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Knowledge of breast self-examination among female students of College of Health Technology, Aba, Abia State, Nigeria

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Abstract

Background: The female breast is an important organ of lactation consisting of network of ducts and lobules. Breast disorders can be malignant or benign. Prevention remains a fundamental strategy in the control of breast cancer. Therefore, screening and early detection play important roles in the treatment and prognosis of breast cancer. The knowledge and health-seeking behaviour for breast cancer management are low in Africa, such that majority of the affected patients present late to the hospital when little or nothing can be done in terms of treatment.

Objective: To determine the knowledge of breast self-examination (BSE) among female students at College of Health Technology Aba Abia, State, Nigeria.

Materials and methods: A descriptive-cross sectional study was conducted among female students of college of health technology Aba. Abia state. A semi-structured questionnaire was used to obtain data from the female students which were entered into SPSS version 26 for analysis. Binary logistic regression analyses were performed to identify variables having a significant association with students' knowledge.

Results: The mean age of the respondents is 23±3.461, 398 (93.3%) students participated in the study with a non-responsive rate of 6.7%. Majority of the study participants 279 (70.1%) were in the 18-23 year-age group and 350 (87.9%) were single. The dominant tribe and religion were Igbo 380 (95.5%) and Christianity 387 (97.2%) respectively, 44 (11.1%) of them have children. Social media was a major source of information. Two hundred and seventy-four (68.4%) had good knowledge. Students who were unmarried (AOR; 3.223, p =0.03), Christian students (2.309, p = 0.002), students aged ≤ 23 years (AOR; 3.415 p = 0.004) were statistically associated with students knowledgeable of BSE.

Conclusion: Respondents had high level of knowledge of Breast self-examination. Marriage, age and Christianity were predators to knowledge of BSE.

Keywords: Knowledge; Breast Self-Examination; Female Students; College of Health Technology; Aba; Abia State; Nigeria.

1. Introduction

The female breast is an important organ of lactation consisting of network of ducts and lobules. Breast disorders can be malignant or benign. Some benign breast disorders include; phyllodes tumor, fibrosis, fibro adenomas, fat necrosis, intraductal papilloma, granular cell tumor and oil cyst mastitis. Some malignant breast disorders include; infiltrating ductal carcinomas, tubular carcinoma, medullary carcinoma, inflammatory carcinoma and mucinous carcinoma[1].

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Prevention remains a fundamental strategy in the management of breast cancer. Therefore, screening and early detection play important roles in the treatment and prognosis of breast cancer. Breast self-examination (BSE) is a screening method that can be performed by students themselves. It is inexpensive and accessible and is, therefore a good screening method for resource-poor settings, where mammography is not readily available.[2] The knowledge and health-seeking behaviour for breast cancer management are low in Africa,[3] such that majority of the affected patients present late to the hospital when little or nothing can be done in terms of treatment. It has been reported that most patients with breast cancer in developing countries present for the first time at advanced stages (III and IV).[4] This is possibly due to lack of early detection of the disease. The diagnosis of breast cancer during the early stage has been linked to a reduction in mortality, morbidity, and cost of management of illness.[5]

The situation calls for increased community awareness of methods for early detection of the disease. Early detection is usually done through screening and screening methods like Breast self-examination(BSE) and Clinical breast examination(CBE) and mammography are available for use.[6] Due to fewer number of experts and lack of advanced diagnostic techniques in developing countries who promote it, regular BSE has been said to be the feasible screening option for early detection of breast cancer.[7]

Breast self-examination is regarded as a valuable screening tool for breast cancer when used as an adjunct to clinical breast examination (CBE) and mammography.[8] Furthermore, it can be utilized in enhancing breast cancer awareness among women .[9] Breast self-examination is recommended because it is inexpensive, private, painless, easy and safe and requires no special equipment.[2] It has also been shown to improve breast health awareness and thus potentially allowing the early detection of breast anomalies.[10] While screening programs with mammography have been effective in high income countries, research has shown that other strategies such as breast self-examination are equally important in reducing mortality from breast cancer particularly in low resource settings.[11]

Breast cancer is an international health concern associated with high levels of morbidity and mortality in developing countries as a result of late presentation. It is the most common female malignancy and the second most common cause of death among white and black women[12]. In 2008, it was estimated that the prevalence of breast cancer in women 15 years and above in sub-Saharan Africa was 23.5 per 100,000 women[13]. Breast cancer has been identified as a major public health concern both in developed and low-and-middle -income countries because of its high prevalence, overburdened health system and direct medical expenditure.[14] Global statistics show the annual incidence rate of breast cancer is increasing in countries with previously low incidence rate[15-16]. Findings from a study on prevalence of breast cancer in Nigeria in 2009-2010 showed that the incidence rate of breast cancer in Nigeria has risen significantly with a rate of 54.3 per 100,000 representing a 100% rise in the last decade.[17] In Nigeria breast cancer is responsible for about 16% of all cancer related deaths.

