SELF BREAST EXAMINATION AMONG FEMALE STUDENTS IN SUNYANI SENIOR HIGH SCHOOL

**ABSTRACT**

**Background:** Breast cancer remains a leading cause of morbidity and mortality among women globally, with early detection playing a critical role in improving outcomes. Self-breast examination (SBE) is a cost-effective and accessible screening tool, especially important for younger women who may have limited access to other screening methods. Despite its importance, knowledge, attitudes, and practices regarding SBE remain understudied among adolescent females in Ghana.

**Objective:** This study assessed the knowledge, attitudes, and practices related to self-breast examination among female students at Sunyani Senior High School, Ghana.

**Methods:** A descriptive cross-sectional design was employed, involving 196 randomly selected female students aged 15 to 19 years. Data were collected using structured questionnaires assessing demographic characteristics, knowledge, attitudes, and practices of SBE. Descriptive statistics were analyzed using SPSS version 23.

**Results:** While 63.8% of participants reported awareness of SBE, detailed knowledge of correct techniques, timing, and frequency was limited. Only 41.3% identified the appropriate time for SBE, and 42.3% knew the recommended monthly frequency. Attitudes were generally positive towards SBE, with recognition of its importance; however, misconceptions regarding breast cancer susceptibility and doubts about performing SBE correctly were noted. Practices showed moderate adherence to examination steps, but consistent monthly performance was lacking.

**Conclusion:** The study highlights moderate awareness but significant gaps in knowledge, attitudes, and consistent practice of self-breast examination among female students. Targeted, culturally sensitive educational interventions integrated into school curricula, alongside increased professional guidance, are essential to empower young women in Ghana to perform regular SBE, thereby enhancing early detection and reducing breast cancer morbidity and mortality.

**Keywords:** Self-Breast Examination, Breast Cancer Awareness, Female Adolescents, Detection, Breast Health, Ghana, Senior High School Students, Knowledge, Attitude, Practice (KAP), Cancer Screening

**Introduction**

**1.0 Background of the Study**

Breast cancer is the most prevalent cancer affecting women worldwide and remains one of the leading causes of cancer-related morbidity and mortality globally(Bellanger et al., 2018; Maurya & Brahmachari, 2021; Srinath et al., 2023). It is characterized by the uncontrolled growth of malignant cells originating from breast tissue. According to recent global cancer statistics, breast cancer accounts for approximately 11.6% of all new cancer cases, representing 2.1 million diagnoses annually, and contributes to 6.6% of all cancer-related deaths worldwide, equating to around 627,000 deaths each year (Arnold et al., 2022a; Ferlay et al., 2019, 2021; Siegel et al., 2025). The burden of breast cancer has traditionally been higher in developed regions; however, rising incidence and mortality rates are now increasingly reported in low- and middle-income countries across all continents (Arnold et al., 2022b). This shifting epidemiological pattern underscores the growing public health challenge breast cancer poses worldwide.

The increasing burden in less resourced settings is particularly concerning because healthcare systems often lack the infrastructure, resources, and awareness programs necessary for effective cancer control. Early detection and timely treatment, which are key to improving survival rates, are often inadequate or inaccessible in many developing countries(Omotoso et al., 2023). Furthermore, cultural beliefs, socioeconomic factors, and limited health education impede the uptake of screening and preventive measures, resulting in delayed presentation and diagnosis at advanced stages of the disease (Abubakari et al., 2025; Afaya et al., 2024a).

In Ghana, breast cancer represents a major national health concern and is among the top causes of cancer morbidity and mortality among women. The country reports an incidence rate of 43.0 and a mortality rate of 17.7 per 100,000 women, figures that reflect a significant and growing public health burden (Mensah & Mensah, 2020). Late-stage diagnosis remains the principal factor associated with poor prognosis and high mortality, as many patients present to health facilities when the disease has already progressed beyond curative treatment options (Al-Worafi, 2024; Bamodu & Chung, 2024; Mensah & Mensah, 2020). Breast cancer treatment in Ghana typically involves multidisciplinary approaches, including surgery, chemotherapy, and radiotherapy. However, access to these treatment modalities is often limited by financial constraints, geographical barriers, and inadequate healthcare infrastructure (Mutebi et al., 2020) Moreover, cancer diagnosis and treatment impose significant psychosocial stress and economic hardship on patients and their families, further complicating disease management (Böckerman et al., 2025; Carrera et al., 2018).

Early detection of breast cancer is critical for improving survival rates and reducing disease burden. Various screening strategies are recommended globally, including mammography, clinical breast examination, and self-breast examination (SBE) (Ahmed et al., 2024; Molassiotis et al., 2021; Mushosho et al., 2024). Mammography remains the gold standard screening tool with proven efficacy in reducing mortality, and it is generally recommended for women aged 40 years and older (*ACS Breast Cancer Screening Guidelines | American Cancer Society*, n.d.) However, younger women, including adolescents and young adults, often have denser breast tissue that reduces the sensitivity of mammograms, thereby limiting its utility as a primary screening modality in this population.

