

KNOWLEDGE AND PREVALENCE OF THE ADOPTION OF BREAST CANCER SCREENING PRACTICES AMONG FEMALE LAW STUDENTS OF OSUN STATE UNIVERSITY, NIGERIA

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ABSTRACT

Background/aim: Breast cancer (BC) is a major health threat to women of reproductive age, including female university students. Female students' lifestyles such as unhealthy diet, physical inactivity, non adoption of screening practices may prone them to this disease. Screening practices to ensure early detection such as Breast Self-Examination (BSE), Clinical Breast Self-Examination (CBE) are cost effective but not often practiced. Being a non-science faculty in a remote area calls for urgent attention. This study investigated knowledge and adoption of screening practices (SP) against BC among female law students at Osun State University, Nigeria.

Materials/Method: The descriptive cross-sectional used a researchers designed, semi-structured and self-administered questionnaire to purposively recruit 250 female law students. Knowledge of BC SP was measured using 7-items of 14-points scores (0-8 as 'poor'; 9-14 as 'good'). Practice score was measured with 8 items of 20-points scores, which gave 'poor practice' (0-10) and 'good practice' (11-20). Data was analysed using descriptive and inferential statistics with SPSS version 23 ($p = 0.05$).

Results: One third (31.2%) were within 25-29 age group; 78.0% were single and 30.8% were in their first year. Overall, 98.0% had good knowledge of SP with 40% adopting screening practices: where 44.0 do regular BSE and 36.0% ensured uptake of CBE from doctors/nurses respectively with 28.0% reporting abnormality. Knowledge and screening practices were associated with age, level of study, and religion ($p < 0.05$).

Conclusion: Good knowledge but low screening practices existed. Respondents need a tailored health information to encourage adoption of screening measures.

Keywords: Breast cancer, Screening, Knowledge, Practice, Law students

INTRODUCTION

Worldwide, the incidence of breast cancer (BC) is still on the rise. Studies shows that 2,296,840 new breast cancer cases occur in 2022, along with 666,103 deaths, based on GLOBOCAN data.^{1,2,3} Studies has also projected that incidence rate of breast cancer in women will increase to an estimated annual percentage change (EAPC) of 0.44 from 2020 to 2030, rising from 45.86 in 2019 to 48.09 by 2030⁴ and that by 2050, this might have increased by 38%.⁵ Therefore, this global forecast shows that incident cases of breast cancer among females will reach 3.56 million by 2050.⁶

Of this figure, it is indicated that 1.1 million breast cancer related deaths will occur by 2050, and this will disproportionately affect low-income countries.⁷

In Sub-Saharan Africa (SSA), BC accounts for majority of cancer deaths after cervical cancer,^{8,9} with the mean age at BC diagnosis in Sub-Saharan Africa being 48.7 years, of which half of the patients were diagnosed at stage III, and only 4% were diagnosed at stage I.¹⁰ For example, 60% of BC cases in Ghana and South-Africa were detected at late stages.^{9,11} The increasing incidence

of breast cancer in developing countries like Nigeria is a cumulative factor of various kinds, of which individual lifestyle is not an exception.^{12,13} Thus, the chances of surviving from cancer in a developing country like Nigeria is low, and this is majorly due to late presentation, poor diagnostic and treatment facilities, insufficient diagnostic equipment, high out-of-pocket healthcare costs, and delayed diagnosis due to limited health information and service delivery.^{14,15,16} However, breast screening, a foremost and the best preventive practice, are rarely practiced or sought after. Breast screening aims to detect early disease with resultant improved prognosis and quality of life from less radical treatment.¹⁷ However, gap between effective screening and providing appropriate follow-up, diagnosis, and treatment remains a major challenge for screening initiatives in SSA¹⁸, with most of these gaps emanating from individual knowledge and adoption of screening. The knowledge and treatment-seeking attitude for BC prevention and management are low in Africa.¹⁹ Regardless of age, race, educational background, and other demographic factors, most people have a very poor understanding of risk, both in terms of personal risk for cancer and the risk/benefit profiles of potential preventive options.²⁰ For instance, a study in a five SSA countries found that the overall proportion of survey participants who underwent clinical breast cancer screening were 16.3%,²¹ and only 12.9% exhibited this same practice in other four SSA countries respectively,²⁰ despite high breast cancer mortality rates in those regions.

