Breast cancer screening pathways in Ghana: applying an exploratory single case study methodology with cross-case analysis

Adwoa Bemah Boamah Mensah a,*, Kofi Boamah Mensah b,d, Raymond Akawire Aborigo c, Varsha Bangalee d, Frasia Oosthuizen d, Nuworza Kugbey e, Joe-Nat Clegg-Lamptey f, Beth Virmig g, Shalini Kulasingam h, Busisiwe Purity Ncamai i

a Department of Nursing, College of Health Sciences, Kwame Nkrumah University of Science and Technology, Private Mail Bag, University Post Office, Ghana
b Department of Pharmacy Practice, Faculty of Pharmacy and Pharmaceutical Sciences, College of Health Sciences, Kwame Nkrumah University of Science and Technology, Private Mail Bag, University Post Office, Ghana
c Navrongo Health Research Centre, Navrongo, Ghana
d Discipline of Pharmaceutical Sciences, College of Health Sciences, University of KwaZulu-Natal, Westville Campus, University Road, Durban, South Africa
e School of Natural and Environmental Sciences, University of Environment and Sustainable Development, Somanya, Ghana
f Department of Surgery, School of Medical Sciences, University of Ghana, Ghana
g College of Public Health and Health Professions, University of Florida, USA
h Division of Epidemiology and Community Health, University of Minnesota, Minneapolis, Minnesota, USA
i Discipline of Nursing, School of Nursing and Public Health, College of Health Sciences, University of KwaZulu-Natal, Howard Campus, University Road, Durban 4001, South Africa

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ABSTRACT

Background: Breast cancer is steadily increasing in Ghana, with the majority of Ghanaians only seeking care in the advanced stage of the disease. Furthermore, structured breast cancer control strategies are mostly non-existent. This study aimed to examine breast cancer and breast screening pathways in a tertiary healthcare facility within the Kumasi metropolis.

Method: We used a single exploratory case-study design to purposefully select one healthcare facility as a case with embedded sub-units of analysis (patients, first-degree relatives of patients, and clinicians) to address the study's aim. In-depth interview was used to generate evidence from 35 participants. Applying Miles and Huberman's thematic strategy, a cross-case analysis was conducted using Morse's analytical framework.

Results: Five (5) main themes emerged from the data: description of breast cancer, breast health education in Ghana, breast screening practices among women, the state of breast screening and barriers to breast screening uptake and lastly, the way forward. Malignancy of the breast was described as common, especially among young women who commonly present with advanced disease with poor prognostic outcomes. There were reports of limited breast cancer awareness and knowledge among women. Comparatively, urban educated women were noted to be relatively knowledgeable and more proactive about breast cancer than the less-privileged women in rural communities. Self and clinical-breast examination practices were reported as unusual habits for Ghanaian women. Several provider-related factors, lack of screening facilities, and attitude of women were highlighted as barriers to breast screening practices. Education among health professionals and interventions to promote opportunistic and organized breast screening were cited as the way forward for breast cancer control and early detection in Ghana.

Conclusion: This is a confirmatory result of a stark burden of breast cancer in Ghana, inferring a need to address the deficiencies around breast cancer and early detection practices.

* Corresponding author.
E-mail address: bbemah2000@gmail.com (A.B. Boamah Mensah).

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1. Introduction

Breast cancer (BC) is a global public health problem due to its increasing prevalence and rising mortality among both high and low-income countries [1]. Ghana is a sub-Saharan Africa (SSA) country on the Western coast of Africa with a population of 8.57 million women aged 25 years and older [2] who are at risk of developing BC. In 2020, it was the leading cause of cancer deaths (n = 2055 [46%]) in Ghana with approximately 4,482 women being diagnosed with the disease [3]. A recent Ministry of Health (MOH), Ghana report noted that 80% of women with BC were diagnosed at an advanced stage (stage III/IV) of the disease [4], many months (8–15 months) after first noticing a change in their breasts [5, 6]. This is in stark contrast to Europe and North America where less than 20% of women are diagnosed with advanced BC [7]. The reason for this burden related disparity is the availability of screening; to date there is no national screening program in Ghana [8]. As a result, only 4.5% of women have ever screened [9]. Additional factors identified as contributing to the low participation in screening include lack of knowledge, cost of screening, and attitudes of health care personnel towards women who request screening [10].

2. Methodology

2.1. Study design

An exploratory single case study design was employed. This approach follows a logical directive which relates the scientific data to the research questions [14] to explore, explain or describe the ‘causal link’ in real life situations. For instance, availability of breast screening services to women, with an emphasis on exploration and explanation rather than cause and effect [15]. In an attempt to get a better understanding of known and unknown challenges to screening or early detection within the sociocultural context of Ghana, we explored BC and its screening pathways from the views of women who experienced delays resulting in advanced stage diagnosis of the disease, their first-degree relatives (sister, daughter, son, mother, and father) and clinicians providing breast diagnosis (mainly surgeons) and treatment (oncologist), and palliative care services. The ensuing sections describe the methodological processes of the study using a case-study protocol as a guide [15].

2.2. Study setting (case description)

According to Yin [16], it is relevant to distinguish what a case is. The bounded case for exploration in this study was KATH- a tertiary hospital in Kumasi, serving the Northern part of Ghana. Kumasi is the second largest city in Ghana and attracts Ghanaians from almost all parts of the country as well as other nationals from neighboring countries such as the ‘La Cote D’Ivoire’, and Burkina Faso. This ensured varying rich and in-depth information in the data generated. Selection of this health facility was done based on the breast cancer burden in the hospital and the metropolis at large [17]. The case had three (3) sub-units of analysis.

2.3. Study population (sub-units of analysis)

The study targeted women diagnosed with BC, their first degree relatives (FDRs) and clinicians involved in breast health and BC care services. These groups constituted the sub-unit of analysis. The sub-units of analysis is a vital component in the single case study which is typically a system of action [18]. As described by Yin [15], we first defined the sub-units of analysis (Table 1) to assist with replication and comparison across the embedded sub-units.

2.4. Inclusion and exclusion criteria

Participants were selected based on the eligibility criteria described in Table 2 below.

2.5. Sampling and sample size

We used a purposive sampling technique [19] to enroll participants who had experienced the phenomenon under study, were willing to participate and could clearly communicate their breast health and BC detection experiences. Sample size for each group of participants were; patients (n = 11), FDRs (n = 17) and clinicians (n = 7). This was based on theoretical data saturation [20], which was determined from the interviews. We determined we had reached data saturation when data from

| Table 1. Description of sub-units of analysis. |
|-----------------------------------------------|
| Sub-units (SU) | Embedded sub-units of analysis |
| SU-1           | Eleven (11) women diagnosed with breast cancer as participants |
| SU-2           | Seventeen (17) first-degree relatives of patients as participants |
| SU-3           | Seven (7) surgery/palliative/ oncology clinicians as participants |

1.1. Study aims

i. Examine breast screening pathways and early detection services available to women at the Komfo Anokye Teaching Hospital (KATH)

ii. Examine how breast screening and early detection services can be initiated, offered, and sustained for women.

