Awareness and Attitudes Toward Breast Cancer Risk: A Survey of Tertiary Students in Tamale

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Keywords:
Breast cancer risk factors, breast self-examination, clinical breast examination, tertiary institution, nurses and teacher trainees.

Abstract

Background: Early detection and treatment of breast cancer (BC) has been found to be associated with reduction in the morbidity and mortality rates of the disease. The purpose of this study was to compare the knowledge and attitude of nursing (NT) and teacher trainees (TT) within the Tamale metropolis on breast self-examination.
Methodology: This was a cross sectional descriptive study using structured questionnaire.
Results: The great majority of the respondents in both groups had heard of breast cancer with no statistical significant differences (P=0.910). The main source of information on breast cancer was the electronic media (60.5%; P=009) for the TTs, but lecture room (77.8%; P<0.001) for the NTs. Approximately, 69.4% NTs compared to 30.6% (P<0.002) TTs knew they were at risk of BC. The TNs commonly agreed that a lump in the breast could be a symptom of BC compared to the TTs (p= 0.004). Approximately, 72.5 %% of NTs can perform self-breast examination (SBE) compared to 27.5% for the TTs, (P<0.001). A total of 50 (68.5%) TTs compared to 23 (31.5%) NTs said BSE is performed one week after one's menses (P<0.001). More than half (n=46,73.0%) NTs compared to 17 (27.0%) TTs previously had clinical breast examination (P<0.001). Close to half of the respondents in each group will be comfortable exposing their breast for examination (P=0.737).
Conclusion: The study found high awareness level of BC among the respondents; however the nursing trainees had better knowledge of the disease compared to the teacher trainees. Both groups have future intentions of having breast examination

Introduction

Breast cancer (BC) is a common cause of cancer related morbidity and mortality in women across the globe.[1,2] The situation is more alarming in Sub-Saharan Africa, where it is now a major public health concern.[2,3,4,5]The incidence of breast cancer is found by previous studies to be significantly lower in African countries compared to their Europe counterparts. [6] However, the mortality figures from Africa are higher than those from the developed countries.[7,8]

In Ghana the incidence of breast cancer expressed in percentage is not known due to lack of a cancer registry in the country**.** Previous studies of breast cancer in Ghanaian women found the disease to be common in young women who commonly present with advanced clinical and pathological stages at diagnosis with skin involvement and hence poor prognosis.[9,10,11] The morbidity and mortality figures of breast cancer are on a decline in the developed world compared to the developing countries where it continues to rise.[12,13] The high incidence of death associated with breast cancer in the developing countries can be attributed to the lack of knowledge on the signs and symptoms, risk factors, thus resulting in delay reporting at the health facilities and hence late detection of the disease.[11,12,13]
Tamale is a fast growing town with tertiary educational facilities springing up in multitudes, thus holding larger female populations who are prone to the development of breast cancer. A woman's knowledge of the symptoms of breast cancer and her ability to perform breast self-examinations are pre-requisites for early detection of breast abnormalities. This study was to compare the knowledge of BC and breast self-examination among nursing and teacher trainees in selected schools within the Tamale Metropolis of the Northern Region of Ghana.

Material and methods

Study design
This was a cross-sectional descriptive study using structured self-administered questionnaires to compare the knowledge of nurse and teacher trainees on the risk factors of breast cancer (BC) and breast examination.

Study area
The study was conducted in the Tamale Metropolis, one of the 26 districts in the Northern Region of Ghana. It is located in the central part of the Region and shares boundaries with the Sagnarigu District to the west and north, Mion District to the east, East Gonja to the south and Central Gonja to the south-west. There are 7 tertiary institutions in the Tamale Metropolis, which include 5 training colleges, a University and a Polytechnic. The study was conducted randomly in two nursing training colleges (Tamale nursing training and Tamale community nursing training colleges) and two teacher training colleges (Bagabaga and Tamale teacher training colleges).

