

Original Research Article

Factors influencing the practice of breast self-examination among female tertiary students in the Tamale Metropolis

Francis Kronzu Cudjoe^{1*}, Abdul-Samed Mohammed¹, Michael Yaw Amoakoh²

¹Department of Environmental and Occupational Health, School of Public Health, University for Development Studies, P.O. Box TL1350, Tamale, Ghana

²Bawku West District Directorate, Ghana Health Service, Ghana

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*Correspondence:

Dr. Francis Kronzu Cudjoe,

E-mail: fkudjoe@uds.edu.gh

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ABSTRACT

Background: Breast cancer is the most common cancer among women in Ghana, with many cases detected at advanced stages due to limited screening options. Breast self-examination (BSE) is a low-cost and practical method for early detection. This study aimed to assess factors influencing the practice of BSE among female tertiary students in the Tamale Metropolis.

Methods: A cross-sectional study was conducted among 486 female students selected from three tertiary institutions. Data were collected using a structured questionnaire on sociodemographic characteristics, knowledge, and practice of BSE. Descriptive and inferential statistics, including logistic regression, were used for analysis.

Results: Among participants, 95.1% had heard of BSE, and 95.3% considered it important for detecting breast cancer. Overall, 70.8% demonstrated good knowledge, while 63% reported good practice. Monthly practice was reported by 39.3%, and 54.9% performed BSE after menstruation. Lumps were the most commonly checked sign (86.8%), and 86.4% indicated they would consult a health professional if abnormalities were detected. Students with good knowledge were nearly five times more likely to practice effectively (AOR=4.88, 95% CI: 2.84-8.38, $p<0.001$).

Conclusions: The study revealed high knowledge but moderate practice of BSE among tertiary students. Enhancing structured health education within tertiary institutions could strengthen regular practice and improve early detection of breast cancer.

Keywords: Breast cancer, Breast self-examination, Tamale, Tertiary students

INTRODUCTION

Breast cancer is a leading cause of cancer-related morbidity and mortality among women globally, accounting for millions of new cases and deaths each year.^{1,2} Recent global estimates show that in 2022, about 2.3 million women were newly diagnosed, and more than 666,000 deaths were recorded, with sub-Saharan Africa contributing over 146,000 cases and 71,000 deaths.^{1,3} The incidence of breast cancer continues to rise in both developed and developing countries, but survival outcomes differ sharply depending on access to screening and early treatment.²⁻⁴ In low- and middle-income

countries, mortality rates are disproportionately high due to late-stage presentation and limited healthcare resources.^{3,4} In Ghana, breast cancer remains the most common cancer among women, with 27,385 new cases and 17,944 deaths in 2022 alone.⁵ It is estimated that breast cancer accounts for about 31.8% of all female cancers in Ghana, with over 70% of women presenting late with advanced disease.^{6,7}

The aetiology of breast cancer is multifactorial, with gender, ageing, family history, and prolonged hormonal exposure among the key risk factors.^{8,9} In sub-Saharan Africa, changes in reproductive patterns, lifestyle factors

such as smoking, sedentary living, poor dietary habits, and hormonal contraceptive use have further contributed to rising incidence rates.^{4,10} While breast cancer was historically diagnosed in older women, evidence shows that in Ghana and other African countries, it increasingly affects younger women, many of whom present late with aggressive disease forms.¹¹ These circumstances have compounded poor survival rates in resource-limited countries, often below 50% as compared to high-income countries.¹

Early detection through screening is a proven intervention to improve survival outcomes, with mammography, clinical breast examination (CBE), and breast self-examination (BSE) identified as key approaches.^{12,13} Although mammography remains the gold standard, its availability and affordability are limited in many African contexts, making BSE a practical and low-cost option.^{4,13} BSE enhances women's awareness of their breast health, helps them identify abnormal changes, and empowers them to take control of their well-being.^{2,10} It has been shown that more than 90% of breast cancer cases can potentially be detected by women themselves through consistent practice of BSE.¹⁰ However, the effectiveness of BSE depends on regular practice and proper technique, which remain suboptimal in many countries.^{9,12}

In Ghana, the practice of BSE is generally low despite awareness of its benefits. Reports indicate uptake levels as low as 12% among women in some regions, while a study in the Volta Region revealed that 56% of tertiary female students practised BSE effectively.^{7,14} Among young women, particularly those in tertiary institutions, gaps in health education and limited knowledge about breast cancer continue to hinder BSE practice among young women, including those in tertiary institutions.^{15,16} Given the rising burden of breast cancer in Ghana and the low prevalence of BSE practice among young women, it becomes essential to identify the underlying factors influencing whether female tertiary students adopt or neglect this life-saving practice. This study, therefore, sought to determine the factors influencing the practice of breast self-examination among female tertiary students in the Tamale Metropolis.

METHODS

Study design and setting

This study employed a quantitative cross-sectional design to assess factors influencing breast self-examination practice among female tertiary students. The design was appropriate because it enabled data collection from many participants within a short time in a cost-effective manner. The study was conducted in the Tamale Metropolis and involved students from the University for Development Studies, Tamale Nurses and Midwives Training College, and Tamale Community Nursing Training College. The study was conducted over a three-month period, from January 2024 to March 2024.

Study population

The study population consisted of female tertiary students enrolled in different programs within the Tamale Metropolis. Participants were drawn from the University for Development Studies (UDS), the Tamale Nurses and Midwives Training College (TNMTC), and the Tamale Community Nursing Training College (TCNTC). According to institutional records, TNMTC had a total female student population of 381, while TCNTC enrolled 1,399 female students at the time of the study, and the total female students admitted to UDS in 2023 were 5,630.

To be eligible, participants had to be female students within reproductive age (15-45 years) and enrolled in programs across the three tertiary institutions. Students with a history of breast-related issues, those outside the reproductive age range, students who were not mentally sound, or those who did not provide consent were excluded from the study. Male students were also excluded.

Sample size and technique

The sample size for this study was determined using Cochran's formula to yield a representative sample for proportions.¹⁷

$$n = \frac{z^2 pq}{d^2}$$

Where n is the sample size, z (at 95% confidence interval) =1.96, p (estimated proportion of students that practise BSE) =56%, q = 1-p and d = margin of error of 5%.¹⁴

$$n = \frac{1.96^2 \times 0.56(0.44)}{0.05^2} = 378$$

Given that students were clustered within institutions, a design effect (DEFF) was applied to account for potential intra-school correlation. Using an average cluster size (m = n/number of clusters =126) and a conservative intra-class correlation coefficient (ICC =0.0023), the DEFF was calculated;

$$\text{DEFF} = 1 + (m-1) \times \text{ICC}$$

$$\text{DEFF} = 1 + (126-1) \times 0.0023$$

$$\text{DEFF} = 1 + 0.287 = 1.287$$

Multiplying the initial sample size by the DEFF to estimate the final sample size

$$\text{The final sample size} = 378 \times 1.287 = 486$$

Therefore, the final sample size was 486.

A multistage sampling approach was employed to select participants from the three tertiary institutions in the Tamale Metropolis. First, all three institutions were purposively selected to ensure inclusion of both health and non-health student populations. Within each institution, students were stratified by program type (health versus non-health) and level/year of study to ensure representation across the different groups.

A proportionate stratified allocation was initially considered based on the total female student population of each institution (TNMTC: 381; TCNMTC: 1,399; UDS: 5,630); however, to ensure sufficient representation of nursing and midwifery students- who were directly relevant for breast self-examination practices- the sample sizes were pragmatically adjusted. Consequently, 174 participants were selected from TNMTC, 112 from TCNMTC, and 200 from UDS, keeping the total sample at 486.

Within each stratum, simple random sampling was applied to select participants, giving each eligible student an equal chance of inclusion. This approach ensured a representative, feasible, and statistically robust sample, while accounting for intra-institution clustering in the DEFF calculation with an average cluster size of 126.

Data collection procedure and tool

Data were collected using a structured, self-administered questionnaire distributed to female tertiary students from all year groups and programs (health and non-health) across the three institutions. The questionnaire, written in English, was completed at participants' convenience, with research assistants available to clarify issues while ensuring confidentiality and anonymity. Completed questionnaires were checked for completeness before data entry.

The tool was adapted from validated instruments and included three sections: sociodemographic data, knowledge, and practice of breast self-examination (BSE). Knowledge was assessed using 15 items, with scores ≥ 8 indicating good knowledge, while practice was measured using 13 items, with scores ≥ 7 classified as good practice¹⁴

Validity and reliability

The questionnaire was adapted from previously validated tools used in similar studies and reviewed for reliability and ethical appropriateness.^{10,14} It was pretested using 10% of the sample size (49 participants), and participants provided feedback on clarity, structure, and relevance. The internal consistency of the knowledge scale was confirmed with a Cronbach's alpha of 0.74. Based on the feedback and pretest results, necessary modifications were made to improve clarity, consistency, and reliability. This ensured that the final instrument was valid and

suitable for assessing the knowledge and practice of breast self-examination among female tertiary students.

Data analysis

Questionnaire data were edited, coded, cleaned, and analysed using the Statistical Package for Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies, percentages, and cross-tabulations, summarised participants' sociodemographic characteristics, knowledge, and breast self-examination practices. Chi-square tests assessed associations between independent variables and breast self-examination practice. Variables significant at the bivariate level were entered into logistic regression models to estimate crude and adjusted odds ratios with 95% confidence intervals. Statistical significance was set at $p < 0.05$ to identify independent predictors while controlling for confounders.

Ethical considerations

Ethical approval for the study was obtained from the University for Development Studies Ethical Committee (UDS/RB/192/23). Permission was also granted by the heads of the three tertiary institutions. Participants were informed about the study purpose, and written consent was obtained before participation. Participation was voluntary, and respondents could withdraw at any time without consequences. Confidentiality and privacy were ensured by excluding personal identifiers and securely storing data accessible only to the research team. Ethical principles regarding participants' rights, dignity, and privacy were strictly observed.

RESULTS

Socio-demographic characteristics of respondents

Among 486 participants, the majority of them (41.2%) were from the University for Development Studies. Most participants were studying health-related programs (72.2%) and were in their second year (42.8%). The largest age group was 20-24 years (57.8%), while 7.6% were aged less than 20 years. Most participants were single (87.0%) (Table 1).

Knowledge of participants on breast self-examination

The study revealed that 70.8% of participants demonstrated good knowledge of BSE (Table 2). Most respondents had heard of breast self-examination (95.1%) and considered it very important for the timely detection of breast cancer (95.3%). About 62.3% reported being taught how to perform BSE, mainly by healthcare providers (24.3%), lecturers (17.5%), and the media (13.6%). Monthly practice was identified by 64.2% as the correct frequency, while 65.0% recognized a week after menstruation as the best time.

Table 1: Sociodemographic characteristics of participants in the selected tertiary institution in Tamale Metropolis (n=489).

Variables	Category	Frequency	Percentage
Institutions	Tamale Nurses and Midwives Training College	174	35.8
	Tamale Community Nurses and Midwifery Training College	112	23.0
	University for Development Studies	200	41.2
Program studying	Health Course	351	72.2
	Non-Health Course	135	27.8
Level of study	Year one	144	29.6
	Year two	208	42.8
	Year three	80	16.5
	Year four	54	11.1
Age group	Less than 20 years	37	7.6
	20-24	281	57.8
	25-30	146	30.0
	31-34	12	2.5
	35-40	10	2.1
Religion	African traditional	20	4.1
	Christianity	212	43.6
	Islam	254	52.3
Ethnicity	Akan	119	24.5
	Dagaba	32	6.6
	Dagomba	167	34.4
	Frafra	56	11.5
	Gonja	55	11.3
	Others	57	11.7
Marital Status	Married	63	13.0
	Single	423	87.0

Table 2: Knowledge of breast self-examination (BSE) among participants in selected tertiary institutions, Tamale Metropolis (n=489).

Variables		Frequency	Percent
Heard of breast self-examination (BSE)	No	24	4.9
	Yes	462	95.1
BSE very important for the timely exposure of cancer in the breast	No	23	4.7
	Yes	463	95.3
Taught how to do BSE	No	183	37.7
	Yes	303	62.3
If yes, who taught you?	Friends	28	5.8
	Healthcare provider	118	24.3
	Lecturer	85	17.5
	Media	66	13.6
	Parents	4	0.8
	Other	2	0.4
How often should BSE be done?	Daily	50	10.3
	Monthly	312	64.2
	No idea	45	9.3
	Weekly	69	14.2
	Yearly	10	2.1
Best time to do BSE	A week after menstrual flow	316	65.0
	During breastfeeding	10	2.1
	During menstrual flow	38	7.8
	During pregnancy	23	4.7
	I don't know	99	20.4

Continued.

Variables		Frequency	Percent
Who qualifies to do BSE?	A doctor	39	8.0
	I don't know	28	5.8
	The individual	354	72.8
	Trained nurse	65	13.4
If you discover any abnormality during BSE what will you do?	Do some lab test	71	14.6
	No idea	16	3.3
	Pray over it	6	1.2
	See a doctor	393	80.9
Appropriate place to perform BSE	In front of mirror	286	58.8
	In bathroom	37	7.6
	While lying down	163	33.5
Changes in the breast are signs of Breast cancer	No	235	48.4
	Yes	251	51.6
Lumps in the breast and around the armpit are the signs of breast cancer	No	85	17.5
	Yes	401	82.5
Nipple discharges and retraction are signs of breast cancer	No	154	31.7
	Yes	332	68.3
Prompt notification of breast anomalies increase life expectancy	No	61	12.6
	Yes	425	87.4
Interested in knowing more about BSE	No	10	2.1
	Yes	476	97.9
Overall knowledge of BSE	Poor	344	29.2
	Good	142	70.8

Overall knowledge was classified based on total correct responses, where scores ≥ 8 were considered good knowledge and scores < 8 were considered poor knowledge. Percentages are based on the total sample size (n=489).

Table 3: Practice of breast self-examination among participants in selected tertiary institutions, Tamale Metropolis (n=489).

Variables	Category	Frequency	Percentage
Done an inspection of your own breast previously?	No	104	21.4
	Yes	382	78.6
Currently practicing BSE	No	190	39.1
	Yes	296	60.9
The last time you practiced BSE	Cannot remember	195	40.1
	Six months ago	56	11.5
	Three months ago	58	11.9
	Within last month	113	23.3
	Within this month	64	13.2
Practice BSE	Never	87	17.9
	Once a year	21	4.3
	Once every month	191	39.3
	One every six months	49	10.1
	Rarely	138	28.4
Age of checking own breast?	19 years and above	395	81.3
	Below 19 years	91	18.7
When do you perform BSE?	After menstruation	267	54.9
	Anytime	110	22.6
	Before menstruation	40	8.2
	During menstruation	18	3.7
	No idea	51	10.5
At what time of the day do you normally perform BSE?	Morning	276	56.8
	Afternoon	25	5.1
	Evening	185	38.1
Which place do you	In front of a mirror	295	60.7

Continued.

Variables	Category	Frequency	Percentage
usually perform BSE?	In the bathroom	43	8.8
	Lying in bed	148	30.5
How do you carry out BSE (manual technique)?	Palpating with an inner face of the middle finger (one finger)	114	23.5
	Palpating with palm and three fingers	276	56.8
	Pinching the nipples for discharges	27	5.6
	I don't know	69	14.1
What are some of the signs you look out for?	Blood discharge from the nipple	18	3.7
	Changes in breast size	24	4.9
	Changes in nipples or texture	22	4.5
	Lump in breast	422	86.8
On identifying abnormality in your breast, what will you do?	Consult a health practitioner	420	86.4
	Tell my mother	46	9.5
	Tell spouse	20	4.1
	Family history	25	5.1
Reasons for practicing BSE	Pinpointing breast defects in preliminary phases	348	71.6
	Convenient	75	15.4
	Others	38	7.8
Reasons for not practicing BSE	Absence of symptoms	38	7.8
	Fear of detecting an anomaly (anxiety)	29	6.0
	Feels funny	3	0.6
	I do not know how to do it	55	11.3
	I don't want to touch my body	5	1.0
	Negative family history	8	1.6
	Not necessary	6	1.2
	There are no problems with my breast	26	5.3
	Too busy	17	3.5
	Others	3	0.6
Overall practice of BSE	Poor	180	37.0
	Good	306	63.0

Overall practice of breast self-examination (BSE) was classified based on total practice scores, where scores ≥ 7 were considered good practice and scores < 7 were considered poor practice. Percentages are based on the total sample size (n=489).

Table 4: Bivariate and multivariate logistic regression of factors associated with breast self-examination practice among participants in selected tertiary institutions, Tamale Metropolis (n=489).

Variables	Practice		χ^2 (p value)	COR (95% CI) p value	AOR (95% CI) p value
	Poor	Good			
Institution			62.97(<0.001)		
TCNMTC	60 (53.6)	52 (46.4)		Ref	Ref
TNMTC	24 (13.8)	150 (86.2)		7.21(4.08,12.73) <0.001	8.58(4.28,17.19) <0.001
UDS	95 (47.5)	105 (52.5)		1.28 (0.80, 2.03) 0.304	1.18(0.53, 2.62)0.679
Program of study			16.38(<0.001)		
Non-health course	69 (51.1)	66 (48.9)		Ref	Ref
Health course	110 (31.3)	241 (68.7)		2.29 (1.53,3.44) <0.001	0.91 (0.44, 1.91) 0.805
Level of study			43.1 (<0.001)		
Year one	80 (55.6)	64 (44.4)		Ref	Ref
Year two	75 (36.1)	133 (63.9)		2.22 (1.44,3.42) <0.001	1.65 (0.95, 2.87) 0.078
Year three	12 (15.0)	68 (85.0)		7.08(3.53,14.21) <0.001	3.46 (1.48, 8.10) 0.004
Year four	12 (22.2)	42 (77.8)		4.37(2.13, 9.00) <0.001	3.41 (1.26, 9.18) 0.015
Age group			29.26(<0.001)		
15-19	25 (67.6)	12 (32.4)		Ref	Ref
20-24	113 (40.2)	168 (59.8)		3.10 (1.49, 6.42) 0.002	0.91 (0.38, 2.17) 0.835
25-29	34 (23.3)	112 (76.7)		6.83 (3.12,15.09) <0.001	1.26 (0.47, 3.38) 0.653
30-34	5 (41.7)	7 (58.3)		2.92 (0.77, 11.12) 0.117	0.82 (0.18, 3.73) 0.799
35-39	2 (20.0)	8 (80.0)		8.33 (1.53, 45.41) 0.014	1.60 (0.19, 13.49) 0.667

Continued.

