

Research Article

Factors Influencing the Practice of Breast Self-Examination among Female Tertiary Students in Ho, Ghana

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Background. Despite the implementation of various interventions towards the reduction of breast cancer prevalence, many women still report late symptoms to health facilities, and this decreases their chances of survival. Breast self-examination (BSE) is the most convenient form of examination to detect the development of breast cancer. We examined the factors that influence the practice of breast self-examination among female tertiary students in Ho, Volta Region of Ghana. **Methods.** This was a descriptive cross-sectional study that recruited 506 female students from four tertiary institutions in the Ho Municipality in Ghana using questionnaires. Descriptive and inferential statistics comprising frequency, percentage, Chi-square, and binary logistic regression were used in analyzing the data. **Results.** About 73% of the respondents had ever practised BSE. Out of the respondents who have ever practiced BSE, 79% were practising it at the time of the study. Students in their fourth year were above 4 times more likely (95% CI = 1.73–9.29, $p = 0.014$) to practise BSE than those in their first year. Also, students with good knowledge of BSE were 4 times more likely to practice BSE [(95% CI = 1.1–13.46), $p = 0.036$] and students with good perception about BSE were 12 times more likely to practice BSE [(95% CI = 1.21–122.73), $p = 0.034$]. **Conclusion.** The study found that 27% of the female students had never practised BSE. Those who practice BSE did not practice regularly and appropriately. Also, good knowledge and perception are associated with the practice of BSE. The implication of this result is the late presentation of breast cancer cases to health facilities and increases in breast cancer-related deaths in the country. Therefore, it is recommended that the Ministry of Health, the Ghana Health Service, and other stakeholders in Ghana's healthcare should develop and implement innovative approaches and policies such as peer and support groups' learning, and mass media BSE awareness aimed at ensuring better understanding and access to BSE education. This should be intensified during the foundation years such as the secondary and tertiary education levels to ensure the adoption of breast self-examination practice. It is also recommended that another study must be done using a qualitative approach to get an in-depth understanding of the steps and ways, by which female students practice BSE.

1. Background

Goal three of the Sustainable Development Goals (SDGs) is to reduce by one-third prematurity from noncommunicable diseases (NCDs). This will be achieved through prevention and treatment to promote good health and well-being [1]. Breast cancer is one of the fatal NCDs worldwide that affects women of all races even though the severity and survival rates are often diverse globally [2]. This affects the good health and well-being of women diagnosed. Cancer that originates from the breast is known as breast cancer [3]. The

burden of this terminal disease differs among regions and countries and is the most frequently diagnosed type of cancer and the leading cause of cancer-related mortalities in females worldwide. In 2018, breast cancer was the second most diagnosed cancer and the second leading cause of cancer deaths (11.6% of cancer deaths) worldwide [4]. In Ghana, breast cancer is a major public health problem and the most common type of cancer among women in terms of mortality and incidence [5, 6].

Prevention methods for breast cancer are yet to be identified. However, the most effective way to reduce breast

cancer mortality is to promote early detection since breast cancer is curable when detected early [7]. The earlier the breast cancer is detected, the better the effectiveness of the treatment and the likelihood of survival [8].

The incidence of breast cancer is increasing in the developing world due to increased life expectancy, increased levels of urbanization, and the adoption of “western lifestyles” [4]. Also, changes in lifestyle and eating habits could be factors contributing to the growing number of breast cancer incidences in developing countries. It is, therefore, important to focus on early detection and early treatment of breast cancer. Because of this, three screening methods for early detection of breast cancer have been identified: the mammogram, clinical breast examination, and breast self-examination (BSE) [9]. The American Cancer Society’s guidelines for early detection of breast cancer recommend a yearly mammogram for women aged forty and above, a clinical breast examination (CBE) about every three years for women in their twenties and thirties and every year for women aged forty and over, and monthly BSE for women starting their twenties [9]. Mammograms and CBE involve the use of specialized machines and health experts for breast examination, which could be time consuming and expensive. Breast self-examination (BSE), on the other hand, can be performed at home and is quite easy and inexpensive. It refers to palpating the breast to know how the breast looks and feels and when done regularly, promotes early detection and early treatment of breast cancer [9]. It involves using the hand to palpate the breast to detect changes. This method enables all women to become familiar with both the appearance and feel of their breasts so that they can notice any changes and report them promptly to a health care provider [10].