1.2. Research questions

i. What breast screening and early detection services are available to women at KATH?
Clinician

- Delivering palliative care services at the outpatient palliative care clinic
- Providing cancer care to breast cancer patients and families
- Providing breast care services (surgeon)
- Had more than one-year working experience in BC care and/or palliative care

Clinicians who were not involved in breast cancer diagnosis, treatment and palliative care services.
- Those with >1 year working experience in breast cancer and palliative care

2.7. Data collection tool and procedure

Data were collected between January–July 2018. ABBM (first author) collected the data from patients, first-degree relatives, and clinicians (surgeon/oncology/palliative care) through individual, in-depth, face-to-face interviews using a semi-structured interview guide. The interview guide for each respective sub-unit of analysis (group of participants) was developed by the authors based on the study objectives and existing literature. Experts in breast health and cancer care reviewed each interview guide to ensure that it captured breast cancer and its screening pathways in Ghana (additional files). The first author consulted an expert who spoke and wrote Twi (local language) to translate (back-back translation) the interview guide.

Before the actual study, each interview guide was piloted to ensure the appropriateness of the guiding questions. Women diagnosed with advanced breast cancer (n = 3), first-degree relatives (n = 4) and clinicians (n = 1) at KATH participated in the pilot study. The outcome of the pilot study was used to address practical concerns of the guiding questions accordingly. The results of these pilot interviews were not included in the main results of this study. The main question across the interview guides were as follows: “Please can you share with me your experience and perspective on breast cancer and the screening services available to women?” Some of the common probes across the interview guides were; “How would you describe breast cancer in Ghana?” “Please, how would you describe the pathway for breast screening in this hospital?” and “What measures do you think can help promote early detection of breast cancer among women?”

The interviews were conducted by the first author (ABBM), a qualitative researcher with extensive clinical and academic experience in breast health, oncology and palliative care practice. As a researcher, ABBM speaks and writes both ‘Twi’ and English languages. ABBM does not work at KATH, hence she had no direct influence on the study setting and the participants. The in-depth interview allowed the participants to share their views and thoughts on the phenomenon within their setting. Prior to the interview, participants written consent and demographic data were obtained. This was followed by the active interviews which were audiotape recorded with participants’ permission. This order was maintained throughout the study. Participants were encouraged to respond in their own words about their views on breast cancer and screening pathways, and with sensitive probing and redirection, the interviewer tried to capture details on the phenomenon to enhance full understanding of participants’ realities. Interview languages were Twi (n = 28) and English (7). The date, time and venue for the interviews were based on participants’ preference, and interviews lasted for 45–90 minutes (averagely 68 minutes).

All the patient participants depended on their first-degree relatives for physical, emotional, financial, and psycho-social support. They lived with their families in either owner-occupy or rented self-contained apartments and preferred to stay indoors to avoid being seen in their frail state and attract any unfavorable comments from the public. Hence, they visited the cancer and palliative care clinics only on appointment dates. In view of this, most of the patient (n = 9) and first-degree relative (n = 11) participants preferred to be interviewed at the comfort and privacy of their homes without any intrusion. The rest of the interviews (clinicians inclusive) were conducted in places (hospital office) that ensured privacy. The interviewer kept a field notebook to record all non-verbal cues, researcher’s reflections and thought as well as a summary of key concerns of the participants.

2.8. Approach to data analysis

This was an exploratory single case-study with embedded sub-units of analysis. Data were analyzed using Morse’s analytical framework, which outlines four significant stages: comprehending, synthesizing, theorizing and re-contextualizing [21]. These steps were achieved by applying the strategies proposed by Miles and Huberman [22] which included the
following: broad coding, pattern coding, memoing, distilling and ordering, testing executive summary statements, and developing propositions. Miles and Huberman’s analytical strategies have been influential in case study research [15, 23, 24] and have been successfully used in prior studies that used this research design [25, 26]. This approach provided the logic behind the data analysis [16], and was congruous with the guidelines of content analysis [27], which aims to rigorously and creatively organize, find patterns in, and elicit prominent themes from the data.

For Yin [36], data generated from case study researches are usually large and difficult to handle, especially, in the context of an exploratory case study which involved the collection of data from multiple sources. QSR NVivo (NVivo 11, copy right © 1999–2015 QSR international), a computer-assisted qualitative data analysis software (CAQDAS), was hence, deemed appropriate to manage the data and ideas, query the data [28], and also assist with within and cross-case analysis [29].

In the ensuing sections, the analysis is described by Morse’s [21] four stages framework and we outlined how Miles and Huberman strategies [22] were applied to their relevant part of the analysis framework and implemented in this study, coupled with how data were handled in the QSR NVivo.

i. Comprehending

This was the first stage of the analysis [21], and involved initial coding termed ‘broad coding’ [22]. This started while collecting the data and aided the researchers to generate complete, detailed, coherent, and rich description of the embedded sub-units of analysis [21]. All the interviews were transcribed verbatim by the first author (ABBM) in their respective languages. Two independent translators fluent in both the Twi and English languages translated the 28 anonymized “Twi” transcripts using the process of back-back translation while maintaining confidentiality and analyzed alongside the English language transcripts. All the transcribed data were imported into QSR NVivo 11. To make the coding process manageable due to the large data set, a provisional ‘start list’ codes were created based on the research questions. Generated data from all groups of participants were read, coded into broad codes (descriptive/conceptual labels were assigned to excerpts of raw data) and linked to the primary aims of the study. The developed broad codes were further distinguished by perspectives of the embedded sub-units of analysis, thus, patients, first-degree relatives, and clinicians. ‘Tree nodes’ in QSR NVivo which have the capacity to develop hierarchical relationships with other nodes were used to do this. This assisted in organization, conceptual clarity, and identification of patterns among the data. Further, the QSR NVivo ‘attributes’ allowed the storage of factual information about the participants, e.g., demographic data, and these were used to seek patterns and query the data as the analysis advanced.

ii. Synthesizing

This is the merging of perceptions from the sub-units of analysis to describe typical, composite patterns on the phenomena [21]. It is also termed as ‘pattern coding’ or ‘memoing’ [22]. Coding continued using explanatory, inferential codes. The data were organized with the aim to re-assemble data that were fractured during the broad coding, so as to create a more meaningful analysis [22]. Using tree nodes, codes that reflected the views of the participants on breast cancer and its screening pathways were created and were corroborated with the filed notes. This was a lengthy and iterative process, as code (tree node) previously identified had many codes within it. Hence, as new codes were identified, the analyst returned to the previously coded data to ensure that there were no missed codes across the sub-units of analysis. Summaries of key information were formulated from the pattern codes and were drafted in the form of memo against each theme and perspective. This is termed as ‘memoing’ and it laid the foundation for further development of propositions regarding the data [22]. Checklist matrix and case dynamic tables were developed to enable the cross-case analysis [30]. This stage ended with the development of executive statement summaries about the data accordingly.