Knowledge of BC risk and the benefits of the interventions are very necessary in the choice of an appropriate BC management strategy.^{22,23} Thus, early detection such as through clinical breast examination (CBE) and breast self-examination (BSE), are active preventive strategies, and high-risk women can benefit from intensive surveillance for early detection and prevention of breast cancer. For instance, promoting regular BSE has been said to be the feasible screening option for early detection, however, its practice is dependent on knowledge and attitude towards BC.^{24,25} Even with increasing reports of growing awareness, tertiary centres in Nigeria continue to receive patients at late stages when treatment is least rewarding. This paradoxical trend of both growing awareness and persisting late presentation, coupled with reports suggesting other competing drivers of late presentation, question the “theory of poor awareness” as the foremost driver of the persistent late presentations. This might due to level of practice of BSE,²⁶ age, employment, having information about BC and BSE, receiving training, perceived disease susceptibility, low level of education etc.^{27,28}

The choice of law students of the institution was due to its remote location and reports of low science research among the study participants in this campus. In addition, the researcher's interactions with students across different health facility centres of the University revealed a low level of knowledge and poor screening practices among this age group, signifying a need for research among this population. The researchers thus felt a need to determine the current level of knowledge regarding BC screening as well as screening practices for better policy formulation. Thus, the broad objective is to assess the level knowledge of BC screening, determine level of screening practices and identify factors influencing adoption of screening practices against breast cancer among female law students of Osun state university, Nigeria.

MATERIALS AND METHODS

Study design and population: The study was a cross-sectional in nature. Cross sectional research facilitates the comprehensive collection and analysis of data as it permits the researcher to define the present situation in the phenomenon under investigation. Thus, the use of a cross-sectional sample for a survey overcomes the limitations of the time and cost required for collecting data.^{29,30} Hence, it was conducted among female students of the faculty of law, aged 16 and above. As a the time of this study, the there were 302 female students comprising 100 to 500 levels as obtained from the Public Relations Office for the year 2024, thus, serving as a sampling frame for the study.

Description of study site/area: The study was carried out in Ifetedo Campus of Osun State University. The institution operates a six multi-campus system. There are seven colleges in six campuses located in six geographical zones of the state.³¹ The Ifetedo campus is located in Ife South Local Government Area of Osun State. The campus only comprised of a faculty - College of Law, with three departments (private and business law, public and international law and Islamic law)³² with a total number of 302 female students as obtained from the UNIOSUN Public Relations Office prior the study. The other two study centres in the campus include centre for entrepreneurial studies and centre for pre-degree (Science). Thus, respondents were recruited from three departments under the faculty of law.

Sample size determination: The Kish's formula was used to calculate the sample size of the undergraduate students recruited for this study. Kish formula for cross-sectional studies included: $N = Z^2 pq / D^2$ where N = sample size collected or minimum sample size; D = degree of accuracy set at 0.05 (precision set at 5.0%). Z = standard normal deviation set at 1.96

normal interval at 5 % (95.0% confident interval); p = the proportion of the target population estimated to have a particular phenomenon of interest in the study. Thus, the prevalence of the practice of breast self-examination as documented from a previous study among female university students in 24 low medium countries, including Nigeria,³³ that was used was 20.0%. This yielded an average of 245.86, approximated to 250.

Data collection and sampling techniques: To ensure even selection of respondents, the study adopted a probability sampling technique. The study engaged 250 female undergraduates law students drawn from a total of 302 female students through a proportionate allocation (quota allocation to levels). Random sampling method was performed sequentially to select those who would be recruited. This selection was done using the admission list obtained at the three departments. Respondents were met at their various lecture venues at different times, via which those selected through random sampling were identified, briefed of the study and were recruited after adequate explanation was provided and a pair of informed consent forms were signed. Eligible participants who refused to participate were replaced with other patients who consented and signed the consent form. Those who sought for more clarifications about BC (and who wanted 'medical consultation') were further briefed and referred to the school health centre for further services. Thus, female postgraduate students, female undergraduates from other faculties or on visit/ practicum/ were exempted from the study. Trained research assistants thus assisted in implementing this process which lasted for 4 days, between the hours of 10am-3.00pm daily.