Symptoms of breast cancer include the presence of a painless lump, breast pain, swelling, thickening or redness of breast skin, nipple retraction, and nipple discharge [9]. These symptoms can be detected with BSE when done regularly. Breast self-examination plays an important role in resource-limited settings and areas with limited access to health care [5]. Also, there is limited access to health facilities and mammograms in less-resourced settings. Research has proven that more than 90% of breast cancer cases are detected by women themselves and a majority of early self-discoveries are by BSE performers [7]. Evidence suggests that BSE is a reliable screening tool when used as an adjunct to CBE and imaging studies. Yet, only a few people practice BSE in Ghana [10].

Even though there is no existing regional or national cancer registry in Ghana, a survey was done by exploring patient folders to estimate cancer cases in the Volta Region. A prevalence of 0.38 was found for breast cancer [11]. The study found that breast cancer was the fourth most reported cancer among all sexes and first among females. The Volta Region with the largest number of hospitals had the highest prevalence [12]. Hence, there is a need for prevention programs to be implemented in the Volta Region.

In Ghana, a lot of research has been done on BSE, but there is limited research in the Volta Region [13]. Therefore,

there is a gap in the practice of BSE among tertiary students in the Volta Region. There is, therefore, the need for empirical studies in the Volta Region to better understand the situation and suggest appropriate measures to reverse the trend. Ho is the regional capital of the Volta Region and has the highest number of tertiary schools in the region, hence will serve as easy access to tertiary students in the Volta Region. Understanding the situation of BSE among female students in the capital town of Volta Region, Ho, will not only provide an evidence-based blueprint for the formulation of policies to promote early detection and early treatment for breast cancer but also guide towards achieving goal 3 of SDG of preventing premature death associated with breast cancer. This study was, therefore, assessed the influence of the practices of BSE among female tertiary students in the Ho Municipality of the Volta Region in Ghana.

2. Materials and Methods

2.1. Study Design. Our study was quantitative and adopted a descriptive cross-sectional design. This design was used because it helps to collect unobservable data from a large population at a specific point in time [14]. Hence, information on factors influencing the practice of breast self-examination was collected at one point in time by just asking respondent questions.

2.2. Study Setting. This study was conducted in the Ho Municipality of the Volta Region of Ghana. The Ho Municipality is one of 5 municipalities and the administrative capital of the Volta Region [15]. It has the largest number of tertiary institutions in the whole region. The municipality has 8 tertiary institutions, which include two public universities, one public nurses’ training college, and five private universities [16]. The tertiary institutions included in the study were the University of Health and Allied Sciences (UHAS), Ho Technical University (HTU), Ho Nursing Training College (NTC), and Ghana Technology University College (GTUC). Data were collected from January to May 2019.

2.3. Study Participants. A participant was included in the study if she was a female student of any tertiary institution within the Ho Municipality, is 18+ years old, and is without a history of breast-related issues. However, a student was excluded from the study if she was not mentally sound or did not consent to participate in the study.

A multistage sampling technique was adopted using stratified sampling and lottery methods, respectively. A stratified sampling method was used in this study to ensure representativeness. Two levels of strata were used: at the first level, tertiary institutions in the Ho Municipality were grouped into health institutions and nonhealth institutions. Two schools were selected from each stratum using a lottery method. With this, numbers were randomly picked, which correspond to numbers assigned to each school in each stratum. A proportionate sample of students was selected from each of the four institutions selected and calculated

based on the population of each selected institution. In all, the minimum sample size drawn from UHAS, HTU, NTC, and GTUC was 146, 182, 122, and 25, respectively.

From each school, the minimum sample size (146, 182, 122, and 25), the total number of students in each class, and the total number of students in the school were used to estimate the proportionate number of students to sample in each class.

2.4. Study Variables. The study considered a practice of BSE as the only outcome or dependent variable. The independent variables used in the study were demographics, knowledge of BSE, and perception of BSE. A structured questionnaire was adapted from validated questionnaires [8, 17, 18]. The questionnaire was sectioned into four: sections A, B, C, and D. Section A assessed the sociodemographic characteristics (including the name of the school of respondents, the residential status, current academic level of respondents, and the program of study of respondents' age, marital status, religion, and ethnicity). Sections B–D focused on assessing factors that influence the practice of BSE. Section B assessed knowledge on breast self-examination (including age a woman should start BSE, how often a woman is supposed to practice BSE, time to practice, positions for performing BSE for women with irregular menstruation and regular menstruation, examination techniques, types of motions to be performed during BSE, and amount of time to spend when practising BSE). Also, section C assessed the perception of breast self-examination. This was assessed using statements and participants were supposed to agree or disagree with the statements. The statements included BSE are not necessary, BSE is for only the elderly women, BSE is very convenient, and BSE makes an individual get breast cancer in future. Section D examined the level of practice of breast self-examination (including how often participants practice BSE, techniques used, and signs they look out for).

2.5. Study Size. The sample size was calculated using the Cochran formula [19].

Therefore, the minimum sample size calculated was 424. To make sampling more representative of the population and have a large sample to be able to make valid conclusions, 506 students were sampled for this study.

A proportionate sample of students was selected from each of the four institutions selected and calculated based on the population of each selected institution. In all, the minimum sample size drawn from UHAS, HTU, NTC, and GTUC was 146, 182, 122, and 25, respectively.

From each school, the minimum sample size (146, 182, 122, and 25), the total number of students in a class, and the total number of students in the school were used to calculate and estimate the proportionate number of students to be taken from each class. HTU, NTC, and GTUC had students only in years 1 to 3, whereas UHAS had a few students only in year 5.

2.6. Data Collection Procedure. The questionnaire was adapted from validated questionnaires (8, 14, and 15). It was

designed in English and administered in English. The study participants were tertiary students who, therefore, could read and write; hence, the questionnaires were given to respondents to fill on their own. Before the distribution of the questionnaire, a brief introduction about breast cancer and breast self-examination was discussed. Participants were provided with an informed consent form, which was approved by the University of Health and Allied Sciences Research Ethics Committee. The informed consent form contains information about the benefits and risks associated with the studies, how participants' confidentiality and anonymity will be assured, and conditions surrounding participants' decision to participate in the study. Students were expected to sign the informed consent form before participating in the study. The research team was, however, available to provide any assistance they required in responding to the questionnaire items and ensured that the participant filled every question to prevent missing data. The questionnaires were collected after they were filled and cross-checked for completeness and appropriateness.

2.7. Statistical Methods. Data collected were entered into a template on Epi-Data version 4.0.2 and exported to STATA 14 for cleaning and analyses. Descriptive statistics such as proportions, frequencies, and means, and inferential statistics such as Chi-square test and logistic regression were carried out. A *p*-value of less than 0.05 was acquired, which is considered statistically significant.

Subsequently, 15 questions were used to determine the level of knowledge of respondents on BSE; respondents who answered correctly 8 or more questions were graded as having good knowledge while less than 8 questions were considered to have poor knowledge.

Similarly, 5 questions were used to assess the perception of which respondents who answered 3 and above were categorized as having good perception and respondents who had below 3 questions correct were categorized as having poor perception. Also, 14 questions were used to assess the level of practice of BSE. Respondents who had 7 and above questions correct were graded as having good practice and respondents who had below 7 questions correct were graded as having poor practice. Frequencies, percentages, and cross-tabulations were used in presenting the descriptive results of the sociodemographic characteristics of the respondents, knowledge of students, and perception of students. Chi-square analysis and logistic regression estimation techniques were employed to determine the association between demographics and the practice of BSE.

2.8. Ethical Considerations. Ethical approval for this study was obtained from the University of Health and Allied Sciences Research Ethics Committee (UHAS-REC A.4 [133] 18-19). Permission was also sought from the administrations of the various schools before data collection. Written informed consent was obtained from all respondents before including them in the study. This was done by providing them with a comprehensive information sheet explaining the purpose of the study, the risk/benefits associated with

TABLE 1: Sociodemographic characteristics of respondents.