iii. Theorizing

This was a continuous and rigorous process that enabled the researchers to view and challenge the data [21]; it does not necessarily focus on theory development. The relationships between the identified categories of data were further examined by distilling and organizing the memos drafted in stage 2. These were then tested against the executive statement summaries made about the data. This aided the researchers to build towards a more integrated comprehension of events, processes, and interactions in the case. This was very significant for making comparisons across the perspectives of the group of participants in the case. The process provided a clearer picture of the participants’ perceptions and how they could be linked to breast cancer and its screening pathways as well as strategies to improve breast screening and early detection. The executive summary statements connected the data into recognizable group of concepts within the context of breast cancer and its screening pathways as well as proposed measures to improve early detection of the disease among women. During the data collection, initial themes were followed up in subsequent interviews and substantiated with field notes to fully develop themes. The codes were arranged in five themes; description of breast cancer, breast health education in Ghana, breast screening practices among women, the state of breast screening in Ghana and lastly, the way forward. These themes had sub-theme. The executive summary statements were tested against the data to ensure that statements made about the data could be track back to, and found in, the data. Thus, allowing for findings to be confirmed and representativeness assured. Although the process was carried out manually, the QSR Nvivo quarry tool was used to ensure rigor.

iv. Recontextualizing

At this stage, we developed prepositions that were applicable to breast cancer, screening pathways, and the population. This enhanced the potential transferability of the study findings. After the executive statement summaries had been tested, they were then formalized and systematized into a coherent set of explanations, linked as memos to the sub-themes into QSR NVivo. These formed the basis for the final presentation of the study findings.

2.9. Rigor

Trustworthiness of the study findings was achieved through the four criteria outlined by Guba and Lincoln [31] for ensuring the quality of case study research: credibility, dependability, confirmability, and transferability.

2.9.1. Credibility

This refers to the value and believability of the findings [32]. Thus, ensuring that the findings are true realities of participants, that can be trusted or believed. Strategies such as prolonged engagement, triangulation, peer debriefing, and member checking were employed to achieve credibility in this study [31]. The lead author spent sufficient time in the field to gain comprehensive understanding of the phenomenon under study. During the final interviews of the participating groups, no new ideas/concepts were emerging, which was confirmed in the analysis, indicating that saturation had been achieved. The case study design gave the researchers an opportunity to use multiple sources of evidence through triangulation [33] to collect qualitative data about breast cancer and its screening pathways. This ‘confirmed’ and ensured the ‘completeness’ of the data [34]. For confirmation, interview participants (sub-unit of analysis) were asked to discuss their views of breast cancer, screening pathways and measures to promote early detection of the
disease. The data were compared and the similarities in the results confirmed the findings of the study. Completeness of the data was further achieved by gathering data from multiple perspectives (patients, first degree relatives, and clinicians) to describe a complete picture of the phenomenon. Debriefing was also used to verify whether an expert would agree with the coding process. Hence, the third author (RA) who is an expert in qualitative research, coded 2 each of the interview transcripts from the embedded sub-units of analysis. He then reviewed the coding conducted in the analysis for comparison. This corresponded to that of the lead author in that the same main issues for discussion arose, thus, enhancing the credibility of the findings. Finally, member-checking was carried out following transcription so that participants could acknowledge and respond to their own words.

2.9.2. Dependability and confirmability

We employed audit trail and reflexivity to achieve dependability and confirmability. Audit trail was maintained in this study through a comprehensive notes related to the contextual background of the data and the impetus and reason for all the methodological decisions made [35]. NVivo provided a record (detailed ‘trail’) of decisions made during the data collection and analysis phase of the study. The query tools in NVivo; text search, coding and matrix coding were employed to audit findings and guard against researcher’s preferred argument. The ‘text search’ query was used to search the interview transcripts for important terms/concepts/code labels throughout and following the analysis. Once the concepts had been sited, the surrounding paragraphs were read to make sure that they were linked to the topic. This was useful to check whether the concepts have been adequately represented in the original coding plan and if they were worthy of advance exploration. ‘Coding queries’ were further employed to search and retrieve all data assigned to a specific attribute to seek pattern and ask questions about the data at a later stage of the analysis. This strategy was used to validate or check prepositions made from the analysis. To verify the findings and ensure that participants’ views were not misrepresented, ‘matrix-coding’ query was employed to compare multiple nodes and/or attributes as a numeric table. Finally, a reflective diary was maintained during data collection to record the rationale for decisions made, instincts, thoughts, ideas, and personal experiences during the study. This enhanced the dependability, highlighted the transparency of the process, and further helped in the development of the final themes and sub-themes.

2.9.3. Transferability

Detailed and appropriate descriptions of the methodological processes and context for the purpose of enhancing the transferability of the study were provided. This will allow readers to make an informed decision about the potential applicability and replicability of the findings to specific contexts [36].

2.10. Ethics

Before data collection, the researchers sought ethical approval: Committee on Human Research, Publication and Ethics, Kwame Nkrumah University of Science and Technology and KATH, Ghana (Ref:CHRPE/AP/546/17 & CHRPE/AP/554/17) and Biomedical Research Ethics Committee, University of KwaZulu-Natal, South Africa (Ref: BES49/17). Also, KATH registered and gave permission for the study (REG. NO: RD/CR17/251). All the participants gave written consent before data collection. Participation was voluntary, and participants were made aware of their right to withdraw from the study at any time without any consequences. Participants were assured of confidentiality and anonymity using study numbers (codes) throughout the study and pseudonyms during the verbatim quotations of participants’ expressions. Research assistants who had access to the raw data signed a confidentiality form to maintain all details confidential.

3. Results

Data from the sub-units of analysis were analyzed across case based on context and the process. In the context, participants’ perspectives and experiences of breast cancer and screening pathways were explored. Availability and accessibility of screening facilities were discussed as viewed by stakeholders. Measures to improve early detection of breast cancer among women were further explored. Cross-case of participants’ key demographic characteristics are described below.

3.1. Demographic characteristics

Majority of the participants were in the age groups of 20–39 (n = 16, 46%) and 40–60 (n = 16, 46%) years. with a mean age of 50 years. Female participants constituted 86% of the sample. Clinicians (100%) had no family history of cancer. Most participants with family history of cancer were patients and first-degree relatives with 64% and 59% respectively. All the participants had formal education. Most participants with tertiary education were clinicians (100%). Female literacy rate in Ghana is recorded at 51% by the United Nations Human Development Index Report [40]. The study showed a trend of improving female education, because all the 35 participants had some form of formal education. However, basic level education was common among our patients (64%) and first-degree relatives (47%) participants. Most of our participants were self-employed. Prior to the diagnosis, 64% of the patients were self-employed. Participants who were formally employed were clinicians and first-degree relatives with 100% and 24% respectively. Table 3 presents the participants’ demographics.