Variables	Practice		χ^2 (p value)	COR (95% CI) p value	AOR (95% CI) p value
	Poor	Good			
Religion			3.64 (0.162)		
Christianity	70 (33.0)	142 (67.0)			
Islam	103 (40.6)	151 (59.4)			
African traditional	6 (30.0)	14 (70.0)			
Ethnicity			12.44 (0.029)		
Dagombas	74 (44.3)	93 (55.7)		Ref	Ref
Gonja	20 (36.4)	35 (63.6)		1.39 (0.74, 2.61) 0.302	1.57 (0.72, 3.39) 0.254
Akan	31 (26.1)	88 (73.9)		2.26 (1.36, 3.76) 0.002	1.55 (0.82, 2.93) 0.180
Dagaabas	15 (46.9)	17 (53.1)		0.90 (0.42, 1.93) 0.789	0.87 (0.35, 2.18) 0.768
Frafra	17 (30.4)	39 (69.6)		1.83 (0.96, 3.48) 0.068	1.40 (0.64, 3.05) 0.400
Others	22 (38.6)	35 (61.4)		1.27 (0.68, 2.34) 0.452	1.48 (0.71, 3.081) 0.297
Marital status			5.28 (0.022)		
Single	164 (38.8)	259 (61.2)		Ref	Ref
Married	15 (23.8)	48 (76.2)		2.03 (1.10, 3.74) 0.024	1.51 (0.71, 3.21) 0.283
Knowledge level			64.05(<0.001)		
Poor knowledge	91 (64.1)	51 (35.9)		Ref	Ref
Good knowledge	88 (25.6)	256 (74.4)		5.19(3.41,7.90) <0.001	4.88(2.84, 8.38) <0.001

COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval; Ref = Reference category. Variables with $p < 0.05$ were considered statistically significant.

Practice of self-breast examination

The practice of BSE among participants was 63%. About 79% had inspected their breasts previously, and 60.9% were currently practicing BSE. Regarding timing, 23.3% practiced within the last month, while 40.1% could not recall their last practice. Monthly practice was reported by 39.3%, while 54.9% performed BSE after menstruation. It was revealed that morning was the most common time of practice (56.8%). Most used the palm and three fingers technique (56.8%) (Table 3).

Bivariate and multivariate logistic regression of factors influencing the practices of BSE

The analysis revealed that both knowledge and academic level played a central role in breast self-examination practice. It was shown that students from Tamale Nurses and Midwifery Training College were 8.6 times more likely to practice BSE compared to those from Tamale Community Nurses and Midwifery Training Colleges (AOR=8.58, 95% CI: 4.28-17.19, $p < 0.001$). Nurses and students in year three were more than three times as likely to demonstrate good practice (AOR=3.46, 95% CI: 1.48-8.10, $p = 0.004$), while those in year four also showed significantly higher odds (AOR=3.41, 95% CI: 1.26-9.18, $p = 0.015$) compared to year one. Most strikingly, participants with good knowledge were almost five times more likely to practice effectively (AOR=4.88, 95% CI: 2.84-8.38, $p < 0.001$), underscoring the powerful influence of knowledge and academic progression (Table 4).

DISCUSSION

This study revealed that 70.8% of participants demonstrated good knowledge of breast self-examination

(BSE), and 95.1% had heard about it, reflecting relatively high awareness among tertiary health students. Similar findings have been documented in Northern Ghana, Nukpezah et al and Salifu et al, where BSE was widely known and considered important for early detection.^{15,18} These outcomes suggest that ongoing health campaigns and structured education are improving awareness in Ghanaian institutions.^{19,20} By contrast, Mihret et al.²¹ in Northwest Ethiopia reported that only 27.6% had good knowledge and nearly half had never heard of BSE, highlighting persistent disparities in access to breast health information across African settings. This difference may be explained by variations in curriculum integration, exposure to health education, and the strength of institutional and public health promotion programs, which tend to be more consistent and reinforced in Ghanaian tertiary health training settings compared to some other contexts.