In this context, self-breast examination emerges as a critical, accessible, and cost-effective screening method for younger females. SBE is a non-invasive procedure that allows women to become familiar with their breast anatomy and detect any abnormal changes such as lumps, thickening, or discharge (Pippin & Boyd, 2023) Healthcare professionals globally advocate for regular SBE as an essential component of breast health awareness and early detection efforts. Its advantages include ease of performance, no requirement for specialized equipment, and the empowerment of women to take an active role in their health monitoring(Joyce et al., 2020; Kandasamy et al., 2024).

Despite these benefits, numerous studies from low- and middle-income countries, including several sub-Saharan African nations, report low levels of awareness, knowledge, and practice of SBE, particularly among young women and adolescents (Johnson, 2019) Barriers to effective SBE include lack of education on correct techniques, cultural taboos surrounding breast health discussions, and misconceptions about breast cancer risk at younger ages (Amegbedzi et al., 2022). These factors contribute to missed opportunities for early detection and intervention, exacerbating the burden of late-stage breast cancer diagnosis and poor clinical outcomes.

Research underscores that the practice of regular SBE from an early age improves early detection rates of breast abnormalities, which can ultimately enhance breast cancer prognosis and survival (Wolde et al., 2023a). For senior high school students, who are transitioning into adulthood and establishing lifelong health behaviors, acquiring adequate knowledge, a positive attitude, and proper SBE practice is paramount. However, in Ghana, there is a notable paucity of research assessing these factors among female senior high school students. No prior study has specifically investigated the knowledge, attitudes, and practices of SBE among students at Sunyani Senior High School, a key educational institution in the Bono Region. This research gap hampers the design and implementation of culturally appropriate, targeted breast health education and early detection strategies tailored for this young population.

Addressing this gap is critical to promoting breast cancer awareness and fostering preventative health behaviors among young women in Ghana. By evaluating the knowledge, attitudes, and practices of self-breast examination among female students at Sunyani Senior High School, this study aims to provide vital insights that will inform effective educational interventions. Such initiatives are essential to empower young women with the skills and confidence to engage in regular breast health monitoring, thereby enhancing early detection efforts and ultimately reducing breast cancer morbidity and mortality within this demographic and beyond.

**2.0 METHODOLOGY**

**2.1 Research Setting**

The study was at Sunyani senior high school. Sunyani Senior High School (SUSEC) is a coeducational second cycle institution in Sunyani in the Bono Region of Ghana. Sunyani Secondary School also known as SUSEC is one of the products of Ghana Education Trust. It was formed in 1960 by Prime Minister Kwame Nkrumah, later Ghana's first President. The first batch of 36 pupils, 31 boys and 5 girls, was admitted on 30th October 1960.On 13 December 1960, Osagyefo Kwame Nkrumah inaugurated the school, which started with only three instructors and nine non-teaching staff. Sunyani Secondary School originated as a co-educational Institution but after a short time, it was decided to make it a boys' school, and the few girls in the school were sent to Yaa Asantewaa Girls' School, but this was reversed the following year and girls were again enrolled. The school's logo, an elephant, was chosen because the name Sunyani is a distorted variation of "Ason Dwaee," which denotes the site where the renowned hunter and warrior, Nana Boahen Korkor, the founder of the Sunyani traditional region, hunted and skinned elephants. The institution expanded over the years. The count of non-teaching employees rose from nine (9) to one hundred and five (105), but the count of teaching personnel escalated from four (4) to one hundred and ninety-eight (198). The student body comprises four thousand four hundred thirty-seven (4437) students. Sunyani Secondary School provides subjects including general science, agricultural science, general arts, graphic arts, home economics, and business.

**2.2 Study Design**

A descriptive cross-sectional study was used to assess the knowledge, attitude and practice of Self Breast Examination among female students at Sunyani senior high school. A descriptive cross-sectional study is a research design that examines data at a single point in time to assess the prevalence of variables or conditions within a population (Capili, 2021). It is commonly used in public health, epidemiology, and social sciences to identify patterns, trends, and associations. While this design offers several advantages, it also has notable limitations. Whiles Cross-sectional studies are relatively fast to conduct because they do not require long-term follow-ups, they cannot establish causal relationships between variables, only associations(Wang & Cheng, 2020).

**2.3 Study Population**

Out of the one thousand total population for female students, 196 was selected randomly to participate in the study. These participants were selected to represent the adolescent female population within the school, encompassing a range of ages typically between 15 and 19 years. The choice of this population reflects the critical need to understand breast health awareness and self-breast examination practices among young women who are at an age where establishing preventive health behaviors can have long-term benefits. Data collection involved structured questionnaires and interviews designed to assess the students’ knowledge, attitudes, and practices regarding self-breast examination (SBE). This sample size was determined to provide sufficient statistical power to draw meaningful conclusions about the prevalence and determinants of SBE awareness and practice within this group. Moreover, focusing on a school-based population allows for targeted health education interventions that can be integrated into the school curriculum to improve early breast cancer detection and prevention efforts.

**3.3.1 Sample size and Sampling Technique**

The sample size was calculated using the formula below:

n = $\frac{Z2P(1-P)}{d2}$

Where:

n = Sample size

Z = Standard normal deviation at a 95% confidence level (1.96)

𝒑= estimated proportion in the population; from previous studies 85% of females had adequate knowledge on SBE (Nukpezah et al., 2021).

d = Margin of error (5% or 0.05)

Substituting the values:

n = $\frac{\left(1.96\right)2 ×0.85 × (1-0.85)}{(0.05)2}$ = 195.6

Rounding up, the minimum required sample size is 196 participants.