3.2. Themes

Five (5) main themes emerged from the interviews in the cross-case analysis: description of breast cancer, breast health education in Ghana, breast screening practices among women, the state of breast screening and barriers to breast screening uptake and lastly, the way forward. These themes had sub-themes as shown in Table 4.

3.3. Theme #1: description of breast cancer

Participants shared their views on breast cancer, and this was based on their experiences with the disease. Sub-themes emerged across sub-units of analysis were commonality of breast cancer among women, field incidence of breast cancer, class of women affected, stage of presentation, and lastly, disease outcome.

3.4. Commonality of breast cancer among women

Breast cancer was viewed as a common disease affecting Ghanaian women. Patients (11, 100%) and FDRs (17, 100%) perceived the disease as less common in the past; however, this perception changed following the patient’s diagnosis. Almost all the clinicians (6, 86%) described the disease as the leading malignancy in the country. This is evident in the sample quote below:

“So far, in Ghana, we know it’s [breast cancer] the commonest malignancy, leading all cancers in both men and women” (Clinician in cancer care, Akwasi).

“Hmmm…. I will say that currently, BC is a very common disease in Ghana. Before my diagnosis, I never thought it to be as common but now, I can confidently say that quite a number of women are suffering from BC” (Patient, Esi).

“Until we went to the private clinic, I didn’t realize how common breast cancer was, and coming here too confirmed that sentiment. It is very common” (First-degree relative, Rose).
Table 3. Cross-case analysis of participants’ demography (n = 35).

| Variables                  | Patient (n = 11) | First-degree relative (n = 17) | Clinician (n = 7) | Total |
|---------------------------|-----------------|--------------------------------|-------------------|-------|
| Sex                       |                 |                                |                   |       |
| Female                    | 11 (100)        | 17 (100)                       | 2 (29.0)          | 30 (86.0) |
| Male                      | -               | -                              | 5 (71.0)          | 5 (14.0) |
| Age (in years)            |                 |                                |                   |       |
| 20–39                     | 1 (9.0)         | 10 (59.0)                      | 5 (71.0)          | 16 (46.0) |
| 40–60                     | 9 (82.0)        | 5 (29.0)                       | 2 (29.0)          | 16 (46.0) |
| ≥60                       | 1 (9.0)         | 2 (12.0)                       | -                 | 3 (8.0) |
| Family history            |                 |                                |                   |       |
| Yes                       | 4 (36.0)        | 7 (41.0)                       | -                 | 11 (31.0) |
| No                        | 7 (64.0)        | 10 (59.0)                      | 7 (100.0)         | 24 (69.0) |
| Education                 |                 |                                |                   |       |
| Basic education           | 7 (64.0)        | 8 (47.0)                       | -                 | 15 (43.0) |
| Senior secondary education| 3 (27.0)        | 4 (24.0)                       | -                 | 7 (20.0) |
| Tertiary education        | 1 (9.0)         | 5 (29.0)                       | 7 (100.0)         | 13 (37.0) |
| Employment status         |                 |                                |                   |       |
| Public servant            | 1 (9.0)*        | 4 (24.0)                       | 7 (100.0)         | 12 (34.0) |
| Self-employed             | 7 (64.0)        | 9 (53.0)                       | -                 | 16 (46.0) |
| Unemployed                | 3 (27.0)        | 1 (5.0)                        | -                 | 4 (11.0) |
| Other                     | -               | 3 (18.0)                       | -                 | 3 (9.0) |

Note: Percentages are reported in brackets.

*Retired employee.

Table 4. Theme and sub-themes.

| SN | Theme                                      | Sub-theme                                                                 |
|----|--------------------------------------------|--------------------------------------------------------------------------|
| #1 | Description of breast cancer               | • Commonality of breast cancer among women                                |
|    |                                            | • Field incidence of breast cancer                                       |
|    |                                            | • Class of women affected                                                |
|    |                                            | • Stage of presentation                                                  |
|    |                                            | • Disease outcome                                                        |
| #2 | Breast health education in Ghana           | • Limited knowledge of breast cancer among the less privileged women      |
|    |                                            | • High clinician patient ratio                                           |
|    |                                            | • Sources of breast cancer related information                           |
| #3 | Breast screening practices among women     | • Breast screening awareness and breast examination practices             |
| #4 | The state of breast screening and barriers to breast screening uptake | • Lack of public screening facilities and integrated routine screening services for women |
|    |                                            | • Occasional breast screening services by non-governmental organizations |
|    |                                            | • Socio-economic factors                                                 |
| #5 | The way forward                            | • Develop an intervention for awareness and early detection               |
|    |                                            | • Training advocacy among health professionals                           |
|    |                                            | • Develop standard guidelines for breast cancer screening and diagnosis    |

As much as the above opinion may be pertinent, no evidence seems to exist.

3.5. Field incidence of breast cancer

The participants described their field observation on breast cancer in terms of number of cases seen. All the participants reported increasing incidence of breast cancer. Clinicians (100%) reported seeing between 5-10 new breast cancer cases per week. Further, patients (100%) and first-degree relatives (88%) also reported on the number of patients they meet at each visit to the clinic. This is illustrated in the sample quote below:

“I rotate between 3 breast cancer related clinics. I go to each clinic once a week, and at the breast care unit alone, you could have up to about ten (10) new women coming with histology confirmed breast cancer within one clinic. If it is a heavy clinic it could even be more. I also see about 7 advanced cases at the palliative clinic on Fridays, but this depends on the referrals coming from the oncology unit……., Reviews at the Oncology clinic…. it is a lot, over 60 cases per each week (Mondays). We lack the database, but this is our real story” (Surgeon and Palliative care, Pat).

“You go to the Oncology clinic on Mondays, and you will be amazed of the number of women walking in for treatment; both old and new cases” (Patient, Dela).

As commonly reported by our study participants, Ghana lacks a national cancer registry, however, GLOBOCAN has ranked Ghana 10th on the world’s burden of breast cancer with an incidence estimates of 25.5/100,000 women per year [43]. Although this may be comparatively lower to developed countries, formal documentation on breast cancer in Ghana have demonstrated a steady increase in both incidence and proportion of breast cancer burden annually as compared to estimates from the 1970s [38,39,44].

3.6. Class of women affected

All the participants reported that breast cancer affect all class of women; however, the disease was reported to be common among young women across units of analysis. The participants commonly expressed that the disease affected women aged 20–62 years. Below 50 years of age was however frequently cited by participants. Age 18 years, 22 years and 25 years were the youngest cases mentioned by patient, FDR and clinician participants’ respectively. Below is a sample expression illustrating the theme:

“…because of improved diagnostic facilities which are bringing the cases out to the hospital. Also, the increasing noise about breast cancer on radio may partly account for this” (Surgeon, Baba).
“I will say it is a bit bimodal, it fluctuates; I’ll say thirties to forties are more, followed by fifties to sixties. Younger women are really showing up here, my youngest so far have been a twenty-five (25) year old with serious metastasis” (Cancer clinician, Adizah).