Instrument validity and reliability: The validated semi-structured, self-administered questionnaire comprised of four sections: socio-demographic, knowledge of BC screening practice, screening practices, and factors influencing uptake of screening services. Validity was ensured through expert consultation and literature review. Careful planning and ensuring adequate quality control/implementation strategies such as recruitment, data collection and analysis were strictly adhered to. The supervisor consolidated the design and provided constructive feedbacks. The validity of the instrument was ensured through thorough examination of each item, making sure that they measure the study objectives, while reliability was determined through pre-testing at the faculty of law, Obafemi Awolowo University, (OAU), Ile-Ife, Osun State, with a Cronbach's alpha of 0.70. Research assistants were trained and a quality control manual was provided.

Data analysis procedure: Data was analysed using SPSS version 23 (IBM Inc., Chicago, IL, USA) for descriptive and inferential analysis at $p=0.05$. Measurement scales included a dichotomous option "Yes or No" for general knowledge of BC screening practices and mixed scales for screening practice scores respectively. Where applicable, 2-points were assigned to right option and zero for wrong. For the knowledge score, 7 variables in the knowledge section of the questionnaire were used and added up, to give a total score of 14-points. Using the means score as yardstick, scores ranging from 0 to 8 was categorised as 'poor knowledge' while those between 9-14 were regarded as having 'good' knowledge. For the screening practice score, the results were presented in frequencies, and described appropriately.

Ethics approval and consent: The study followed the basic ethical principles guiding research involving human participants as enshrined in the Helsinki Declaration. The Osun State Health Research and Ethics Committee (OSHREC), licensed by the independent National Health Research Ethics Committee (NHREC) (established in 2005 by the Federal Ministry of Health, Nigeria) reviewed, approved and monitored the study with the approval number HREC/2021/001B. The OSHREC is saddled with the responsibility of setting norms and standards for conducting of human and animal research in the state. Informed consent was obtained from participants in English language before administering the questionnaire. Participants were given the option to withdraw consent at any time, and confidentiality was maintained throughout the study.

Risk: There was no anticipated ethical issue aside the time spent for filling out the questionnaire.

Cost: No additional cost was accrued for the patients as the questionnaire was completed by those who were willing to participate in the study, which took an average of 15-18mins of their time.

Confidentiality: All Information disclosed by the respondents were treated with utmost confidentiality.

RESULTS

Socio-demographic characteristics

One third (31.2%) of the respondents were within the age group 25-29 with mean age of 22.7 ± 1.0 . Majority (78.0%) were single and 22.0% were married. One third (30.8%) were in their first year. Over 46.0% were Christian, with 34.0% and 20.0% being Muslim and Africa traditionalist respectively (Table 1).

Table 1: Sociodemographic characteristic of the respondents

Variable	Frequency (N=250)	Percentage (%)
Age (years)		
<18	77	30.8
19-24	45	18.0
25-29	78	31.2
30 and above	50	20.0
Year		
100 Level	77	30.8
200 Level	47	18.8
300 Level	59	23.6
400 Level	34	13.6
500 Level	33	13.2
Marital status		
Single	195	78.0
Married	55	22.0
Religion		
Christian	115	46.0
Muslim	85	34.0
Traditional	50	20.0

Table 2: Knowledge of breast cancer screening among respondents

Variable	Frequency (N=250)	Percentage (%)
Heard of breast cancer:		
Yes	250	100.0
No	0	0
Knew that breast cancer can be cured if detected early		
Yes	245	98.0
No	5	2.0
Have family member diagnosed with cancer:		
Yes	50	20.0
No	200	80.0
Aware of breast cancer screening measures:		
Yes	200	80.0
No	50	20.0
Means of detecting Breast Cancer:		
Clinical breast examination	120	48.0
Mammograph	100	40.0
Breast self-examination	30	12.0
Sources of awareness about BSE:		
Radio/Television	70	28.0
Print Media	20	8.0
Health Workers	47	18.8
Family friends	113	45.2
Benefits of the practice of BSE:		
To be familiar with the breast texture	100	40.0
Early detection of breast cancer	50	20.0
Detection of any abnormal changes in the breast	50	20.0
A good breast exercise	50	20.0
Best period to perform BSE:	93	37.2
During menstrual flow		
A week after period	70	28.0
During pregnancy	56	22.4
During breastfeeding	31	12.4
Would encourage friends or Family to do a BSE:		
Yes	161	64.4
No	89	35.6
Have complained of chest pain/ache		
Yes	100	40.0
No	150	60.0

Knowledge of breast cancer screening

All respondents had heard of BC cancer and screening procedure; 45.0% heard it from families/friends. All the respondents (100%) have heard and almost all (98.0%) knew breast cancer can be cured if detected early; only 20.0% have family members/relatives/first order with history or diagnosed of BC. About half (48.0%) believed that clinical breast self-examination is the most common means of detecting BC, while (40.0%) believed breast self-examination helps individual to be familiar with the breast texture (Details in Table 2). When categorised, majority (98.0%) of the respondents had 'good knowledge' while 2.0% had 'poor knowledge' of breast cancer screening (Figure 1).

Screening practices against breast cancer among respondents

Table 3a shows that 80.0% has ever practiced BSE once; however, only 44.0% agreed to doing BSE regularly and 48.0% reported to have been taught while in secondary school. As such, 38.0% started theirs in

their thirties (Details in Table 3a). In addition, 36.0% had their breast clinically examined by doctors and nurses and only 40.0% would see a doctor immediately if abnormality is detected.

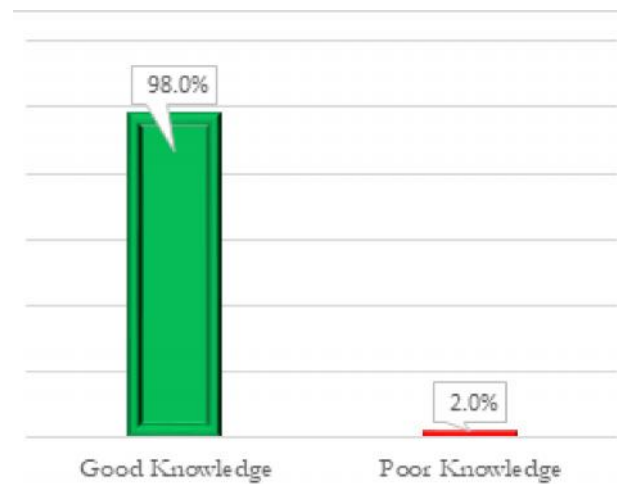


Figure 1. Categorisation of level of knowledge about breast cancer screening

Table 3a: Screening practices against breast cancer among respondents

Variable	Frequency	Percentage (%)
Did BSE for early detection of breast abnormalities		
Yes	200	80.0
No	50	20.0
Do BSE regularly		
Yes	110	44.0
No	140	56.0
How skills on BSE were acquired		
Taught by Parent	60	24.0
Taught while in secondary schools	120	48.0
Taught by medical practitioners	50	20.0
Taught by Friends	20	8.0
Age at first BSE		
Puberty	77	30.8
20 years	43	17.2
30 year and above	95	38.0
After menopause	35	14.0
Pattern of the exercise/practice		
Daily	25	10.0
Weekly	35	14.0
Monthly	140	56.0
Yearly	50	20.0
CBE has been done by		
Doctor	90	36.0
Trained Nurse	90	36.0
The individual	55	22.0
Others*	15	6.0
Actions that will be taken if breast abnormalities is/are discovered		
Pray over it	50	20.0
Do some lab. Tests	70	28.0
See a doctor	100	40.0
Ignore it	30	12.0

*Others—Pharmacist, CHEW

Table 3b: Screening practices against breast cancer among respondents

Variable	Frequency (250)	Percentage (%)
Regular BC screening		
Yes	100	40.0
No	150	60.0
Took (any) action when abnormality was observed		
Yes	210	56.0
No	40	16.0
Sought medical action/help/counsel thereafter		
Yes	215	86.0
No	35	14.0
Took actions to know more about BC screening		
Yes	230	92.0
No	20	8.0

Similarly, majority (60.0%) of the respondents has not gone for BC screening and only 56.0% sought for medical help/counsel when abnormality was observed (Table 3b).

Factors influencing screening practices against breast cancer among respondents

Table 4 showed factors influencing the uptake of breast cancer screening practices. Although majority (92.0%) had sometimes attended seminars and workshop on BC prevention, however, lack of pre-counselling services (82.4%), non-availability of testing centres

(60%), religious beliefs/practices (60.0%), fear/anxiety of outcome of the test (52.0%), cultural belief (46.0%), cost of doing a mammogram (80.0%), and lack of parental supports (12.0%) influenced non-adoption of screening practices (Table 4).

Test of hypothesis and interpretation

There was statistically significant association between general level of knowledge and adoption of screening practices of BC ($X^2 = 20.408$, $df=1$, $p=0.000$) (Table 5.0). There was also a significant association between religion and SP of BC ($X^2 = 250.000$, $Df=2$, $p=0.001$).

Table 4: Factors influencing screening practices against breast cancer

Variable	Frequency (250)	Percentage (%)
Non- availability of testing centers		
Yes	150	60.0
No	100	20.0
Cost of Mammogram test		
Yes	200	80.0
No	50	20.0
Fear/anxiety of outcome of test		
Yes	130	52.0
No	120	48.0
Lack of parental support		
Yes	30	12.0
No	220	88.0
Lack of pre-counselling services		
Yes	206	82.4
No	44	17.6
Timing		
Yes	150	60.0
No	100	40.0
Religious belief		
Yes	150	60.0
No	100	40.0
Cultural belief		
Yes	115	46.0
No	135	54.0

Table 5: Associations between independent and dependent variables of interest

Variable	Poor № (%)	BC Screening practices		X ²	p-value
		Good № (%)	Df		
Level of Knowledge					
Poor	5(10.0)	0(0.0)	1	20.408	0.000
Good	45(90.0)	200(100.0)			
Total	50(100)	200(100)			
BC Screening practices					
Religion					
Christians	0(0.0)	115(57.5)	2	250.000	0.001
Muslim	0(0.0)	85(42.5)			
African traditionalist	50(100)	0(0.0)			
Total	50(100)	200(100)			
BC Screening practices					
Age					
Below 18yrs	0(0.0)	77(38.5)	3	250.000	0.000
19-24yrs	0(0.0)	45(22.5)			
25-29yrs	0(0.0)	78(39.0)			
30yrs and above	50(100)	0(0.0)			
Total	50(100)	200(100)			
BC Screening practices					
Level of study					
100	0(0.0)	77(38.5)	4	196.875	0.000
200	0(0.0)	47(23.5)			
300	0(0.0)	59(29.5)			
400	17(34.0)	17(8.5)			
500	33(66.0)	0(0.0)			
Total	50(100)	200(100)			

Association also existed between age of respondents and SP against BC ($X^2= 250.000$, $df=3$, $p=0.000$). Lastly, there was a significant association between students' level of study and SP of BC ($X^2= 196.875$, $df=4$, $p=0.000$).

Discussion

The study revealed that 31% of the respondents were within the age group 25-29years. This study revealed a need to assess the knowledge of BC prevention among our respondents since they were also within the reproductive age prone to the development of BC. Similarly, one-third of our respondents were 100 level female students of the faculty under study, signifying a good finding, especially for the purpose of sensitisation and awareness creation.