A simple random sampling technique was employed to select the 196 female senior high school (SHS) students who participated in the study. This method was chosen because it ensures that every female student in the study population had an equal and unbiased chance of being selected, which helps to produce a representative sample and reduces selection bias. The selection process was conducted through a balloting system, where each female student was given an equal opportunity to participate by drawing a slip labeled either "YES" or "NO." Students who picked "YES" were included in the study sample, while those who picked "NO" were excluded. This random and transparent approach guarantees fairness in participant selection and enhances the validity of the study findings by accurately reflecting the diversity of the female student population at Sunyani Senior High School.

**2.4 Data Collection Instruments**

Structured questionnaire was used for data collection. Questionnaires were made up of close ended questions and was developed in English based on objectives of the study and after reviewing relevant literature. Questionnaires were used to solicit information on socio demographic characteristics of study participants, knowledge of SBE among female SHS students, attitude on SBE among female SHS students and the practices on SBE among female SHS students.

The questionnaires were administered to study participants and data collected on the spot by the principal investigators at Sunyani Senior High School This Was done after consent has been sought from study participants.

**2.4. Inclusion and Exclusion Criteria**

The study included female students who were currently enrolled at Sunyani Senior High School and fell within the typical age range for senior high school attendance, approximately between 15 and 19 years. Only those students who willingly provided informed consent to participate were considered eligible. This ensured that participants were able to understand the nature of the study and agreed voluntarily to take part, which is essential for ethical research conduct.

Conversely, female students who declined to participate or refused consent were excluded from the study. Additionally, students who were absent or unavailable during the data collection period were not considered, as their participation was not feasible. Furthermore, students with a prior diagnosis of breast cancer or any medical condition that could impair their ability to correctly perform self-breast examination or provide accurate responses to the questionnaire were also excluded. These criteria helped to maintain the integrity and reliability of the study findings by focusing on a healthy adolescent population representative of typical senior high school students.

**2.5 Data Analysis Techniques**

The data collected for this study were analyzed using descriptive statistical methods to provide a clear and detailed summary of the findings. The Statistical Package for Social Sciences (SPSS) version 23 was utilized to organize, manage, and analyze the data efficiently.

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed to summarize the demographic characteristics of the participants as well as their knowledge, attitudes, and practices related to self-breast examination. These measures allowed for the presentation of data in a straightforward and interpretable manner, using tables, charts, and graphs to visually illustrate key findings.

By employing these descriptive techniques, the study was able to identify patterns and trends within the data, offering insight into the level of awareness and engagement with self-breast examination among female students at Sunyani Senior High School.

**2.8 Ethical Considerations**

An introductory letter was taken from the Department of Midwifery at Garden City University College and presented to Sunyani Senior High School to seek their approval to conduct this study. The purpose of the study was explained to all prospective participants before recruitment. All consenting participants signed an informed consent before being recruited for the study. No personal identifiers such as name or phone numbers were part of the data acquisition process to ensure that the data cannot be traced to any participant at any point in time. Anonymity and confidentiality were assured during the data acquisition, analysis and publication of results of the study.

3.0 RESULTS

## **3.1 Demographic information of respondents**

According to the results of the study, 21 respondents representing 10.7% were under 14-17 years, 62 respondents with a representation of 31.6% were between the ages of 16-17 years, and the remaining 113 respondents representing 52.7% were 18 years and above. This implies that, majority of the respondents selected for the study were 18 years and above. Majority of the respondents representing51.5% of the population SHS 3, 29 % are in SH2 and the remaining19.4% are in SHS1. With their religion, majority43.9% are Christians, 36.2% are Muslims, 10.2% are traditionalist and the remaining9.7 did not indicate any.

**Table 1**
**Demographic Characteristics of Respondents (N = 196)**

|  |  |  |
| --- | --- | --- |
| Response | Frequency  | Percentage |
| Age | Under 14-15 years16-17 years18 years and above | 2162113 | 10.731.657.7 |
|  | **Total** | **196** | **100%** |
| Class | SHS 1SHS 2SHS 3 | 3857101 | 19.429.151.5 |
|  | **Total**  | **196** | **100%** |
| Religion | ChristianMuslimTraditionalistNone | 86712019 | 43.936.210.29l7 |
|  | **Total** | **196** | **100%** |

**Source: Field study (2025)**

## **3.2** **Knowledge of Self-Breast Examination among female students**

Among the 196 female students surveyed, 63.8% reported knowing about self-breast examination (SBE). However, knowledge gaps were evident in key areas: only 41.3% correctly identified the appropriate time to perform SBE (a few days after menstruation), while 39.3% thought it could be done anytime. Regarding frequency, 42.3% knew that SBE should be done monthly, but significant proportions believed it should be done weekly (21.9%) or annually (14.3%), and 21.4% were unsure.

Awareness of breast abnormality warning signs varied, with the highest recognition for changes in breast shape or size (41.8%), followed by lumps/swelling (24.5%), nipple discharge (18.4%), and skin changes (15.3%).