“When I went there [hospital], I saw many young women, women…, my age group and so on……. Thirties (30s), twenties (20s)……there was this lady that was said to be about eighteen (18) years of age, her breast has been removed” (First-degree relative, Abena).

“As for breast cancer, it can affect anybody, even young girls. I have met a very young girl, about 22 years with the disease at the breast care clinic at Gee [name of a hospital]” (Patient, Gladys).

As previously observed, African women basically develop breast cancer earlier in life than Caucasians due to a younger age pyramid [45]. As commonly cited by our study participants, most Ghanaian texts put the age of breast cancer diagnosis in women at ≤ 49 years and this confirms the greater occurrence of breast cancer in young Ghanaian women than in Caucasians [37, 38].

3.7. Stage of presentation

Participants who commonly commented on the stage of presentation were clinicians (100%). This could be related to their background as professionals. Equal numbers of patients and FDRS (1) also commented on the stage of presentation. This is shown in the quote below:

“We stage with TNM guide [tumor size, lymph node involvement, and metastasis]. You rarely see N1 (early disease) cases; most of our women will be T4N2 (locally advanced) and metastasis as well” (Cancer clinician, Akwasi).

“Some are locally advanced, but most are metastatic” (Surgeon, Baba).

One of the burdens and hall marks of breast cancer in low-resourced settings is advanced stage presentation [46] and this was clearly noted by clinicians in our study. Commonly in Ghana, late stage of presentation (50–80%) has been indicated as a cardinal feature of breast cancer by a number of authors [37, 38] and it is still a concern for treatment options and prognosis of breast cancer in Ghana.

3.8. Disease outcome

The prognostic outcome was reported as poor across the units of analysis and this was linked to the stage of presentation. This is shown in the sample quotes below:

“Like I said earlier, I have no hope of cure, my condition is getting worse each day. I am dying. Hence, no matter the treatment you may die. Most of the women I met are dead” (Patient, Amina).

“Our story surrounding outcome is not a successful one. Our women lose the battle due to the delayed presentation. They often present in a bad state, so, they die few months after diagnosis. However, the few women who come early, and do not abscond survive” (Surgeon, Baba).

“I have already told you that my two junior sisters are dead with the disease, and this is the 3rd one. Looking at her, no one should tell you…. (weeping). Am scared because, anything can happen any moment. No matter what you do, you will not survive with the disease” (First-degree relative, Ceci).

Improved 5-years survival and better prognostic outcome of breast cancer observed in high income countries have been credited to early stage diagnosis [46]. In Ghana, a 5-year overall survival rate of breast cancer has been reported in <25% for the few women who present with early stage disease [47]. However, due to a limited number of treatment options and supportive facilities for the higher proportion of women presenting with stage III and IV breast cancer, quality of life and long-term prognosis are adversely affected, leading to increasing death rates among these women [48].

3.9. Breast health education in Ghana

Discussions relating to breast cancer awareness and education in Ghana yielded three sub-themes: limited knowledge of breast cancer among the less privileged women, high clinician-patient ratio, and sources of breast cancer related information.

3.10. Limited knowledge of breast cancer among the less privileged women

In this study, no difference was observed across embedded sub-units of analysis regarding awareness and knowledge of breast cancer. Women awareness of breast cancer was reported as inadequate due to limited coverage of less-privileged women living in the rural settings. In addition, lack of detailed information among those aware of the disease was commonly mentioned. Elite women in the city were seen to be more knowledgeable and proactive about breast cancer, compared to the less-privileged women living in the rural settings. While clinicians linked the above observations to low breast cancer educational campaigns by healthcare professionals and the (MOH), patients and first-degree relatives attributed it to low level of education among rural women as well as limited availability of social amenities such as electricity and radio in rural settings. Some patients and first-degree relatives reported lacking knowledge on the disease prior to their diagnosis. Several studies have reported on knowledge of breast cancer among Ghanaian population [10, 49]. Most of these studies indicated limited knowledge about the disease among women, however, higher level education has been significantly associated with improved appreciation of breast cancer [50]. Views from the data are illustrated in the quote below:

“As for the elites, they are better and search for information about breast cancer by themselves. However, the fractions of Ghanaian educated women is low. So, we need to reach out to the women…… Our education is low and the ministry (MoH) is inactive” (Surgeon, Baba).

“I think those in the cities may be aware of the disease, due to its publicity on the media. However, those in the rural areas and the small villages may not be aware of the disease. There, due to low educational level, lack of electricity and some social amenities, majority of people in these areas may be unaware of the disease and the cardinal signs to look for” (Patient, Akua).

“As for the awareness and knowledge, it is still a problem. My sister for instance had no idea of the disease until she was diagnosed. So I think not all women are aware of the disease” (First-degree relative, Hannah).

Our findings suggest the need to intensify breast cancer education to influence women’s knowledge about the disease. The effect of breast cancer literacy initiatives in the rural settings of Ghana has been shown to improve knowledge. For instance, in the Mena et al. study [42], better knowledge on the disease was comparatively observed among women in rural communities after an awareness program. This suggests the need to formalize breast cancer awareness programs to reach more women on breast cancer.

3.11. High clinician-patient ratio

Clinicians further noted heavy workload as the main impediment to their educational role.

“In family medicine, it is ideal to educate patient and their families. However, looking at the volumes of patients we see, sometimes it
becomes difficult to advocate for these things” (Palliative care clinician, Agyapong).

“Ideally, we should have educated the women whom we meet them at the clinic, but we miss this due to the volume of the patients. The doctor-patient ratio is huge” (Cancer clinician, Kofi).

3.12. Sources of breast cancer related information

Within the context of the study, an increase in the number of public education program about breast cancer within the past few years have been observed, although infrequent [37]. However, these are reportedly led by private and some non-governmental organizations (NGO), through the media [10]. Thus, breast cancer awareness in the public is seen to be advanced through radio and television stations. In the texts, radio has been commonly reported as the main source of breast cancer information among women [10, 49].

Similarly, across the sub-units of analysis in our study, the media especially, radio was commonly cited as a chief source of information for women, this was followed by television. While clinicians affirm that they were not women’s source of information, women identified health professional as a source of information through occasional health talks and awareness campaigns. The personnel were however identified as mostly private practitioners from private organizations across sub-units of analysis. While few patients identified their children as an additional source of information, some first-degree relatives got to know about the disease following their relative’s diagnosis.

“As for information about the disease, it is not from us here. Mostly from the media, particularly radio, the television. …… to the lesser extent, health talks at the churches by private health practitioners and organizations” (Cancer clinician, Akwasi).

“Hmmm…. I didn’t know about breast cancer until my mother got diagnosed. Later on, I had other information about it on radio and television………” (First-degree relative, Nancy).

“The little I knew came from my daughter who was educated in school on breast cancer and how to self-check for lumps” (Patient, Ewura).

3.13. Breast screening practices and uptake among women

This theme describes participants’ experiences and views on breast screening and its practices among women. The only sub-theme identified was breast screening awareness and breast examination practices.