The two major components of early detection of breast cancer are education and screening. Modern procedures for screening include mammography, magnetic resonance imaging and sonography of the breast. Breast self-examination (BSE) and clinical breast examination (CBE) are other methods that are commonly used.[18]

Breast self-examination is a technique which allows a female to examine her breast for lump or any physical changes in shape, texture, size, and contour. It is often used as an early detection method for breast cancer[17] and should be performed at least once a month beginning at the age of 18 years. Breast self-examination remains a cost-effective method to detect breast cancer changes especially when clinical breast examination (CBE) and mammography are not readily available, accessible and affordable. The American Cancer Society also recommends that women from the age of 20 years should be taught the act of performing monthly breast self-examination.[19] Detecting breast cancer early and getting started with the cancer treatment are the most important strategies to prevent early deaths from breast cancer. A 5-year survival rate is 85% in early detection and decreases to 56% in later detection. The low survival rate in Nigeria can be attributed to late detection and treatment.[20]

Scantiness of knowledge associated with lack of public awareness of breast cancer and screening in tertiary institutions, absence of organized screening programs, lack of accessibility and effective treatment options and more importantly the role of culture has resulted to late detection and presentation. The goal of education and screening of breast cancer are to create awareness, change behaviour and detect any abnormality before clinical manifestation. Screening should continue as long as a woman is in good health and is expected to live 10 more years or longer.

2. Methods and materials

2.1. Study area

This study is to be carried out in the city of Aba South Local Government Area, Abia State. Abia state is one of the 36 states of the Federal Republic of Nigeria. It was created on 27th August 1991 from part of the then Imo State. It is found in the south-east geopolitical zone and is located at latitude 5 25 N, 7 30 E and longitude 5 417 N, 7.500 E of the equator with an elevation of 2.214ft (385m) above the sea level. Its capital city is Umuahia. It has a land area[21] of 6,320km^2 with an estimated population of 2,833,999 according to the recent population census of 2006.[22]

Aba is the largest commercial city in Abia State and second highest in Southeast Nigeria. It lies along the bank of Aba River and it is at the intersection of road leading to Port Harcourt, Owerri, Umuahia, Ikot Ekpene and Ikot Abasi. Its estimated population is 534,265 according to the 2006 census. It is located at latitude 507 N, 7022 E and longitude 5117 N, 7.367 E of the equator.[21]

Aba was established by the Igbo people in Nigeria as a market town and later military post was placed there by the British colonial administration in 1901. Aba is the major urban settlement and commercial center in the region that is surrounded by small villages and towns.[21] The indigenous people of Aba are the Ngwa people.

Abia State College of Health Sciences and Management Technology (ASCOTECH) formerly called School of Health was founded in the year 1948 by colonial masters. It is located at Aba south Local Government Aba, Abia State and surrounded by the different parts of the New Market viz: By North-New Market; South-Ngwa Road by Mosque; East-School road; West-Etche. It is the first among the registered colleges in Aba with a capacity of about 4000 students including male and female students with about (7) departments and male female ratio of 9/11 with female population of 2,200.

2.2. Study design

The study is a descriptive cross-sectional study that was carried out between the month of September and December 2022.

2.3. Study population

The study population was 2,200 female students of college of Health Technology Aba, Abia State.

2.4. Inclusion criteria

All female students 18 years and above who gave their consent for the study. Female students who have not been diagnosed of breast cancer.

2.5. Exclusion criteria

Female Students who did not agree to participate in the study.

2.6. Sample Size Determination

The sample size was determined using the formula[23]

$$N - \frac{Z^2 PQ}{D^2}$$

Where N= required sample or minimum sample size
Z= constant (1.96) [standard normal deviation]
P= proportion with the desired characteristics
Q= 1-P
D= degree of accuracy (0.05)

n = $[(1.96)^2 \times (50/100) \times (0.5)/ (0.05)^2]$ = 0.9604/0.0025 = 384.