Study population
The study was conducted among second year students in all the four (4) randomly selected training (tertiary schools) institutions within the Metropolis.

Study variables
The domain of the study was limited to questions directed at respondent's general knowledge on breast cancer, including risk factors and breast examination.

Sample size and sampling procedure
The minimum sample size required for this study of 12 tertiary students was determined using the prevalence of breast cancer (1.7 %) in Ghana.

By using the formula [t2*p (1-p)]/m2; where t=z-score of confidence interval 95; 1.96 p=prevalence of outcome = 1.7 % = 0.017, m=margin error=0.05 or 5%

By substitution
= [1.96*0.017 (1 - 0.017)] / (0.05)2 = 12

For the purpose of improving upon precision and accuracy of results, one hundred (160) participants (forty (40) from each school) were recruited for the study. These were second year students and were randomly selected from sampling frame consisting of registration records on the number of students in each second year class of the participating schools.

Inclusion criteria:
1. All female participants were included
2. Participants must be within the age range of 15-34

Exclusion criteria: All males were excluded from the study.

Ethical Consideration: The study protocol was presented to the University's ethics committee of the School of Allied Health Sciences (SAHS) for approval.

Approval for the study through introductory letters was obtained from the Heads of the institutions where the study was conducted.

Verbal informed consents were sought from participants. Participants were informed that participation was voluntary and that they were at liberty to decline to answer any question or to stay out of the study at any point in time if they wished. Confidentiality was highly upheld during and after the study

Data Collection and analysis
A self-administered questionnaire was used to collect data from the second year students of the four selected tertiary schools on their knowledge of breast cancer (BC) risk factors and breast examination. The data were entered and analysed using Statistical Package for the Social Sciences (SPSS) version 23.0 Chicago. Results were presented in frequency tables. Associations between variables were determined using Fischer's exact test.

Results

Socio-demographic characteristics of respondents
A total of 160 respondents were interviewed and this consisted of 80 (50.0%) teacher trainees (TTs) and 80 (50.0%) nursing trainees (NTs). The mean ages for the TTs and the NTs were 23.0 (SD±3.14) and 22.0 (SD±3.14) years respectively **(Figure 1).**

A total of 31 (40.8%) of the TTs were Christians compared to 45 (59.2%) TTs, (P = 0.034). However, many 48 (57.8%) of the TTs were Muslims compared to 35 (42.2%) NTs (P= 0.062). The great majority of the respondents in both groups were single and never married before, with no significant statistical differences (P = 0.813) **(Table 1).**

General knowledge on breast cancer among study population
This was accessed by the use of a structured questionnaire.The great majority of the respondents in both groups had heard of breast cancer with no statistical significant differences {TTs NTs (76 / 49.0%) vis-a vis NTs (79 / 51.0%); P=0.910}, **(Table 2).**

The main source of information on breast cancer for the TTs was the electronic media 52 (60.5%), compared to 34 (39.5%) for the NTs (P = 0.009). However, a significant more of the NTs received information in their lecture rooms 28 (77.8%) compared to 8 (22.2%) for the TTs (P = <0.001).

A total of 50 (72.5 %%) of NTs can perform self-breast examination (SBE) compared to 19 (27.5%) of the TTs, (P<0.001) **(Table 2).**

The great majority of the trainees {TTs 77 (49.4%), NTs 79 (50.6%)} agreed it was necessary for one to have her breasts examined regularly (P = 0.910), and at a monthly intervals {TTs 52(47.3%0 vis-à-vis NTs 58(52.7%); P = 0.500)}. Many 66(82.5%) of the TTs and 61(78.2%) TNs agreed that late detection of breast cancer result in the death of the individual (p =0.616)

For the time at which a female should examine her breast for abnormalities, 50 (68.5%) TTs compared to 23 (31.5%) NTs said after one's menses (P<0.001). Many of the NTs 54 (61.4%) compared to 34 (38.6%) TTs agreed that a lump in the breast could a symptom of BC (P=0.004**) (Table 2).**

