

Predictors of breast self-examination as cancer prevention practice among women of reproductive age-group in a rural town in Nigeria

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ABSTRACT

Background: Early detection of breast cancer plays an important role in decreasing its morbidity and mortality. This study therefore examines the factors influencing breast self-examination (BSE) awareness and practices among women in Ogun state, Western Nigeria.

Materials and Methods: This analytical cross-sectional study was conducted between 22 April and 13 May 2013 using a semi-structured questionnaire. A multi-stage cluster sampling technique was used to select one participant per household into the study. **Results:** A total of 495 women were interviewed in this study, the mean age of the respondents was 36.45 ± 5.12 years. About half (58.2%) of respondents have heard of BSE and 24.4% have ever perform BSE. Only 5.3% of our respondents perform BSE regularly (monthly) as recommended. Barrier to non-performance of BSE were perception of not being at risk (47.6%), lack of knowledge of how to perform BSE (47.6%). Only 18.5% of respondents have ever had their breast examined by physicians for lump and all of them had continued to perform BSE afterwards.

The only predictor of awareness and practice of breast self-examination was tertiary level of education [odds ratio (OR) = 1.43 cumulative incidence (CI) = 1.12-2.18]. **Conclusion:** The study shows level of education, smoking habits and history of breast exam by health professional and were the factors found associated with BSE practice. