were also evident across both strands, with participants emphasizing the need for affordable and subsidized screening services. Overall, the findings suggest that cervical and breast cancer screening adherence among healthcare professionals is influenced by interconnected individual, workplace, and health-system factors.

Table 7
Joint display of integrated quantitative and qualitative findings

Quantitative findings	Qualitative findings
Lack of time	Heavy workload and competing responsibilities
Fear of diagnosis	Anxiety about positive results
Confidentiality concerns	Preference for external screening teams
Financial constraints	Need for affordable screening services

Discussion

This study examined barriers and facilitators influencing cervical and breast cancer screening adherence among healthcare professionals in Ghana using quantitative and qualitative approaches. The integrated findings of this study indicate that barriers to cancer screening among healthcare professionals operate at multiple levels, including individual, workplace, and health-system domains. The findings indicate that although healthcare professionals generally possessed adequate knowledge of cancer screening and recognized the benefits of early detection, adherence remained influenced by structural, psychological, sociocultural, and organizational factors. Quantitative findings demonstrated that lack of time, fear, confidentiality concerns, and financial constraints were major barriers to screening, while qualitative findings provided deeper insight into how these factors shape screening behavior among healthcare professionals.

A notable finding was that despite the availability of onsite screening services in many facilities, only a minority of participants reported receiving institutional support in the form of protected time for screening appointments. More than half of respondents had not received formal training on cancer screening within the previous five years. These findings suggest that physical availability of services alone may be insufficient to ensure screening adherence. Similar studies conducted among healthcare workers in Ghana and other African countries have reported that institutional support, workplace wellness programs, and continuing professional education significantly influence screening participation (11, 12).

Time constraints emerged as the most frequently reported barrier in the quantitative survey and were strongly reinforced by qualitative interviews. Participants described heavy workloads, shift schedules, staff shortages, and occupational burnout as factors that limited their ability to seek preventive health services. Similar findings have been reported across sub-Saharan Africa, where healthcare workers frequently identify competing professional responsibilities as major obstacles to preventive healthcare utilization (16). These findings highlight the importance of integrating cancer screening into routine workplace health programs.

Fear of receiving a positive diagnosis was another prominent barrier identified in both the quantitative and qualitative findings. Participants expressed concerns regarding discovering an unexpected cancer

diagnosis and its potential consequences. This observation is consistent with findings from Ghanaian studies showing that fear of diagnosis, treatment, and disease outcomes remains a major deterrent to cervical cancer screening participation (8). Importantly, the present study demonstrates that healthcare professionals, despite their medical knowledge, are not immune to the psychological fears that influence screening behavior in the general population.

Confidentiality concerns also featured prominently in both the quantitative and qualitative findings. Healthcare professionals reported discomfort with undergoing cervical or breast cancer screening within their own facilities because of fears regarding privacy breaches, disclosure of personal health information, and potential stigma associated with a positive diagnosis. Some participants specifically expressed a preference for screening services to be organized outside their workplaces, while others recommended that external specialists be invited to conduct screening within their facilities rather than relying on colleagues who were familiar with them professionally. These preferences underscore the importance of perceived confidentiality and anonymity in healthcare workers' health-seeking behavior. Similar concerns have been documented among healthcare workers and women participating in cancer screening programs in Ghana and other low- and middle-income countries, where fears regarding privacy, confidentiality, and social exposure have been identified as barriers to screening uptake (11, 17). The findings suggest that healthcare institutions should consider implementing confidential employee screening pathways, including the use of external screening teams or referral arrangements to alternative facilities, to improve screening participation among healthcare professionals.

The qualitative findings further revealed that stigma, cultural beliefs, and spiritual interpretations of cancer continue to influence screening behavior. Participants reported that cancer may sometimes be perceived as a curse, spiritual attack, or consequence of immoral behavior. These beliefs have been documented in several African contexts and may contribute to delayed health-seeking behavior and reduced participation in cancer screening programs (18, 19). Addressing these misconceptions through culturally sensitive educational interventions remains critical.

An encouraging finding was that most participants recognized the importance of early detection and demonstrated positive attitudes toward cancer screening. Furthermore, more than half indicated that they were likely to undergo screening in the future and regularly recommended screening to patients. This suggests the presence of a favorable foundation upon which interventions can build. Participants proposed several strategies to improve adherence, including institutionalized screening programs, continuous education, peer support, free or subsidized screening services, and policy-driven approaches. These recommendations align with evidence suggesting that multifaceted interventions addressing both individual and organizational determinants are most effective in improving cancer screening

Limitations

This study has several limitations. First, the quantitative component relied on self-reported data, which may be subject to recall bias and social desirability bias. Second, the cross-sectional nature of the survey

limits causal inference regarding the observed associations. Third, the study was conducted within a single metropolitan area, potentially limiting generalizability to healthcare professionals in other regions of Ghana. Finally, although the qualitative component provided rich contextual insights, the findings may not represent the experiences of all healthcare professional groups.

Conclusion

This mixed-methods study demonstrates that barriers and facilitators to cervical and breast cancer screening among healthcare professionals extend beyond individual knowledge and attitudes to include workplace and health-system influences. Integrated findings highlighted the importance of workload management, confidential screening pathways, affordable screening services, and institutional support in promoting screening participation. Addressing these multilevel factors may improve engagement with cancer screening services among healthcare professionals and enhance their capacity to serve as advocates for cancer prevention within the wider population.

Declarations

Ethical approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Ethical Review Committee of the Cape Coast Teaching Hospital with Reference Number (CCTHERC/EC/2026/036). Administrative permission was obtained from participating health facilities. Participation was voluntary, written informed consent was obtained from all participants, and confidentiality was maintained by removing personal identifiers from the dataset and interview transcripts.

Consent for publication: Not applicable

Clinical trial number: Not applicable

Availability of data and materials

The datasets generated and analyzed during the current study are not publicly available due to ethical and privacy considerations involving human participants but are available from the corresponding author upon reasonable request.

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Author contributions

Stephen Mensah Arhin: Conceptualization, Methodology, formal analysis, investigation, data collection, data interpretation, writing the original draft, and manuscript review and editing.

Patience Ami Kponyoh: Methodology, supervision, investigation, data collection, and manuscript review and editing.

Christopher Alatarige: Data collection, and manuscript review, data curation, Manuscript review and editing.

All authors read and approved of the final manuscript.

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