The female gender was commonly identified by both groups as individuals with the highest risk of breast cancer { 75 (56.8%) TTS, vis-à-vis 57 (43.2%) NTs; P=0.036}. Of the 32 respondents who had previous BC screening, there were 5 (15.6%) TTs compared to 27 (84.4%) NTs, (P<0.001).Many of the respondents knew where to go for BC screening, there was no significant statistical different (P=0.895). Also, there was no significant statistical difference between the two groups regarding positive family history of BC (P=0.347), **(Table 2).**

Risk factors of breast cancer among respondents
Out of 160 female students interviewed, 72 (39.7%) knew they were at risk of developing BC. Of this number 50 (69.4%)wereNTs compared to 22 (30.6%) TTs (P<0.002).

A total of 151 (95.6%) students out of 160 students have never used hormonal contraceptives. Of this number 75 (49.6%) were TTs compared to 76 (50.3%) NTs (P=1.000). A total 0f 152 (95.0%) of the trainees had no history of alcohol intake, and this consist of 77(50.7%) TTs and 75 (49.3%) NTs, P= 0.909). The great majority of the trainees have no history of smoking, 78 (49.4) TTs and 80 (50.6%), NTs; P=.0.910,**(Table 3).**

Attitude and practice on breast cancer examination (screening)

A total of 51 (48.6%) TTs and 54 (51.4%) NTs will be comfortable exposing their breast for examination (P-value=0.737). However, many 45 (59.2%) of the TTs will allow any person with the required skills to examine their breast for abnormalities compared to 31 (40.8%) of the NTs (P=0.034)**(Table 4).**

More than half 46 (73.0%) NTs compared to 17 (27.0%) TTs will in the future go for clinical breast examination (P<0.001), similarly, more 48 (59.3%) NTs as against 33 (40.7%) TTs, P=0.028 agreed to having regular BSE in the future**(Table 4).**

Discussion

In this cross-sectional descriptive study, the respondents were very young, majority being single and never married before. These sociodemographic characteristics are similar to those reported by Birhane et al in their study among Debre Berhan University students.[14]The similarity in between the two studies may be due to the fact that both were conducted among post senior high school graduates.

The great majority of trainees were aware of breast cancer with no significant statistical different between the two groups (P=0.910). This high level of awareness is in keeping with reports of similar studies in Ethiopia,[5]and India[115] among female tertiary students. The further supports Matalqah et al in Northern State of Malaysia that reported that breast cancer awareness increases with level of education.[16]

The main source of information on BC among the respondent in this current study was the electronic media, although there were some variations in the order of significant. For instance, 60.5% of the TTs had their information from the electronic media compared to 39.5% of the NTs (P = 0.009). On the other hand, 77.8% of NTs received information on BC in their lecture rooms compared to 22.2% TTs (P <0.001). Similar findings with the electronic media as a major source of information on BC were previously reported in Ghana[17] Nigeria [18] Ethiopia [19]and Pakistan.[20] The result of the present study is an expected finding because, nowadays, most young tertiary students in the country are using internet, television, and other mass media as sources of information. Therefore, use of these mass media must viewed particular by the nurses and teachers who are the common points of contact by many in every community, as a major means of creating awareness of BC and BSE among Ghanaian women and men.

Good knowledge of BC symptoms is very essential for early detection, diagnosis and treatment of disease. The current study reports that 55.0% of the respondents were aware that a lump in the breast could be a symptom of BC. This was strongly agreed by the NTs (P=0.004).This supports reports of similar studies across the globe. [21,22,23]

The current study revealed that, many (68.8%) of the trainees interviewed agreed it was necessary for a female to have regular monthly breasts examinations for early detection of abnormalities. This is in line with a similar previous study among female university students in Ghana,[17]and Debre Berhan[24]but differs from studies in Ethiopia,[5]and Saudi Arabia.[25] For instance, Sarfo et al[17] study in Ghana among University reported that 62% of the respondents were aware BSE should be performed monthly, while Dalal et al[24] reported 46.8% among female medical students in Saudi Arabia.