Beyond general awareness, 62.3% of participants in the present study reported being taught how to perform BSE, primarily by lecturers and healthcare providers. This supports the observation of Reddy et al, who found that women trained by professionals were more likely to practice BSE correctly.²² Likewise, Nukpezah et al highlighted the role of nurses and lecturers as key educators in Tamale.¹⁸ In contrast, a study conducted in Croatia reported that mass media such as television and social platforms were the dominant information sources.²³ This variation may be explained by differences in health education delivery systems, where Ghana relies more on structured institutional teaching that allows direct guidance and skill demonstration, whereas other settings depend more on broad public media campaigns that may increase awareness but provide less practical skill acquisition.²⁴

Correct knowledge of BSE practice was also notable, as 64.2% identified monthly practice as appropriate and 65.0% recognized one week after menstruation as the ideal time, which echoes the concept that BSE is best performed between the 5th and 7th day of the menstrual cycle.^{25,26} A similar result was found in Gaza, where about 70% of women correctly identified this timing as the best period for performing BSE.²⁷ However, Khonji et al reported widespread uncertainty among Bahraini students, showing how structured teaching not only imparts information but also ensures that students connect knowledge with underlying biological explanations, strengthening adherence.⁸

The practice rate in this study was 63%, with 60.9% currently practising, reflecting how knowledge translates into action when reinforced by education. This rate is higher than the 17% observed by Ahmed et al in Bangladesh and 17.4% reported by Mihret et al in Ethiopia, but lower than the over 80% found by Nukpezah et al in Tamale.^{18,21,28} Institutional emphasis, therefore, appears to shape behaviour by influencing both the exposure to and the repetition of practical skills, which are essential for translating knowledge into consistent action. Hlormenu et al support this by noting that structured education improves the uptake of preventive health behaviours.²⁹ Furthermore, the strong association between knowledge and practice, where informed participants were nearly five times more likely to perform BSE, suggests that knowledge increases perceived risk awareness, confidence, and perceived benefits of early detection. This reinforces findings by Udoh et al and Dinegde et al, highlighting that both educational progression and depth of understanding are key drivers of preventive health behaviour.^{30,31}

Participants reported lumps as the main reason for practising BSE (86.8%), which aligns with studies in Malaysia and Bangladesh, which both noted lumps, asymmetry, and nipple changes as key warning signs.^{28,29} Sarker et al also highlighted skin changes as a commonly recognised symptom.³⁰ In contrast, Al-Shiekh et al reported that fewer than one-third of respondents in Gaza could comprehensively identify early signs, pointing to regional knowledge gaps.²⁷

It was further revealed that students from Tamale Nurses and Midwifery Training College were 8.6 times more likely to practice BSE compared to their counterparts from Tamale Community Nursing and Midwifery Training Colleges. This marked difference highlights the influence of institutional focus and curriculum design on preventive health behaviours. Hlormenu et al explained that when structured education is embedded within training programs, students are more likely to translate knowledge into routine practice.³¹ Similarly, Kassie et al argued that weak translation of interventions into practice remains a barrier in many low- and middle-income countries, suggesting that strong institutional emphasis can bridge this gap.³² The findings, therefore, reinforce

Tiongco et al, who stressed that although breast cancer incidence is relatively low among young women, nurturing preventive behaviours such as BSE during their academic years fosters a long-term culture of self-care and early detection.³³

This study was limited by its cross-sectional design, which restricts the ability to establish causality between knowledge and practice of breast self-examination. Self-reported responses may also have introduced recall or social desirability bias, potentially affecting the accuracy of the findings. Additionally, the study focused only on selected tertiary institutions in Tamale, which may limit the generalizability of the results to other populations.

CONCLUSION

The study demonstrated that tertiary students generally possessed good knowledge of breast self-examination, which strongly influenced their ability to practice it effectively. Academic progression and the type of institution were also identified as key factors influencing practice among the respondents. The findings also highlighted that students were proactive in recognising symptoms and were willing to seek professional care when abnormalities were detected. Strengthening structured health education within tertiary institutions is essential to sustain these positive attitudes and promote early detection of breast cancer.

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