Our studies also found that majority also have good knowledge of breast cancer screening: this aligned with a study in a Nigeria University in the South which reported that 90.3% of the female undergraduates had poor knowledge of breast cancer screening³⁴. In contrast, study in Plateau State found 60.9% of the undergraduates had good knowledge of it.³⁵ Our findings also revealed that respondents have family members/relatives with history of BC, resonating with findings in Gaza were female university students

reported to have had previous family history of BC³⁶. However, despite high knowledge of BC screening and previous family history, this does not translate to increase in the numbers of students who uptake basic BC services such as BC education, CBE or annual breast check services at the institution's health service centre.

Our study revealed that only 40% carried out BC screening practices: where 44.0% do regular BSE and 36.0% ensured uptake of CBE from doctors/nurses respectively. This is in tandem findings from a similar population were 52.9% performed BSE and only 4.6% underwent CBE.³⁴ Similar findings in the Northern Nigeria, reported 40.5% of women practiced BC screening, 12.4% practiced CBE, and only 9.5% had mammography.³⁷ Same was reported of a study in tertiary institutions in the South-west Nigeria with 52.3% undergoing screening practices.³⁸ In contrast, 76.1% of the female university students from Ethiopian universities had undergone BC screening and had good self-screening practices respectively.³⁹ Although there is a high level of knowledge of BC screening, however, this has not translated to practice.

Two-third of our respondents agreed that non-availability of testing centres, cost of doing a

mammogram and fear/anxiety of outcome of the test were factors limiting practice of BC prevention. This resonated with other studies which also identified common barriers to include cost, poor accessibility to facilities, shyness, unavailability of female doctors, careless attitude, and fear of cancer.³⁸ Same was reported of Abo Al-Shiekh, Ibrahim and Alajerami³⁶ where three barriers - who do not have a breast problem, do not know how to do it, and being busy, hindered practices among students. On the other hand, early detection of BC and the presence of family history of BC were considered facilitators promoting regular practice of BSE.³⁶ Although there is a statistically significant association between knowledge of BC screening and the practice, as well as variables such as students' age, level of study, religion as supported by Lafiaji-Okuneye, Taiwo and Modupeola⁴⁰, however, upholding these factors (cost, fear, shyness for non-adoption of screening practices) by female law students as reasons for non adoption of screening practices, inferred that they are yet to perceive the issue as seriousness, hence, reasons for recorded practices.

CONCLUSION AND RECOMMENDATIONS

Our findings showed high knowledge of breast cancer screening practices but low screening practices. As such, there is a need to implement behavioural change communications programmes on breast cancer screening practices through school-based activities such as annual public lectures, orientation exercise, routine medical screening exercise, public awareness programme and on-the-campus screening. We also recommend that breast cancer awareness programmes should be organised across all the campuses of the institution. Lastly, breast cancer awareness and education should be introduced into the university's curriculum.

Contribution to knowledge

The profile of knowledge of breast cancer screening and screening practices about BC will give direction concerning critical areas in institution-based programme that needs strategies in promoting BC awareness. It would also help professionals in implementing a BC awareness programme especially for youths, as this will help to reduce the incidence of BC.

Suggestions for further studies

This study has some limitations. One, the population selected by the researcher for this study is a fraction of female students in the Osun state university which this study could cover due to time and resources, hence, there is a need for further studies to verify the general knowledge of breast cancer, breast self examination as well as clinical breast examination and preventive practices of breast cancer across all campuses of the

university. The study was also limited to knowledge, practice and limiting factors regarding BC. There is also a need to investigate the attitude, perception and uptake of clinical services relating to BC in the university. Lastly, further studies are needed to document the incidence and prevalence of BC among this study group in the university.

Conflict of interest: None

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Addendum:

1. C.A.O conceptualised the idea, implemented the research, championed the development of the manuscript and reviewed all drafts
2. U.N. J supervised the work from start to finish.
3. S.O.A did the analysis, wrote the discussion, developed the draft and handled correspondence.
4. U.M.S contributed to the development of the drafts, formatted draft in line with journal's style and reviewed all drafts.

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