If was found however, in this study that, only 43.1% of the respondent could perform BSE, although there was a significant statistical different between the two groups. For instance, 72.5% of those who could perform BSE were NTS, compared to 27.5% TTs ((P<0.001). The current finding is consistent with the study findings among female university students in Yemen,[26] Ajman, United Arab Emirate (UAE),[27]University of Buea Cameroon [28] and Limpopo, South Africa[29] It is however, inconsistent with the results of other studies conducted in Nigeria[30]and Malaysia [31]

In this current study, respondents' knowledge on the risk factors of BC was low. However, both groups strongly identified the female gender is commonly affected by BC. This is in keeping with other published data regarding the risk factors of the disease in both developing and developed countries.[32]

Although the practice BSE as well as CBE was found to be low among the respondents, approximately half of the trainees s in each group expressed the intention of having their breast examine in the near future for breast abnormalities. The future breast cancer screening intention expressed by in this current student are in keeping with similar studies conducted among tertiary students in other developing countries.[33,34]

Conclusion

The study found high awareness level of BC among the respondents; however the nursing trainees had better knowledge of the disease compared to the teacher trainees. The trainees in both groups were willing to have their breast examine clinically and also do self-breast examination in the future.

Recommendations

1. Health care and education providers can possibly exploit already established platforms to increase public awareness of breast cancer and breast examination, particularly the self-examination
2. There is also need for Ghanaians to come up with methods that increase dissemination of information on breast cancer in culturally acceptable ways.
3. In addition, Breast cancer awareness programs should be developed in universities including lectures, seminars, workshops and on hands training.
4. The concept of National Month of Breast Cancer Awareness should also be embraced in Tamale-Ghana, as is the case in most Western countries.

Declarations

Ethical consideration

Permission to conduct the study was obtained from the ethical committee of school authority. Written as well as verbal assurances were given to the respondents to withdraw from the study at any time they wished. Also, the respondents were assured of anonymity and confidentiality of information entrusted. Cultural values, norms and beliefs of respondents were duly respected and observed.

Consent for publication.

All the authors read and agreed for the manuscript to be published.

Availability of data and material

The data used to write this manuscript will be made available on request.

Competing interest

The authors declare no competing interests

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Authors' contributions: EMD, AW, JSA and SR conceptualized the study. AW, JSA and SR compiled and entered the data. EMD, AW, JSA and SR analysed the data. EMD, AW, JSA and SR drafted the manuscript. EMD, AW, JSA, SR and TBA read, edited and approved the final manuscript.

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Legends:
Figure 1: Age Distribution of trainees
TABLE 1: Socio-demographic of trainees
TABLE 2: Knowledge of trainees on breast cancer
TABLE 3: Risk factors of breast cancer as identified by trainees
TABLE4: attitude and practice of trainees on breast cancer