Overall, while awareness of SBE exists among most students, there are notable gaps in knowledge about the correct timing, frequency, and warning signs, indicating a need for improved education to enhance effective breast health practices.

|  |  |  |
| --- | --- | --- |
| Responses | Frequency  | Percentage (%)  |
| Knowledge of Self-Brest ExaminationYesNo | 12571 | 63.836.2 |
| Total  | 196 | 100% |
| What is the appropriate time to perform a Self-Breast Examination? |   |   |
| Any time of the monthA few days after menstruationBefore menstruationI don’t know | 77811820 | 39.341.39.210.2 |
| **Total**  | **196** | **100** |
| How often should a woman perform Self-Breast Examination? |  |  |
| Once a weekOnce a monthOnce a yearI don’t know | 43832842 | 21.942.314.321.4 |
| **Total** | **196** | **100** |
| What are the common warning signs of breast abnormalities? |  |  |
| Lump or swelling in the breastNipple dischargeChanges in breast shape or sizeSkin changes (redness, dimpling, peeling) | 4836 8230 | 24.518.441.815.3 |
| Total  | 196 | 100 |

**Table 2 Knowledge of Self-Breast Examination**

**Source: Field study (2025)**

## **3.3** **Attitude on Self-Breast Examination among female students**

The mean scores for the attitude statements reflect generally positive perceptions among female students at Sunyani Senior High School regarding self-breast examination (SBE), although some uncertainty remains in specific areas.

The statement, “Educational interventions increase not only knowledge but also confidence in performing SBE regularly,” received the highest mean score of 4.12, indicating strong agreement that education and training effectively enhance both understanding and confidence. This suggests students recognize the value of targeted programs in promoting regular and correct SBE practice.

Similarly, the statement, “Many female students are aware of breast cancer but may lack proper knowledge about how and when to perform SBE,” had a high mean of 4.09, indicating broad agreement that while awareness exists, knowledge gaps remain concerning the correct practice of SBE.

The item, “Those who receive training or demonstrations on SBE tend to have higher confidence in performing it correctly,” scored 3.83 on average, showing moderate to strong agreement that practical training improves students’ confidence.

Some uncertainty is evident in responses to “Many students feel unsure about how to perform SBE correctly” (mean = 3.40) and “Some students do not perform SBE due to limited knowledge about its importance or the correct method” (mean = 3.67). These moderate scores suggest that a significant portion of students still experience doubts or lack motivation stemming from insufficient knowledge.

The perception that “Some view SBE as a way to take control of their health and reduce anxiety about breast cancer” scored 3.73, reflecting a moderately positive attitude toward SBE as an empowering health behavior.

Lastly, the lowest mean (3.33) was for the statement, “Some students believe they are too young to develop breast cancer and see SBE as unnecessary,” indicating mild agreement with this misconception. This highlights an attitudinal barrier where some students underestimate their risk, potentially limiting engagement with preventive practices.

The standard deviations, mostly around 1.0, indicate moderate variability in responses, with the exception of the first statement, which had a higher SD of 3.72—likely due to a wider range of opinions on awareness versus knowledge.

Overall, the results suggest generally positive attitudes toward SBE among students, with recognition of the importance of education and training, but also reveal existing uncertainties and misconceptions that may hinder consistent practice. These findings underscore the need for enhanced educational efforts to address knowledge gaps and attitudes to improve SBE uptake.

|  |  |  |
| --- | --- | --- |
| Responses | Mean  | Standard deviation  |
| Many female students are aware of breast cancer but may lack proper knowledge about how and when to perform SBE. | 4.0867 | 3.72485 |
| Those who receive training or demonstrations on SBE tend to have higher confidence in performing it correctly. | 3.8316 | .93217 |
| Many students feel unsure about how to perform SBE correctly. | 3.4031 | 1.03567 |
| Educational interventions increase not only knowledge but also confidence in performing SBE regularly. | 4.1224 | 1.21330 |
| Some view SBE as a way to take control of their health and reduce anxiety about breast cancer. | 3.7296 | .99400 |
| Some students do not perform SBE due to limited knowledge about its importance or the correct method. | 3.6684 | 1.03637 |
| Some students believe they are too young to develop breast cancer and see SBE as unnecessary. | 3.3265 | .90894 |

**Table 3: Attitude on Self-Breast Examination among female students**

## **4.5 Practices on Self-Brest Examination among female students**

This section explores the self-breast examination (SBE) practices of female students at Sunyani Senior High School. The findings indicate that most respondents demonstrated good knowledge of key SBE techniques. A majority agreed that observing the breasts in front of a mirror—while positioning the arms relaxed, raised, and on the hips—to detect changes in size, shape, or skin texture is important, reflected by a high mean score of 3.85 (SD = 0.88).

Respondents also recognized the importance of raising the arms overhead and repeating the inspection, with a mean score of 3.36 (SD = 1.26), indicating moderate agreement. The practice of using the pads of the fingers to feel for lumps in a circular motion, starting from the outer breast towards the nipple, was similarly acknowledged (mean = 3.52, SD = 1.17). Manual palpation while lying down was agreed upon by most students (mean = 3.50, SD = 1.07), showing awareness of proper examination posture.

Notably, applying varying pressure—light near the skin, medium in the middle, and firm deeper in the tissue—received the highest agreement with a mean score of 4.03 (SD = 0.88), highlighting good understanding of palpation techniques. Additionally, gently squeezing the nipple to check for unusual discharge was widely accepted as part of the examination (mean = 3.79, SD = 0.99).