Therefore, the minimum sample size will be 384

Adjustment for non-response

NS = n/response rate

Assumed response rate = 90% i.e. 0.9%

NS = 384/0.9 = 426.6

= 427

2.7. Sampling technique

This was by systemic sampling method in which a female student was selected in every 5 female students until the sample size was completed.

2.8. Data Collection Method

Data was collected using pre-tested semi-structured self -administered questionnaires.

2.9. Data Analysis

Data obtained was analyzed using Statistical Package for Social Science [SPSS].

Version 26.0. Variables were summarized in frequency distribution tables and numerical variables by mean and standard deviation. Binary logistic regression analyses were performed to identify variables having association with students' knowledge.

2.10. Ethical consideration

Approval of this work was obtained from the Ethics and Research Committee, Abia State University Teaching Hospital, Aba. Informed consent was also obtained from the school authorities and students.

3. Results

Four hundred and twenty-seven students participated in this cross-sectional descriptive study with a response rate of 398 (93.3%)

3.1. Socio-demographic variables of respondents

The mean age of the respondents was 23±3.461

Table 1 Sociodemographic characteristics of the respondents

Variables		**Frequency**	**Percentage (%)**
Age group	18-23	279	70.1
	24-29	102	25.6
	30-35	6	1.5
	36-41	7	1.8
	42-47	4	1.0
Total		398	100.0
Educational level	Tertiary institution	398	100.0
Marital status	Single	350	87.9
	Married	48	12.1
Total		398	100.0

Tribe	Igbo	380	95.50
	Hausa	5	1.30
	Yoruba	13	3.20
Total		398	100.0
Religion	Christianity	387	97.2%
	Islamic	8	2.0
	African traditional	3	0.8
Total		398	100.0
Have ever had children	Yes	44	11.1
	No	354	88.9
Total		398	100.0
Number of children the respondents had	1	21	5.4
	2	11	2.7
	3	10	2.5
	4	2	0.5
	Not applicable	354	88.9
Total		398	100.0

Table 1 shows the socio-demographic variables of the respondents. Majority of the study participants 279 (70.1%) were in the 18-23 year-age group, all the participants are in the tertiary institution, Majority of the participants are single 350 (87.9%). The dominant tribe and religion among were Igbo 380 (95.5%) and Christianity 387 (97.2%) respectively. Only about 44 (11.1%) of them have children and majority of those 21 (5.4) who had children had only one child.

Table 2 Source of information about Breast Self- Examination

Variables		**Frequency**	**Percentage (%)**
Source of information about Breast Self-Examination	Family members	58	14.6
	Friends	89	22.4
	Media (TV, Radio, newspaper etc)	120	30.2
	Health care worker	98	24.5
	Women organization	33	8.3
Total		398	100.0

Table 3 The age at which Breast Self-Examination should start

Variables		**Frequency**	**Percentage (%)**
The age at which Breast Self-Examination should start.	<20 years	166	46.0
	≥20 years	215	54.0
Total		398	100.0

Table 2 shows sources of information of Breast Self-Examination, majority of the respondents 120 (30.2%) got the information through social media, 98 (24.5%) got information through healthcare worker, 89 (22.4%) got the information from friends and 33 (8.3%) got from women organization.

Table 3 shows that 215 (54.0%) respondents accept that the age at which BSE should start is ≥20 years and 166 (46.0%) respondents accept should start at <20 years.

Table 4 Treatment modalities available for management breast cancer**.**

Variables		**Frequency**	**Percentage (%)**
Treatment modalities available for management breast cancer	Chemotherapy	87	21.9
	Radiotherapy	32	8.0
	Hormone therapy	64	16.1
	Surgery	215	54.0
Total		398	100.0

Table 4 shows treatment modalities for breast cancers and responses of the respondents, majority of the respondents 215 (54.0%) deposited that surgery is the treatment of choice,87 (21.9%) chose chemotherapy as treatment of choice, 64 (16.1%) accept hormone therapy and 32 (8.0%) accepted that radiotherapy is their treatment of choice.

Table 5 Level of Knowledge of Self-breast examination of the respondents

Variables		**Frequency**	**Percentage (%)**
Level of knowledge	Good knowledge	274	68.4
	Poor knowledge	124	31.6
Total		398	100.0

Table 5 shows the level of knowledge of Breast Self-Examination of the respondents, 274 (68.4%) had good knowledge of BSE while 124 (31.6%) had poor knowledge of BSE.