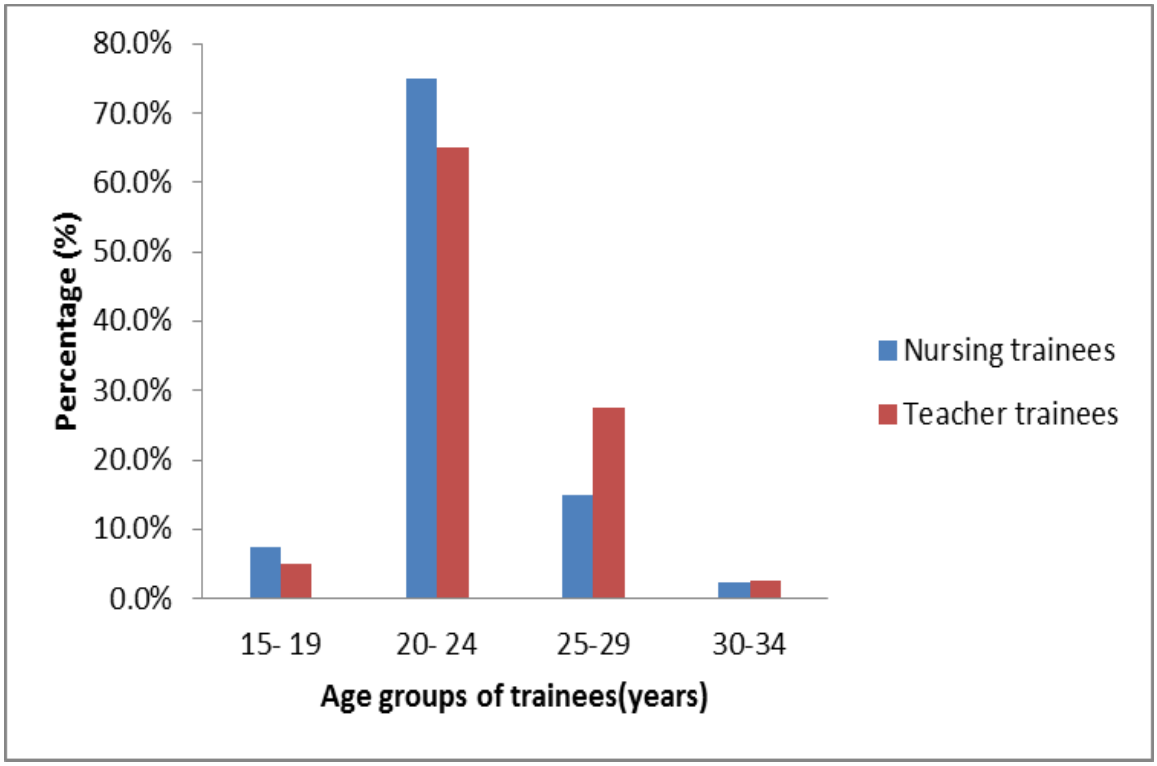

Figure 1: Age distribution of trainees

TABLE 1. Socio-demographic variables of respondents

Questionnaire statement	Teacher Training Colleges		Nursing Training Colleges		Total		p-value
What is your Religion?							
Christianity	31	40.8	45	56.3	76	47.5	0.034
Islam	48	57.8	35	42.2	83	48.2	0.062
African Traditional Religion	1	100.0	-	-	1	0.6	-
Marital status							
Single	73	51.0	70	87.5	143	73.4	0.813
Married	6	7.5	9	11.3	15	9.4	0.466
Separated	1	50.0	1	50.0	2	1.2	-
Ethnicity							
Dagomba	37	68.5	17	31.5	54	33.8	<0.001
Gonja	1	20.0	4	80	5	3.1	0.206
Mampursi	4	36.4	7	63.6	11	6.9	0.395
Others	38	42.2	52	57.8	90	56.2	0.052

TABLE 2: Knowledge of trainees on breast cancer

Questionnaire statement	Teacher Training Colleges		Nursing Training Colleges		Total		P value
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	
Have you heard of Breast Cancer and breast self-examination?							
Yes	76	49.0	79	51.0	155	96.9	0.210
No	4	80.0	1	20.0	5	3.1	0.206
Where did you hear of breast cancer screening							
Hospital	8	42.1	11	57.9	19	11.9	0.517
Class room	8	22.2	28	77.8	36	22.5	<0.001
Mass Media	52	60.5	34	39.5	86	53.8	0.009
Friends	12	63.2	7	36.8	19	11.9	0.194
Can you perform self-breast examination?							
Yes	19	27.5	50	72.5	69	43.1	<0.001
No	61	67.0	30	33.0	91	56.9	<0.001
Is it necessary for one to have her breasts examined regularly?							
Yes	77	49.4	79	50.6	156	97.5	0.910
No	3	75.0	1	25.0	4	2.5	0.486
How often should this be done?							
Monthly	52	47.3	58	52.7	110	68.8	0.500
Yearly	11	73.3	4	26.7	15	9.4	0.027
Once a while	9	39.1	14	60.9	23	14.3	0.238
Others	8	66.7	4	33.3	12	7.5	0.220
At what age should one start Breast Cancer screening?							
15-24	72	52.9	64	47.1	136	85.0	
25-34	6	35.3	11	64.7	17	10.6	0.396
≥35	2	28.6	5	71.4	7	4.4	0.169