| Sociodemographic variable | Frequency (<i>N</i> = 506) | Percentage (%) |
|---|-----------------------------|----------------|
| Institution | | |
| The University of Health and Allied Sciences (Ho) | 151 | 29.8 |
| Ho Technical University | 189 | 37.4 |
| Ghana Technical University College | 43 | 8.5 |
| Ho Nurses Training College | 123 | 24.3 |
| Residential status | | |
| Resident | 269 | 53.2 |
| Nonresident | 237 | 46.8 |
| Current academic level | | |
| First year | 164 | 32.4 |
| Second year | 165 | 32.6 |
| Third year | 121 | 23.9 |
| Fourth year | 52 | 10.3 |
| Fifth year | 4 | 0.8 |
| Program of study | | |
| Health course | 275 | 54.4 |
| Nonhealth course | 231 | 45.6 |
| Age (in completed years) | | |
| | Mean (SD) = 20 (1.96) | |
| 15–19 | 92 | 18.2 |
| 20–24 | 333 | 65.8 |
| 25–29 | 61 | 12.1 |
| 30–34 | 14 | 2.8 |
| 35–39 | 5 | 1.0 |
| 40+ | 1 | 0.1 |
| Marital status | | |
| Never married | 465 | 91.9 |
| Married | 39 | 7.7 |
| Widowed | 2 | 0.4 |
| Religion | | |
| Christianity | 485 | 95.9 |
| Islam | 17 | 3.4 |
| African traditional | 4 | 0.7 |
| Ethnicity | | |
| Ewe | 289 | 57.1 |
| Ga/Dangme | 66 | 13.0 |
| Akan | 103 | 20.4 |
| Mole-Dagbani | 13 | 2.6 |
| Hausa | 10 | 2.0 |
| Guan | 23 | 4.5 |
| Other | 2 | 0.4 |

participation in the study, and the procedures involved in the study. The respondents were assured of the confidentiality of information, and their liberty to participate or quit at any stage of the study. An informed consent form was presented and explained for all respondents to or thumbprint before completing questionnaires. To ensure confidentiality and privacy, data obtained are stored in well-secured cabinets and soft copies are password protected, and this is accessible to only the investigators.

3. Results

3.1. Sociodemographic Characteristics of Respondents. Table 1 lists the sociodemographic characteristics of the respondents. A total of 506 students participated in the study. Of these, 37.4%, 29.8%, and 24.3% were students of HTU, UHAS, and Ho NTC, whereas the rest were students of GTUC. The majority (53.2%) were resident students. Also, about one-third (32.4%) of respondents were in the first

year. The program of study of the respondents was categorized as health and nonhealth courses, of which the majority (54.4%) were studying health programs. The mean age of the respondents was 20 years (SD = 1.96), with the majority (65.8%) in their early 20s. Nine out of every ten respondents (91.9%) reported having never been married. Also, most of the respondents were Christians (95.9%) and Ewes (57.1%).

3.2. Knowledge of Breast Self-Examination (BSE). Concerning the overall level of knowledge of respondents on BSE, most of the respondents had good knowledge of BSE (74%).

3.3. Perception of Breast Self-Examination (BSE). Concerning the level of perception of respondents on BSE, most of the respondents (91%) had a good perception of BSE.

TABLE 2: Level of practice of breast self-examination.