Overall, the results suggest that the majority of female students at Sunyani Senior High School are aware of essential practices involved in self-breast examination, reflecting a promising foundation for breast health monitoring in this population.

**Table 4.:** Practices on Self-Brest Examination among female students at Sunyani senior high school

|  |  |  |
| --- | --- | --- |
| Statement  | Mean  | Std. deviation  |
| Observing the breasts in front of a mirror with arms at different positions (relaxed, raised, and on hips) to check for changes in size, shape, or skin texture. | 3.8571 | .88289 |
| Raise your arms overhead and repeat the inspection. | 3.3673 | 1.26805 |
| Using the pads of the fingers to feel for lumps in a circular motion, starting from the outer breast and moving towards the nipple. | 3.5255 | 1.17424 |
| Manual palpation while lying down. | 3.5051 | 1.07416 |
| Apply light pressure near the skin, medium pressure in the middle of the breast, and firm pressure deeper in the tissue. | 4.0306 | .88235 |
| Gently squeezing the nipple to check for any unusual discharge, such as blood or pus. | 3.7908 | .99337 |

**Source: Field survey (2025)**

**4.0 Discussion**

This study aimed to assess the knowledge, attitudes, and practices related to self-breast examination (SBE) among female students at Sunyani Senior High School. The findings are discussed in relation to each research objective and contextualized with existing literature to provide deeper insight and implications for breast health promotion.

**4.1 Knowledge of Self-Breast Examination**

The study revealed that while a majority of female students had some awareness of SBE, detailed knowledge regarding correct techniques, timing, and importance was insufficient. This finding is inconsistent with studies conducted in similar settings, such as (G Koc, 2019; JA Ogunkayode, 2021) which reported gaps in procedural knowledge despite general awareness. The disparity between awareness and in-depth understanding reflects a common challenge in adolescent health education where exposure to information does not always translate into comprehensive knowledge. The World Health Organization emphasizes the crucial role of early detection in reducing breast cancer mortality (*The World Health Organization Emphasizes the Crucial Role of Early Detection in Reducing Breast Cancer Mortality (WHO, 2023). - Google Search*, n.d.). Given the identified knowledge gaps, the health implication is clear: without adequate knowledge, students may not perform SBE effectively, reducing the potential for early identification of abnormalities. This can delay diagnosis and treatment, ultimately increasing breast cancer morbidity and mortality rates among young women. To address this, it is essential to implement structured, targeted health education interventions within school curricula. These programs should utilize evidence-based teaching methods, including interactive demonstrations and practical sessions, and involve healthcare professionals to enhance understanding and empower young women in breast health self-care. Such initiatives will improve knowledge retention, build confidence in performing SBE, and foster regular practice, thereby contributing to earlier detection and better health outcomes.

**4.2 Attitude Towards Self-Breast Examination**

Attitudes towards self-breast examination (SBE) among the students demonstrated variability, influenced by factors such as perceived susceptibility and cultural beliefs. This aligns with findings from (Fondjo et al., 2018; Wolde et al., 2023b), which highlight that while awareness of SBE is relatively high, actual practice is inconsistent due to uncertainty about technique and low perceived risk. The moderate confidence levels and occasional misconceptions about breast cancer risk among younger females identified in this study resonate with these prior findings (Ranasinghe et al., 2013).

The health implications are significant: negative or uncertain attitudes toward SBE can deter regular practice, undermine early detection efforts and potentially lead to delayed diagnosis and poorer breast cancer outcomes. Cultural taboos and societal norms, as described by (Afaya et al., 2024b), often inhibit open discussion about breast health, limiting education and reinforcement of positive attitudes. Access to guidance from healthcare professionals, which positively influences attitudes and adherence, remains uneven, particularly in resource-limited settings (Fondjo et al., 2018). Therefore, addressing these attitudinal barriers through culturally sensitive awareness campaigns, peer education programs, and facilitating easier access to professional advice is essential. These efforts will help to normalize breast health conversations, build confidence in performing SBE, and foster a proactive approach toward breast health among young women.

**4.3 Practices of Self-Breast Examination**

Regarding SBE practice, the study found that while some students viewed it as an empowering health behavior to reduce anxiety, actual adherence to recommended techniques and frequency was suboptimal. This mirrors findings by (Wolde et al., 2023b), who observed a gap between awareness and correct practice, and (Mohebi et al., 2023a), who noted that misinformation and cultural misconceptions hinder proper SBE adherence.

The low rate of regular, correctly performed SBE practices is a concern, especially given that the American Cancer Society recommends monthly self-examinations for early detection (Capaccione et al., 2021). Factors such as lack of confidence, fear of discovering abnormalities, and busy lifestyles; as noted by (Fondjo et al., 2018); likely contribute to this trend. Additionally, younger females and those with lower educational levels, like many in this study’s population, tend to exhibit lower adherence (Mohebi et al., 2023b). The misconception that breast cancer is solely hereditary and thus irrelevant for personal prevention efforts further reduces motivation to practice SBE (Calys-Tagoe et al., 2025). The health implications are profound: insufficient practice of SBE delays identification of breast changes, leading to later-stage diagnoses and poorer prognoses. Interventions that combine educational campaigns with community and healthcare provider engagement have shown promise in improving SBE knowledge and practice (Liaw & Ting, 2025) . Incorporating such strategies at the school level could enhance early detection behaviors among young women in Ghana.