3.14. Breast screening awareness and breast examination practices

Across the sub-units of analysis, awareness of breast screening among women was perceived as adequate, especially, among the educated women and those living in the city. For instance, majority of the patients had heard about breast examination prior to their diagnosis, however, the knowledge on how to perform it was reported as deficient. This is illustrated in the quote below:

“Most women have heard about breast examinations, but they do not know how to do it properly” (Patient, Serwaa).

“Most women are at least aware of the breast screening but the issue is that, they do not have knowledge on how to self-examine, hence they do not do it” (Patient, Ewura).

I think it is the techniques involve that may be lacking” (First-degree relative, Faith).

With reference to the class of women I see at the clinic, the trend is that those educated and living in the cities are aware about breast examination and mammography but………. the skills to self-exam is lacking” (Cancer clinician, Akwasi).

As shown in previous studies, appreciable number of women, especially, the elites are aware of breast screening practices, however, most women lack detailed knowledge on the right time and technique for performing the procedure [51, 52] implying the need to make women well-informed about screening techniques.

Participants further shared their experiences on breast examination practices. Self and clinical breast-examination practices were viewed by clinicians in our study as unusual habits for the Ghanaian woman. About 3–5% of highly educated Ghanaian women were believed to be engaged in screening activities. In the literature, self-reported breast cancer screening among African women have been shown to be relatively low [10, 53] with only 34.9% and 9.1% practices of BSE and CBE respectively reported in Nigeria [52]. However, higher BSE practices have been noted among women in the formal sectors such as nurses [51]. In relatively recent Ghanaian studies, higher level of education was shown to be significant for BSE practices [10, 49]. Perhaps, highly educated women tend to seek more knowledge about the disease which in turn influences their behavior towards breast screening practices. Further, majority of our patient participants shared that they did not habitually examine their breast but discovered their breast symptom with accidental touch of their breast. On the other hand, few of the first-degree relatives reported improved breast self-examination performance following the diagnosis of breast cancer in their families. Others also had an opportunity to be screened through an outreach screening program but had not self-examined. Breast examination practices were however seen as beneficial for early detection of breast cancer across sub-units of analysis. This is shown in the expressions below:

“Screening as a usual habit for women? ……..it is not a common place to find a typical Ghanaian woman walk into a place and say I am coming to have my breast examined or even set a day in the month to do self-breast examination. This lack has been one of the impeding factors of early detection” (Surgeon & Palliative care, Pat).

“………, the educated women are trying as much as possible to do preventive service, doing breast examinations, but just a fraction; about three percent (3%) of our women population.” (Cancer clinician, Agyapong).

Most of the patients in the study found their breast symptom accidently as shared below:

“The day I found out about the lump, I was just touching the breast and I felt the lump in there. I never screen or examine my breast, not my habit” (Patient, Abena).

A diagnosis of breast cancer in the family positively changed first-degree relatives’ behavior towards breast examination practices as illustrated below:

“I have taken steps about my breasts following my sister’s diagnosis. I made a doctor examined my breast and also went in for scan [ultrasoundography] and mammogram. For now, the only thing that can help detect the disease early is the screening” (First-degree relative, Anita).

“Because of my sister’s diagnosis, I regularly do the self-breast checks…….” (First-degree relative, Hannah).

3.15. The state of breast screening and barriers to breast screening uptake

The data also reflects on participants’ views on the current state of breast screening and impeding factors to breast screening practices with three (3) emergent themes: lack of public screening facilities and integrated routine screening services for women, occasional breast screening services by non-governmental organizations, and lastly, socio-economic factors.
3.16. Lack of public screening facilities and integrated routine screening services for women

Commenting on the state of breast screening in Ghana, the participants commonly reported lack of public walk-in breast screening centers for women. Clinician participants cited an availability of a breast care clinic (BCC) at KATH, however, the clinic was described as a breast pathology clinic, and not open to the public as a walk-in breast screening clinic. It was however noted that, women who occasionally visited the BCC for CBE were assisted at a cost. An existing private facility offering breast screening services for women was further noted across the sub-units of analysis.

“There is no walk-in breast screening centers for women. The only one I heard about was at ….[name of location] but that is a private facility, not for the government” (Patient, Serwaa).

“As for screening center for a woman to walk in and the breast examined or even get education on the disease, it’s not available in this country” (First-degree relative, Ceci).

“There are no breast screening facilities within our primary health-care structures. The only available breast screening facility we are aware of is privately owned” (Surgeon, Baba).

Structured routine breast screening was mentioned as an important early detection measure; however, this was reported as not available to women across the sub-units of analysis. This is illustrated in the expression below:

“A well-coordinated breast screening clinic is a significant factor for early detection of the disease. However, there is no such program in this country. Even if a woman wants to check her breast, where does she go? So generally, there are no breast screening program for women. This has been the biggest hindrance” (First-degree relative, Gina).

“At this hospital [KATH], we have a breast care clinic under the Department of Surgery. But it is mainly run as a breast pathology clinic. It is not an open breast screening clinic for women. However, few women who occasionally walk in for clinical breast examination are attended to at a cost. In reality, we have no screening facilities for the breast and there is no routine breast screening program for women” (Surgeon & Palliative care, Pat).

“Well, as a nation, we don’t have it [screening facilities]. We don’t have any well-streamlined system for breast screening. So, where will the women access the screening from or teaching on how to do their own breast examination? The breast care clinic mainly functions as a pathology clinic; it is not for a walk-in breast screening” (Cancer clinician, Akwasii).

As revealed by our study participants, formal documentation on breast screening in Ghana consistently reveal lack of screening facilities and systematic nation-wide screening programs that involves CBE and mammography to Ghanaian women [42, 54]. The impact of structured breast screening programs on survival among women in developed countries is well-documented. However, such programs seem unavailable to most women in developing communities and Ghana is not an exception [46].

3.17. Occasional breast screening services by non-governmental organizations

Despite the lack of screening facilities and nation-wide screening programs for women, it was observed that non-governmental organizations (NGOs) and religious bodies occasionally organized breast screening services for women in various communities as means of educating women on the disease and offering them clinical breast examination (CBE). This was commonly described as ‘mass screening’ and mounted by well-meaning groups, politicians, private individuals, and other social organizations such as churches during public holidays and the ‘pink month’ (October). This was a common view shared across the sub-units of analysis. This is illustrated in the sample quotes below:

“All the screening I hear about are through mass screening and is mostly organized by churches, groups and at times politicians during occasions” (First-degree relative, Rose).

“As for Ghana, breast screening, it is mostly done through outreach programs by churches and associations especially, on holidays.” (Patient, Amina).

“A number of NGOs, and some individuals occasionally organize mass breast screening for women in communities, churches and markets. This is an annual program commonly organized to commemorate special or important events such as mothers’ day, women’s day and the breast cancer month …., October” (Surgeon & Palliative care, Pat).

Although most texts affirm the lack of screening facilities in Ghana, it has been acknowledged that few private organizations, NGOs and other meaningful social groups organize breast cancer awareness programs to teach women BSE, and offer CBE as a means of offering breast screening [42, 54]. However, these services are organized infrequently.