| Practice of BSE variables | Frequency (N = 472) | Percentage (%) |
|--|---------------------|----------------|
| Have you ever self-examined breast? | | |
| Yes | 345 | 73.1 |
| No | 127 | 26.9 |
| Currently the practice of BSE | | |
| Yes | 274 | 79.4 |
| No | 71 | 20.6 |
| Last time of BSE practice | | |
| Within this month | 15 | 5.5 |
| Within last month | 127 | 46.4 |
| Last three months | 40 | 14.6 |
| More than 6 months ago | 6 | 2.2 |
| Cannot remember | 86 | 31.3 |
| How often do you practice BSE? | | |
| Once every month | 178 | 65.0 |
| Once every six month | 37 | 13.5 |
| Once a year | 26 | 9.5 |
| Not often | 23 | 8.4 |
| Others | 10 | 3.6 |
| When did you start performing BSE? | | |
| Above 15 years | 69 | 25.2 |
| Below 20 years | 60 | 21.9 |
| 20 years | 57 | 20.8 |
| Above 20 years | 88 | 32.1 |
| When do you perform BSE? | | |
| Before menstruation | 31 | 11.3 |
| During menstruation | 4 | 1.5 |
| After menstruation | 105 | 38.3 |
| Anytime | 124 | 45.2 |
| Cannot tell | 10 | 3.7 |
| Which manual technique do you prefer most? | | |
| Palpating breast with an inner face of the middle finger | 215 | 78.5 |
| Pinching the nipples for discharges | 33 | 12.1 |
| I do not know | 20 | 7.2 |
| Others | 6 | 2.2 |
| What are some of the signs you look out for? | | |
| Lump in breast | 246 | 89.8 |
| Changes in nipples or texture | 160 | 58.4 |
| Bloody discharge from the nipple | 140 | 51.1 |
| Changes in breast size | 145 | 52.9 |
| Level of practice of BSE | | |
| Good Practice | 153 | 56 |
| Poor Practice | 121 | 44 |
| Reasons for practising BSE | | |
| Early detection of BC | 66 | 55.5 |
| Family history | 8 | 6.7 |
| It is convenient | 45 | 37.8 |
| Reasons for not practising BSE | | |
| Absence of symptoms | 41 | 36.3 |
| Anxiety | 21 | 18.6 |
| Negative family history | 4 | 3.5 |
| I do not want to touch my body | 6 | 5.3 |
| Feels funny | 16 | 14.2 |
| I do not know how to do it | 25 | 22.1 |

3.4. *Practice of BSE.* The study found that 56% of the respondents had good practice of BSE. Table 2 presents the practice of BSE among respondents. Two-thirds of respondents (73.1%) have ever practised breast self-examination, out of which 79.4% practised BSE at the time of the study. Less than half of the respondents (46.4%) who

currently practice BSE reported the previous month to have been the last time they practised BSE at the time of the study. However, the majority of the respondents (65.0%) reported practising BSE every month. Also, 32.1% of the respondents said they started BSE above 20 years. Almost half of the respondents (45.2%) reported performing BSE anytime.

TABLE 3: Bivariable and multivariable analyses on the factors influencing BSE practice.