**5. Conclusion**

The study has demonstrated that female students at Sunyani Senior High School possess moderate awareness of self-breast examination but lack comprehensive knowledge of its proper techniques, timing, and significance. Attitudes toward SBE are mixed, with some students expressing uncertainty and misconceptions that may hinder regular practice. Although many students are familiar with key steps of SBE, actual adherence to recommended practices remains inconsistent.

These findings underscore the urgent need for targeted educational interventions that address knowledge gaps and cultural barriers, while promoting positive attitudes toward breast health. By integrating breast health education into school curricula and facilitating access to healthcare professionals, it is possible to empower young women to adopt regular self-breast examination, thereby improving early detection of breast abnormalities and contributing to better breast cancer outcomes in Ghana.

## 6 Study Limitation

This study assessed knowledge, attitudes, and practices of self-breast examination among female students at Sunyani Senior High School. While most students were aware of SBE, detailed understanding of correct techniques and timing was limited. Attitudes varied due to perceived risk and cultural beliefs, with some misconceptions present. Although many recognized key steps, adherence to recommended practices was inconsistent. These findings reveal gaps in breast health education, highlighting the need for culturally sensitive school-based interventions and improved access to professional guidance to promote regular SBE and enhance early breast cancer detection.

**7. Recommendations**

* Implement breast health education programs within the senior high school curriculum, focusing on practical SBE techniques, timing, and importance.
* Facilitate training sessions and demonstrations by healthcare professionals to build confidence and correct misconceptions.
* Address cultural barriers through community engagement and culturally sensitive awareness campaigns.
* Conduct regular assessments to monitor improvements in knowledge, attitudes, and practices over time.

Consent for publication

Not applicable

Data Availability

Data used to support this study are available from the corresponding author upon request.

REFERNCE

Abubakari, A. K., Gross, J., Kwaku, I. D., & Boateng, I. K. (2025). Factors Influencing Cervical Cancer Screening: A Cross-Sectional Study Among Ethnically Diverse Women in the Kumasi Metropolis of Ghana. *Health Science Reports*, *8*(2). https://doi.org/10.1002/HSR2.70433

*ACS Breast Cancer Screening Guidelines | American Cancer Society*. (n.d.). Retrieved June 28, 2025, from https://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html

Afaya, A., Anaba, E. A., Bam, V., Afaya, R. A., Yahaya, A. R., Seidu, A. A., & Ahinkorah, B. O. (2024a). Socio-cultural beliefs and perceptions influencing diagnosis and treatment of breast cancer among women in Ghana: a systematic review. *BMC Women’s Health*, *24*(1). https://doi.org/10.1186/S12905-024-03106-Y

Afaya, A., Anaba, E. A., Bam, V., Afaya, R. A., Yahaya, A. R., Seidu, A. A., & Ahinkorah, B. O. (2024b). Socio-cultural beliefs and perceptions influencing diagnosis and treatment of breast cancer among women in Ghana: a systematic review. *BMC Women’s Health*, *24*(1), 1–10. https://doi.org/10.1186/S12905-024-03106-Y/TABLES/1

Ahmed, W. R., Hossny, E. K., Mohammed, G. T., Elrahman, S. A. A. A., Abdelkader, A. M., Abdelrahem, A. S. A., Omar, N. N., & Mohamed, H. M. (2024). Risk Assessment Tool of Breast Cancer and Barriers against Breast Self-Examination among Nurses: An Educational Program. *Nursing Forum*, *2024*. https://doi.org/10.1155/2024/5452953

Al-Worafi, Y. M. (2024). Cancer: Risk Factors in Developing Countries. *Handbook of Medical and Health Sciences in Developing Countries*, 1–23. https://doi.org/10.1007/978-3-030-74786-2\_326-1

Amegbedzi, R. A., Komesuor, J., Amu, H., & Tarkang, E. E. (2022). Factors Influencing the Practice of Breast Self-Examination among Female Tertiary Students in Ho, Ghana. *Advances in Public Health*, *2022*. https://doi.org/10.1155/2022/7724050

Arnold, M., Morgan, E., Rumgay, H., Mafra, A., Singh, D., Laversanne, M., Vignat, J., Gralow, J. R., Cardoso, F., Siesling, S., & Soerjomataram, I. (2022a). Current and future burden of breast cancer: Global statistics for 2020 and 2040. *The Breast : Official Journal of the European Society of Mastology*, *66*, 15. https://doi.org/10.1016/J.BREAST.2022.08.010

Arnold, M., Morgan, E., Rumgay, H., Mafra, A., Singh, D., Laversanne, M., Vignat, J., Gralow, J. R., Cardoso, F., Siesling, S., & Soerjomataram, I. (2022b). Current and future burden of breast cancer: Global statistics for 2020 and 2040. *Breast*, *66*, 15–23. https://doi.org/10.1016/j.breast.2022.08.010

Bamodu, O. A., & Chung, C.-C. (2024). Cancer Care Disparities: Overcoming Barriers to Cancer Control in Low- and Middle-Income Countries. *JCO Global Oncology*, *10*. https://doi.org/10.1200/GO.23.00439