3.18. Socio-economic factors

Socio-economic factors were further identified by participants as facilitating barriers to breast examination practices. For instance, priority to work, lifestyle, clinicians’ work load, as well as financial difficulty were expressed as impediment to breast examination practices. In the expressions below, a first-degree relative and clinician participants cited lifestyle and priority to work as barriers to clinical breast examination practices.

“….., Also, culturally, we only go to the hospital when we are sick. That is our life style….. ermmm our habit… ahhh. Hence, leaving your work to attend a breast screening clinic or checkups is not part of us” (Patient, Ewura).

“….. but it would interest you to know that I’ve been involved in breast screening program organized by a traditional church for market women. So, they announced extensively at the market information center. The location for the exercise was just by the market….. you know….., it is just less than five (5) minutes’ walk….. And of course, this was free. But most of the women didn’t come. They will not leave their work or selling for this. Most women translate screening activities economically and hence, leaving the shop or the selling for about 10 minutes will be seen as a loss of costumer or money” (Surgeon & Palliative care, Pat).

Health system structure, financial barrier and clinicians workload were additional factors enlisted by clinicians as impediments to clinical examination access. This is illustrated in the sample quotes below:

“It is a mandate to do preventive health in family medicine but it is simply not feasible due to the clinician-patient ratio. It is too high” (Palliative care clinician, Agyapong).

Our health structure does not promote this. No provision has been made for breast screening in our health care delivery. Hence, access and utilization is an issue” (Surgeon, Baaba).

“Finance is also an important factor here. In terms of the person even getting money for transportation to come for the clinical breast examination….. The screening also comes with a cost. The hospital card will cost about thirty-five cedis plus (35GHC= USD 6) if you are not insured and twelve cedis (12GHC [USD 2]) if you have health
insurance (this is a top-up for the insurance fee)” (Cancer clinician, Kate).

In Ghana, as in other resource-challenged countries, several factors appear to hinder the access and uptake of BSE and CBE practices among women. Commonly, factors reported include knowledge deficit on the techniques for carrying out breast examination, limited infrastructural, financial and human resources as well as socioeconomic factors [10]. To meaningfully achieve early detection of breast cancer in developing settings, factors impeding on the screening practices of women need to be addressed accordingly.

3.19. The way forward

The data reflected on participants’ suggestions on how to improve breast cancer awareness and screening practices to achieve prevention and early detection of the disease in Ghana. All the participants recognized the need for interventions and provided varied suggestions that could facilitate the initiation of breast health services at the clinic level. Three main sub-themes that emerged were development of interventions for awareness and early detection, training advocacy among health professionals, and lastly, develop standard guidelines for breast cancer screening and diagnosis.

3.20. Develop an intervention for awareness and early detection

Across the sub-units of analysis, similar concerns about breast cancer awareness and early detection measures were shared. Family history and the experiences of advanced breast cancer in the family or close relation were perceived by participants as valuable tools that should be used by clinicians to initiate breast health services for women, especially, those believed to be at risk of developing the disease. Patients wished for their daughters and other family members to be educated on the causes of the disease and preventive measures to help halt the disease. Experiencing the physical and financial struggles associated with breast cancer also made first-degree relatives perceive the disease as severe and hence wished to be educated on the causes of the disease and prevention measures. In addition, clinicians saw the need to incorporate family education and counseling on breast cancer into their practice to influence the cultural narratives around the disease. Opportunistic and organized breast screening for patients’ relatives further revealed itself strongly across the sub-units of analysis. Due to heavy workloads, clinicians recognized the need for interventions and provided varied suggestions that could facilitate the initiation of breast health services at the clinic level.

3.21. Training advocacy among health professionals

Advocacy among health personnel was a key recommendation made across the units of analysis. Some patients felt delayed and mismanaged by both private and public practitioners. Also, clinicians perceived that most women who present at advanced stage are delayed by health professionals. Both clinicians and patients attributed the perceived physician delay to knowledge deficiency or attitude of the health professionals. Hence, advocacy among health professionals was suggested as one of the key factors needed to enhance early detection of the disease. Participants’ views are expressed in percentage as: patients 6 (55%), first-degree relatives 5 (29%) and clinicians 7 (100%). Micro-community had no question on this theme. The view is illustrated in the sample quote below:

Why should a woman have to go through regional hospitals and get delayed? You just begin to wonder, were they seeing a doctor? What was the doctor doing? So, it comes back to why I said we should be doing advocacy amongst clinicians, and even sometimes forget about the patient. Because the patient, maximum, within one month of noticing that breast lump, they will come. The cultural knowledge of breast illness is: lump, it will swell, it will burst, pus will come, and it heals. This process is maximum two weeks. So, if beyond two weeks of a Ghanaian woman, noticing something with her breast, it doesn’t follow this trajectory, she will end up in the hospital, and then what happens? Maybe physician knowledge deficiency or attitude, I mean all the caregivers’ attitude. So, we need advocacy among the clinicians (Surgeon & Palliative care, Pat).

As reflected in the literature, achievement of early detection of breast cancer also depends on well-trained health professionals who are competent in breast cancer counselling and CBE and are able to refer women appropriately for timely diagnosis and treatment [56]. Physician or health-system-delays in breast cancer diagnosis is among the factors noted to delay women’s presentation with the disease in Ghana [57]. Therefore, to achieve a meaningful early detection of the disease, the clinician participants in this study commonly encouraged for advocacy among health professionals.

3.22. Develop standard guidelines for breast cancer screening and diagnosis

To improve early detection of breast cancer among women in Ghana, all participants recommended a structured or standard guideline to be developed for breast cancer screening and diagnosis for use in Ghana. This view was commonly shared by clinicians (7, 100%), micro-community (49.35 and 31.3% strongly agreed and agreed respectively), with only one mention by first-degree relatives (6%). This is illustrated in the sample expression below:

“In fact, it is not only education and screening at the clinic level; there has to be a guide to breast cancer care in the country. So, the Cancer Control Program to be drawn should include breast cancer screening. It should be developed and implemented as well.” (Surgeon, Baba).
4. Discussion

The current study was carried out in a tertiary healthcare facility located in the Ashanti region of Ghana, highly burdened with advanced breast cancer at over 80% [38]. The study employed a case study design with cross-case analysis of the selected case. This case was embedded with sub-units of analysis (patients, first-degree relatives, and clinicians). Employing multiple sources of data, the study explored and analyzed the case on breast cancer screening pathways in its context. The study demonstrated more similarity and few differences across sub-units of analysis in relation to the most occurring features as well as description and construct of results.

Almost all the participants in our study commonly perceived cancer affecting the breast as the most occurring cancer among women, especially, younger women. The number of women developing the disease was marked as progressively rising at a rate of about 5–10 new cases per week. However, as earlier reported, the lack of a country-based cancer registry was seen as a huge barrier to the actual estimation of the disease burden in Ghana [13]. A reliable database plays a significant role in directing contextual solutions towards breast cancer; hence, a need to address the prevailing deficiencies in breast cancer data is paramount. Similar to prior studies [47, 58], advanced disease (stage III and IV), coupled with poor outcomes were reported as major burdens of the disease in this study. It thus suggests the need for an effective approach to change this unfortunate drift.