| Variable | Practice of BSE | | X^2 (p value) | COR (95% CI) p value | AOR (95% CI) p -value |
|--------------------------|-----------------|--------------|---------------------------|------------------------------------|--------------------------------|
| | Good n (%) | Poor n (%) | | | |
| Institution | | | 49.38 (0.001)*** | | |
| UHAS | 59 (61.5) | 37 (38.5) | | Ref. | Ref |
| HTU | 6 (12.9) | 61 (87.1) | | 0.92 (0.04–0.21) 0.001*** | 0.71(0.04–13.77)0.820 |
| GTUC | 5 (21.7) | 18 (78.3) | | 0.17 (0.06–0.51) 0.001*** | 0.74(0.04–15.06)0.843 |
| HO NTC | 48 (56.5) | 37 (43.5) | | 0.81 (0.45–1.47) 0.496 | 1.60(0.72–3.51)0.246 |
| Resident status | | | 3.44 (0.064) | | |
| Resident | 60 (39.2) | 93 (60.8) | | | |
| Nonresident | 61 (50.4) | 60 (49.6) | | | |
| Current academic level | | | 27.3040 (0.001)*** | | |
| First year | 16 (22.5) | 55 (77.5) | | | |
| Second year | 35 (41.2) | 50 (58.8) | | 2.41 (1.19–4.87) 0.015*** | 1.50(0.64–3.52)0.356 |
| Third year | 46 (60.5) | 30 (39.5) | | 5.27 (2.57–10.85) 0.001*** | 5.58(2.17–14.32) 0.001*** |
| Fourth year | 21 (54.0) | 18 (46.0) | | 4.01 (1.73–9.29) 0.001*** | 4.31(1.34–13.80)0.014*** |
| Fifth year | 3 (100) | 0 (0.0) | | | |
| Program of study | | | 50.65 (0.001)*** | | |
| Health course | 108 (59.3) | 74 (60.7) | | Ref. | Ref |
| Nonhealth course | 13 (14.1) | 79 (85.9) | | 0.11 (0.058–0.22) 0.001*** | 0.29(0.12–5.63)0.416 |
| Age (in completed years) | | | 10.04 (0.040) * | | |
| 15–19 | 14 (35.9) | 25 (64.1) | | Ref. | |
| 20–24 | 96 (49.7) | 97 (50.3) | | 1.8 (0.87–3.60) 0.117 | |
| 25–29 | 7 (23.3) | 23 (76.7) | | 0.54 (0.19–1.58) 0.264 | |
| 30–34 | 2 (25.0) | 6 (75.0) | | 0.60 (0.11–3.35) 0.556 | |
| 35–39 | 2 (50.0) | 2 (50.0) | | 1.79 (0.23–14.1) 0.582 | |
| 40+ | | | | | |
| Marital status | | | 6.35 (0.042) * | | |
| Never married | 114 (46.1) | 133 (53.9) | | Ref. | Ref |
| Married | 6 (23.1) | 20 (76.9) | | 0.35 (0.14–0.90) 0.030*** | 0.48(0.14–1.61)0.236 |
| Widowed | 1 (100) | 0 (0) | | | |
| Religious affiliation | | | 2.20 (0.333) | | |
| Christianity | 115 (43.4) | 150 (56.6) | | | |
| Islam | 5 (71.4) | 2 (28.6) | | | |
| African traditional | 1 (50.0) | 1 (50.0) | | | |
| Ethnicity | | | 4.63 (0.592) | | |
| Ewe | 59 (41.0) | 85 (59.0) | | | |
| Ga/Dangme | 15 (41.7) | 21 (58.3) | | | |
| Akan | 33 (54.1) | 28 (45.9) | | | |
| Mole-Dagbani | 4 (44.4) | 5 (55.6) | | | |
| Hausa | 2 (40.0) | 3 (60.0) | | | |
| Guan | 7 (38.9) | 11 (61.11) | | | |
| Other | 1 (100) | 0 (0.00) | | | |
| Knowledge of BSE | | | 25.85 (≤ 0.001)*** | | |
| Good knowledge of BSE | 116 (51.1) | 111 (48.9) | | 8.78 (3.35–23.01) ≤ 0.001 *** | 3.84(1.10–13.46) 0.036*** |
| Poor knowledge on BSE | 5 (10.6) | 42 (89.4) | | Ref. | Ref |
| Perception of BSE | | | 8.20 (0.004) * * | | |
| Poor perception | 1 (7.1) | 13 (92.9) | | Ref. | Ref |
| Good perception | 120 (46.2) | 140 (53.9) | | 11.14 (1.44–86.43) 0.021*** | 12.21(1.21–122.73) 0.034*** |

*** p values that are less than 0.05 and significant.

Concerning the manual technique, the majority of the respondents (78.5%) preferred palpating the breast with the inner face of the middle fingers, whereas a few (12.1%) desired pinching nipples for discharges. Most of the respondents (89.8%) reported looking out for a lump in the breast during BSE.

3.5. Bivariable and Multivariable Analyses on the Factors Influencing BSE Practice. Table 3 presents results on factors that influence the practice of BSE. The factors that significantly influenced BSE practice were academic level, knowledge of BSE, and perception of BSE. Specifically, respondents in the third year were 5.58 times more likely to

practice BSE than respondents in the first year [95% CI = 2.17–14.32]. Respondents with good knowledge of BSE were 3.84 times more likely to practice BSE than respondents with poor knowledge of BSE [95% CI = 1.10–13.46]. Also, respondents with good perceptions towards BSE were 12.21 times more likely to practice BSE than respondents with a poor perception of BSE [95% CI = 1.21–122.73].

4. Discussion

We examined factors that influence the practice of breast self-examination among female tertiary students in the Ho Municipality of Volta Region, Ghana. We found that most of the students had good knowledge and perception of BSE. Concerning the practice of BSE, we found that while most of our study participants had ever practised BSE, just half had a good practice of BSE.

Our finding of a good level of knowledge on BSE is consistent with a study carried out in Benin City in Nigeria, where most of the respondents (93.5%) had overall good knowledge about BSE [20]. However, it is not congruent with the findings made among university students in Beau, Cameroon and female medical students in Taif Saudi Arabia, where only 9% and 8.2% of respondents had a good knowledge of BSE, respectively [8, 21]. This difference could be because the current study included two health institutions [22]. Being health students, they are likely to have been educated on BSE or even studied a course on cancers, which could have accounted for their adequate knowledge of BSE. We found that media and school were the major sources of information on BSE among the students. This finding indicates that mass media and schools are an effective means for creating awareness of BSE and should be utilized for further education BSE. Our finding that the majority of the students had a good perception towards BSE implies that perception towards BSE is influenced by knowledge on BSE. This agrees with the findings in Ethiopia, where a majority of the respondent had a positive perception of BSE [23, 24]. This implies that health promotion programs should be targeted towards increasing knowledge and promoting positive perceptions about BSE.