Bellanger, M., Zeinomar, N., Tehranifar, P., & Terry, M. B. (2018). Are global breast cancer incidence and mortality patterns related to country-specific economic development and prevention strategies? *Journal of Global Oncology*, *2018*(4), 1–16. https://doi.org/10.1200/JGO.17.00207

Böckerman, P., Kortelainen, M., Salokangas, H., & Vaalavuo, M. (2025). A family affair? Long-term economic and mental health effects of spousal cancer. *Journal of Population Economics*, *38*(1). https://doi.org/10.1007/S00148-025-01070-X

Calys-Tagoe, B. N. L., Brownson, K., Nsaful, J., Dedey, F., Coleman, N., Laryea, R. Y., & Clegg-Lamptey, J. N. (2025). EXPLORING KNOWLEDGE, BELIEFS, AND MISCONCEPTIONS ON BREAST CANCER IN AN URBAN FISHING COMMUNITY IN GHANA-A QUALITATIVE STUDY. *Postgraduate Medical Journal of Ghana*, *14*(1), 28–35. https://doi.org/10.60014/pmjg.v14i1.394

Capaccione, K. M., Huang, S., West, E., Deng, A., Salvatore, M. M., & Desperito, E. (2021). Differential effects of the 2015 American Cancer Society guidelines on screening mammography exams based on socioeconomic status. *Journal of Clinical Oncology*, *39*(15\_suppl), 10539–10539. https://doi.org/10.1200/JCO.2021.39.15\_SUPPL.10539

Capili, B. (2021). Overview: Cross-Sectional Studies. *The American Journal of Nursing*, *121*(10), 59. https://doi.org/10.1097/01.NAJ.0000794280.73744.FE

Carrera, P. M., Kantarjian, H. M., & Blinder, V. S. (2018). The financial burden and distress of patients with cancer: Understanding and stepping‐up action on the financial toxicity of cancer treatment. *CA: A Cancer Journal for Clinicians*, *68*(2), 153–165. https://doi.org/10.3322/CAAC.21443

Ferlay, J., Colombet, M., Soerjomataram, I., Mathers, C., Parkin, D. M., Piñeros, M., Znaor, A., & Bray, F. (2019). Estimating the global cancer incidence and mortality in 2018: GLOBOCAN sources and methods. *International Journal of Cancer*, *144*(8), 1941–1953. https://doi.org/10.1002/IJC.31937

Ferlay, J., Colombet, M., Soerjomataram, I., Parkin, D. M., Piñeros, M., Znaor, A., & Bray, F. (2021). Cancer statistics for the year 2020: An overview. *International Journal of Cancer*, *149*(4), 778–789. https://doi.org/10.1002/IJC.33588

Fondjo, L. A., Owusu-Afriyie, O., Sakyi, S. A., Wiafe, A. A., Amankwaa, B., Acheampong, E., Ephraim, R. K. D., & Owiredu, W. K. B. A. (2018). Comparative Assessment of Knowledge, Attitudes, and Practice of Breast Self-Examination among Female Secondary and Tertiary School Students in Ghana. *International Journal of Breast Cancer*, *2018*. https://doi.org/10.1155/2018/7502047

G Koc, H. G.-S. S. E. M. Y.-C. N. A. (2019). Female university students’ knowledge and practice of breast self-examination in Turkey. *Niger J Clin Pract*, *22*(3), 410–415.

JA Ogunkayode, A. A. (2021). Knowledge, attitude, and practice of breast self-examination among female secondary school students in Ibadan, Nigeria. *Arch Basic Appl Med*, *9*(1), 5–11.

Johnson, O. E. (2019). Awareness and Practice of Breast Self Examination among Women in Different African Countries: A 10-Year Review of Literature. *Nigerian Medical Journal : Journal of the Nigeria Medical Association*, *60*(5), 219. https://doi.org/10.4103/NMJ.NMJ\_84\_19

Joyce, C., Ssenyonga, L. V. N., & Iramiot, J. S. (2020). Breast self-examination among female clients in a tertiary hospital in Eastern Uganda. *International Journal of Africa Nursing Sciences*, *12*. https://doi.org/10.1016/j.ijans.2019.100186

Kandasamy, G., Almaghaslah, D., Almanasef, M., & Alamri, R. D. A. (2024). Knowledge, attitude, and practice towards breast self-examination among women: a web based community study. *Frontiers in Public Health*, *12*, 1450082. https://doi.org/10.3389/FPUBH.2024.1450082/BIBTEX

Liaw, M. K.-P., & Ting, S.-H. (2025). Communicating Barriers to Breast Cancer Screening and Treatment Among Sarawakian Women: An Extended Parallel Process Model Analysis. *Journal of Communication in Scientific Inquiry (JCSI)*, *7*(1), 93–103. https://doi.org/10.58915/JCSI.V7I1.1866

Maurya, A. P., & Brahmachari, S. (2021). Current Status of Breast Cancer Management in India. *Indian Journal of Surgery*, *83*, 316–321. https://doi.org/10.1007/S12262-020-02388-4

Mensah, K. B., & Mensah, A. B. B. (2020). Cancer control in Ghana: A narrative review in global context. *Heliyon*, *6*(8). https://doi.org/10.1016/j.heliyon.2020.e04564

Mohebi, Z., Heidari Sarvestani, M., Moradi, Z., & Naghizadeh, M. M. (2023a). Female high school students’ knowledge and attitude toward breast cancer. *BMC Women’s Health*, *23*(1). https://doi.org/10.1186/S12905-023-02155-Z