Participants in our study reported a stark difference in breast cancer awareness among urban and rural dwellers. Additionally limited knowledge on the disease and its detection measures were also noted. The difference was attributed to disproportionate distributions of social resources. Radio and television stations were mentioned as main sources of breast health information by our study participants. Although, our findings confirmed by other Ghanaian authors [10], is inconsistent with international studies where over 80% of the cancer patients and their families cited health professionals as their main source of health information [59, 60]. In Ghana, clinician-patient ratio is pegged at 1: 13, 000 as compared to the WHO global standard of 1:5000, and this featured in our clinicians’ data as a key factor impeding the educational roles of health professionals [61]. Further, our data strongly demonstrated the impact of exposure to other sources of breast cancer information such as the exposure to a relative/friend’s diagnosis, and health talks by private organizations. For instance, an enhanced knowledge, belief, and attitude were revealed among our first-degree relative participants. The reason for this observation was out of scope of this study; however, we could possibly relate the observation to their exposure and experience with the advanced breast cancer patient.

Across our study participants, preventative medicine was not considered an integral aspect of the medico-cultural context of Ghana. Therefore, breast examination practices among women were described as low. Evidently, majority of our patient participants found their breast symptoms accidently, out of structured BSE. Similar to our finding, self-reported BSE and CBE practice rates among women has been shown to be low in developing settings [10] as compared to their counterparts from developed settings [62]. Key barriers for low practices reported in this study were lack of knowledge on screening and practicing techniques, absence of screening avenues, socio-economic influence, and heavy professional workload.

Our study further provides a holistic view regarding the state of breast cancer screening and its pathways in Ghana, as perceived by all our study participants. Due to other compelling health burdens, breast cancer was perceived as a lower health priority to policy makers. Hence, national breast cancer policy, literacy programs, screening centers, as well as routine CBE services for women were mentioned as lacking in Ghana. Sporadic awareness programs organized to give health talks, teach women BSE and offer CBE were considered as the main form of breast health services available to Ghanaian women. These were however heavily driven by private and other social organizations as well as non-governmental organizations (NGOs). Earlier authors in Ghana have also shared similar views [42, 54], and this confirms a realistic deficiency in breast screening in Ghana. These lacks were observed as a huge challenge to breast cancer care in the country, needing an immediate solution.

Treatment of early stage breast cancer requires minimal resources and is associated with good prognostic outcomes [55]. This emphasizes the relevance of early detection in developing countries such as Ghana where the burden of the disease seems increasing [63]. Yet, due to limited resources, the use of interventions developed for use by developed countries cannot be implemented in Ghana [64]. For instance, mammography screening is not practically feasible in Ghana due to cost and limited availability [42, 64]. Also, the disease tends to affect young Ghanaian women [38], making the effectiveness of mammography as a screening tool uncertain [65]. It therefore appears reasonable to consider a contextual approach to help curb breast cancer in Ghana. This need was unanimously acknowledged by our study participants, leading them to provide key suggestions believed to improve breast health services and breast cancer outcomes in Ghana. First, an urgent need to develop a clinic-based framework to incorporate breast cancer awareness and screening services into clinical practice for women was stressed across the participants. Second, there was a call to develop national standard guidelines to direct awareness, screening, and diagnosis of breast cancer in Ghana. Last, advocacy among health professionals was recommended, as perceived physician delays were cited as a key barrier to early detection. These suggestions endorse various recommendations and guidelines outlined to improve breast cancer outcomes in LMICs by health and cancer organizations such as the WHO and Breast Health Global Initiative (BHGI).

5. Conclusions

We explored breast cancer and its screening pathways by interviewing women who had experienced delay seeking care for their breast cancer symptom(s), resulting in advanced stage diagnosis of the disease, their first-degree relatives and clinicians at breast care clinic, cancer clinic and palliative care clinic. The findings highlight realities around known and unknown barriers to breast screening and early detection within the sociocultural context of Ghana. Key recommendations believed to improve breast screening and early detection of the disease were outlined. Among them is an urgent call to develop a clinic-based framework to incorporate breast cancer awareness and screening services into clinical practice for women.

6. Strengths and limitations

Some limitations of the current study need to be addressed. Firstly, findings from the study reported on breast screening pathways from the views of patients diagnosed with advanced breast cancer, their FDRs and clinicians providing breast health, cancer and palliative care services. Hence, these findings may not apply to women living with early-stage disease as well as other health professionals such as radiologists and primary care physicians. The study was limited to one tertiary health facility and therefore, the degree to which findings from this study are generalized to other settings should be done carefully. Accordingly, it is essential for studies to specifically explore the views and experiences of patients diagnosed with early-stage breast cancer as well as other health professionals involve in screening and early detection such as radiologists and primary care physicians to foster a comprehensive understanding of the phenomenon. We used a single case study design which allowed for an adequate exploration of a real-life contemporary bounded case with multiple sub-units of analysis through an in-depth data collection from multiple sources using a qualitative approach. This gave the researchers the power of ability to conduct a cross-case analysis which ensured rigor of the study’s findings. The study highlighted existing barriers to Ghana’s achievement of early detection of breast cancer, needing urgent attention. To our best of knowledge, we are the first to report on a cross-case
analysis of breast cancer and screening pathways in Ghana. Our findings can guide the development of a model to facilitate screening and early detection of breast cancer among women.

7. Study implications

- A need for breast cancer screening facilities and structured breast education and screening services for women
- Stakeholders should collaborate to develop policy and guidelines for breast cancer prevention and control
- A need for clinicians to initiate literacy and screening services in their clinical practice for women
- Women who accompany breast cancer patients to the clinic should be given opportunistic breast health services
- A model to integrate breast cancer prevention and early detection services into clinical practice is paramount
- Future research should explore the views and experiences of patients diagnosed with early-stage breast cancer as well as other health professionals involved in screening and early detection (e.g. radiologist and primary care physician). Further studies should also focus on the development of a resource-compatible hospital base model, framework that will guide health professionals to integrate breast cancer prevention and early detection services into their practice.

Declarations

Author contribution statement

Adwoa Bemah Boamah Mensah: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

Kofi Boamah Mensah: Joe-Nat Clegg-Lampetey: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

Raymond Akawire Aborigo: Analyzed and interpreted the data.

Varsha Bangalee; Frasia Oosthuizen; Niworska Kughey: Analyzed and interpreted the data; Wrote the paper.

Beth Virdn; Shalini Kulasingam: Conceived and designed the experiments; Analyzed and interpreted the data.

Busisiwe Purity Ncama: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data.

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Data availability statement

Data associated with this study has been deposited at https://doi.org/10.6084/m9.figshare.190091999.

Declaration of interest's statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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