Table 6 The relationship between the socio-demographic variables and level of knowledge

Variables		**Odds ratio**	**df**	**Sign**	**Exp**	**95% C.I for EXP (B)**	
						Lower	Upper
The relationship between the socio-demographic variables and level of knowledge	Have had children ≥ Yes = None	4.120 1	1	0.13	16.210	5.024	78.531
	Marital status Unmarried Married	3.223 1	1	0.03	21.140	21.264	351.571
	Religion Christianity Others	2.309 1	1	0.002	8.236	3.043	58.045
	Mothers' age ≤ 23 >23	3.415 1	1	.004	11.184	2.025	72.644

Table 11 shows the adjusted odds ratio of students (95% Cl: 5.024 – 78.531, p = 0.13) with children ≥ Yes were four time more likely to be knowledgeable to Breast Self-Examination than students with none but this is not statistically significant.

The adjusted odds ratio of unmarried students were 3 times more likely to be knowledgeable to BSE than married students (95% CL: 21.264 – 351.571), P = 0.03, which was statistically significant. The adjusted odds ratio of Christian students (95% Cl; 3.043 – 58.045 p = 0.002) were two times more knowledgeable to BSE than non-Christian students and this was statistically significant. The adjusted odds ratio of students aged ≤ 23 years (95% Cl; 2.025 – 72.644 p = 0.004) were 3 times more likely to be knowledgeable to BSE than mothers with aged >23 years which was statistically significant.

4. Discussion

All the respondents in this cross-sectional descriptive study were females. This corresponds to every other study done on breast self-examination being that breast cancer commonly occurs in females, although the males have rudimentary breast.

Majority of our respondents had a mean age of 23±3.461 years. This finding differs from studies on cancer awareness done in India which reported a mean age of 42.4 years[24]. Also, a cross-sectional survey done among female health professionals in Onabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria, had highest age of their respondents is 41and above[25].

The major source of information on breast cancer from our study was from mass media 120 (30.2%). This is in accordance with the study on female undergraduate students of Buea Cameroon, where the mass media was also (19.9%) was also their major source of information on breast cancer[26]. This is indicative of the fact that our respondents being students have access to the mass media like the internet, television, cables, radios e.t.c from where they got information on breast cancer as well as self-examination

In this study, 274 (68.4%) of the respondents had adequate knowledge regarding BSE and is lower in a study conducted in Cameroon 78%[27] and higher than in a study in Gondor town, Northwest Ethiopia 56%[28] (n =200) (95% Cl: 52 – 62%) and also higher in Ethiopia that indicated 55.5% in Adwa town[29]. These differences could be due to differences in sample sizes. The finding is also higher that that of Vietnam 22.7%[30], 34% Sudan[31], 41.5%Libya[32,]34.2% Arba Minch,[33] 43.1% Jimma [34] and 25.6% Addis Ababa.[35] The difference might be due to self-reporting data collection in Vietnam and Sudan, and the clustered sampling procedure used in Libya. The self-reporting data collection method required participants to respond to the researcher's questions without his/her interference.36 In our study, our participants were tertiary institution students, In Gondor town, Northwest Ethiopia, the possible justification might be the educational level where 29.8% of the participants, only 14.4% of the study participants in Arba Minch, and 18.8% in Jima were of College students, The other possible justification might be due to socio-economic and study population differences. In our study, the participants were all tertiary students, their knowledge level is high and also in Gondor town, Northwest Ethiopia,[28] women's educational level at College and University were about 4 times [AOR: 95% Cl: (1.43 – 10.14)] more likely to be knowledgeable with BSE than those who are illiterate. Also, the women whose husbands had an educational level college and University were about 3 times [AOR:3.03, 95% Cl: (1.04 – 8.84)] more likely to knowledgeable than those who had illiterate husbands. Evidence shows that training women on breast self-examination is enhanced with their educational attainment of College level and above has a positive impact on their related knowledge.[37,38]

5. Conclusion

Our findings indicate that a majority of female students of College of Health and Technology, Aba have good knowledge of breast self-examination but very poor practice of BSE. Marital status, Christianity and student ages were predators to knowledge of Breast Self-Examination and were statistically significant.

Recommendation

We therefore recommend greater awareness among the female students to improve knowledge of BSE which will reduce mortality and morbidity rates of breast cancer among women in the country. We recommend integration of breast self-examination as a topic of discussion for new intakes in the tertiary institution. We recommend federal legislative bills that will promote free examination of the breast including mammography in various public health sector in order to isolate breast cancer at the early stage and target treatment.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding the publication of this paper.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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