Mohebi, Z., Heidari Sarvestani, M., Moradi, Z., & Naghizadeh, M. M. (2023b). Female high school students’ knowledge and attitude toward breast cancer. *BMC Women’s Health*, *23*(1), 41. https://doi.org/10.1186/S12905-023-02155-Z’,

Molassiotis, A., Tyrovolas, S., Giné-Vázquez, I., Yeo, W., Aapro, M., & Herrstedt, J. (2021). Organized breast cancer screening not only reduces mortality from breast cancer but also significantly decreases disability-adjusted life years: analysis of the Global Burden of Disease Study and screening programme availability in 130 countries. *ESMO Open*, *6*(3). https://doi.org/10.1016/j.esmoop.2021.100111

Mushosho, E. Y., Muziringa, M. C., Radebe, M., & Nkosi, P. B. (2024). A model to enhance breast cancer screening among rural women aged 40–75 years in Sub-Saharan Africa (SSA): A scoping review. *Journal of Medical Imaging and Radiation Sciences*, *55*(1), 109–124. https://doi.org/10.1016/j.jmir.2023.12.003

Mutebi, M., Anderson, B. O., Duggan, C., Adebamowo, C., Agarwal, G., Ali, Z., Bird, P., Bourque, J. M., DeBoer, R., Gebrim, L. H., Masetti, R., Masood, S., Menon, M., Nakigudde, G., Ng’ang’a, A., Niyonzima, N., Rositch, A. F., Unger-Saldaña, K., Villarreal-Garza, C., … Eniu, A. (2020). Breast cancer treatment: A phased approach to implementation. *Cancer*, *126*(S10), 2365–2378. https://doi.org/10.1002/CNCR.32910

Nukpezah, R. N., Alenyorige, R. L., Abdul-Wahab, I., Asaana, F. M., Adinga, G., Nungbaso, A. M., & Dzantor, E. K. (2021). Knowledge and Practice of Breast Self-Examination among Undergraduate Midwifery Students of the University for Development Studies, Ghana. *Advances in Research*, 26–37. https://doi.org/10.9734/AIR/2021/V22I430308

Omotoso, O., Teibo, J. O., Atiba, F. A., Oladimeji, T., Paimo, O. K., Ataya, F. S., Batiha, G. E. S., & Alexiou, A. (2023). Addressing cancer care inequities in sub-Saharan Africa: current challenges and proposed solutions. *International Journal for Equity in Health*, *22*(1). https://doi.org/10.1186/S12939-023-01962-Y

Pippin, M. M., & Boyd, R. (2023). Breast Self-Examination. *StatPearls*. https://www.ncbi.nlm.nih.gov/books/NBK565846/

Ranasinghe, H. M., Ranasinghe, N., Rodrigo, C., Seneviratne, R. D. A., & Rajapakse, S. (2013). Awareness of breast cancer among adolescent girls in Colombo, Sri Lanka: a school based study. *BMC Public Health*, *13*(1), 1–7. https://doi.org/10.1186/1471-2458-13-1209

Siegel, R. L., Kratzer, T. B., Giaquinto, A. N., Sung, H., & Jemal, A. (2025). Cancer statistics, 2025. *CA: A Cancer Journal for Clinicians*. https://doi.org/10.3322/CAAC.21871

Srinath, A., Van Merode, F., Rao, S. V., & Pavlova, M. (2023). Barriers to cervical cancer and breast cancer screening uptake in low- and middle-income countries: a systematic review. In *Health Policy and Planning* (Vol. 38, Issue 4, pp. 509–527). Oxford University Press. https://doi.org/10.1093/heapol/czac104

*The World Health Organization emphasizes the crucial role of early detection in reducing breast cancer mortality (WHO, 2023). - Google Search*. (n.d.). Retrieved June 28, 2025, from https://www.google.com/search?q=The+World+Health+Organization+emphasizes+the+crucial+role+of+early+detection+in+reducing+breast+cancer+mortality+(WHO%2C+2023).&oq=The+World+Health+Organization+emphasizes+the+crucial+role+of+early+detection+in+reducing+breast+cancer+mortality+(WHO%2C+2023).&gs\_lcrp=EgZjaHJvbWUyBggAEEUYOdIBCzgwMTk2NzlqMWo3qAIAsAIA&sourceid=chrome&ie=UTF-8

Wang, X., & Cheng, Z. (2020). Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. *Chest*, *158*(1), S65–S71. https://doi.org/10.1016/J.CHEST.2020.03.012,

Wolde, M. T., Okova, R., Habtu, M., Wondafrash, M., & Bekele, A. (2023a). The practice of breast self-examination and associated factors among female healthcare professionals working in selected hospitals in Kigali, Rwanda: a cross sectional study. *BMC Women’s Health*, *23*(1). https://doi.org/10.1186/S12905-023-02776-4

Wolde, M. T., Okova, R., Habtu, M., Wondafrash, M., & Bekele, A. (2023b). The practice of breast self-examination and associated factors among female healthcare professionals working in selected hospitals in Kigali, Rwanda: a cross sectional study. *BMC Women’s Health*, *23*(1). https://doi.org/10.1186/S12905-023-02776-4