							0.286
Can breast cancer be treated?							
Yes	49	46.2	57	53.8	106	66.3	0.331
No	31	57.4	23	42.6	54	33.7	0.178
When is it recommended for one to practice breast self-examination?							
Daily	11	28.2	28	71.8	39	24.4	<0.001
After ones menses	50	68.5	23	31.5	73	45.6	<0.001
Weekly	19	39.6	29	60.4	48	30	0.066
Can a lump in the breast be an indication of breast cancer?							
Yes	34	38.6	54	61.4	88	55.0	0.004
No	46	63.9	26	36.1	72	45.0	0.002
Which of the following groups could be affected by breast cancer?							
Males	0	0	2	100.0	2	1.3	-
Females	75	56.8	57	43.2	132	82.4	0.036
Both Males and Females	5	19.2	21	80.8	26	16.3	<0.001
Have you ever been screened for breast cancer before?							
Yes	5	15.6	27	80.4	32	20.0	<0.001
No	75	58.6	53	41.4	128	80.0	0.009
Do you know where to go for breast cancer screening							
Yes	58	50.9	56	49.1	114	71.2	0.895
No	22	47.8	24	52.2	43	28.8	0.835
Do you have family history of Breast Cancer							
Yes	6	66.7	3	33.3	9	5.6	0.347
No	74	49.0	77	51.0	149	94.4	0.818

TABLE 3: Risk factors of breast canceras identified by trainees

Questionnaire statement	Teacher Training Colleges		Nursing Training Colleges		Total		P value
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	
Do you believe you are at risk of developing breast cancer?							
Yes	26	28.9	50	69.6	76	39.7	<0.001
No	54	71.1	30	48.6	84	60.3	<0.001
Do you use hormonal contraceptives							
Yes	9	11.7	4	5.0	13	8.3	0.115
No	71	89.6	76	95.0	147	95.6	0.641
Do you take in alcohol							
Yes	5	6.3	3	3.8	8	5.0	0.693
No	75	93.8	77	96.3	152	95.0	0.909
Do you smoke							
Yes	2	2.5	0	0.0	2	2.5	-
No	78	97.5	80	100.0	158	93.6	0.910
Do you use Frequent X-rays on any part of your body							
Yes	5	5.1	8	7.7	13	6.4	0.434
No	75	94.9	72	92.3	147	93.6	0.909

TABLE4: attitude and practice of trainees on breast cancer

Questionnaire statement	Nursing Colleges	Training	Teacher Colleges	Training	Total		P value
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	
Would you feel comfortable exposing your breast for cancer examination							
Yes	54	51.4	51	48.6	105	65.6	0.783
No	26	47.7	29	52.7	55	34.4	0.703
What gender would you prefer to examine your breast							
Same Gender	41	51.3	30	38.5	71	44.4	0.093
Opposite Gender	8	10.0	5	6.4	13	8.1	0.086
Anyone with the Skills	31	40.8	45	59.2	76	47.5	0.034
Preferred options of future breast examination methods							
Clinical Breast Examination	46	73.0	17	27.0	63	39.4	<0.001
Mammography	1	50.0	1	50.0	2	1.2	-
Breast Self-Examination	48	59.3	33	40.7	81	50.6	0.028
Never had any	0	0.0	14	100.0	14	8.8	-