The practice of BSE in the current study was higher than that of other studies in the Northeast of Iran (24.6%) [25] and Malaysia (25.05%) [26]. The inconsistency in findings could be because the current study involved health students who have BSE as part of their curriculum and are expected to be good at it to practice clinical breast examination on patients and also teach patients how to practice BSE. The current study also found that majority of the respondents who practised BSE reported that they practised it because of early detection of breast cancer, whereas the comparative majority reported not practising because of the absence of symptoms and not knowing how to practice it. Therefore, health promotion strategies that will adequately train students on how to effectively practice BSE should be adopted to enhance the practice of BSE. This was similar to the findings in Malaysia, where the majority of the respondents reported that not knowing how to practice BSE and absence of symptoms as the major reasons for not practising BSE

[26]. Also, more than one-third of the respondents could not remember the last time they practised BSE. Those who practice do so at the wrong time, as almost half of the respondents who perform BSE do so at any time.

Less than half (38%) of our respondents practised BSE a few days after their menses. In contrast, the findings at the Presbyterian University College in Ghana found that 62% of the respondents practised BSE after their menses [27]. It is apparent that respondents were not practising BSE at the right time and sequence, which indicates that knowledge on BSE is not enough to have an effective practice of BSE. However, the current study found an association between academic level and practice (AOR = 4.31, 95% CI = 1.34–13.80, 0.014). Respondents from the fourth year were more likely to practice BSE than respondents from the first year. This could be explained by the fact that the more respondents stayed on campus, the more the knowledge and experience they get from the school and peers making them practice BSE more first years.

The current study found an association between knowledge on BSE and practice. Students who had good knowledge of BSE were 4 more times likely to practice BSE than students with poor knowledge of BSE (AOR = 3.84, 95% CI = 1.10–13.46, 0.036). Also, students who had a good perception of BSE were more likely to practice BSE than students with poor perception (AOR = 12.21, 95% CI = 1.21–122.73, 0.034). The current study did not find a significant association between the program of study and the practice of BSE. It was expected that there will a strong association between those who studied health-related courses and practice of BSE since health students studied breast self-examination in school. However, the study has established the fact that knowledge, perception, and academic level influence the practice of BSE.

The study design used for this study limited the findings of this study, hence in-depth understanding of how the female students practice BSE and if the methods used are accurate could not be determined.

4.1. Limitations of the Study. The study design used for this study has its own bias. In a quantitative study, the researcher normally suggests responses for the participants to select. This may lead to social desirability bias. To prevent social desirability bias, the questionnaire was structured such that participants had the chance to input their responses. Both open and closed-ended questions were utilized in the questionnaire.

5. Conclusion

The study found that 27% of the female students had never practised BSE. Those who practice BSE did not practice regularly and appropriately. Also good knowledge and perception are associated with the practice of BSE. The implication of this result is the late presentation of breast cancer cases to health facilities and an increase in breast cancer-related deaths in the country. Therefore, it is recommended that the Ministry of Health, the Ghana Health

Service, and other stakeholders in Ghana's healthcare should develop and implement innovative approaches and policies such as peer and support groups' learning, and mass media BSE awareness aimed at ensuring better understanding and access to BSE education. This should be intensified during the foundation years such as the secondary and tertiary education levels to ensure the adoption of breast self-examination practice. It is also recommended that another study should be done using a qualitative approach to get an in-depth understanding of the steps and ways, by which female students practice BSE.

Data Availability

Data supporting the research and conclusions are available upon request from the authors.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

RAA contributed to the conception of the research idea; RAA, JK, and HA supported in designing and drafting of the manuscript; RAA, JK, and HA assisted in data collection and data analysis; JA, HA, and EET contributed to critical revisions of the manuscript. All authors approved the final manuscript.

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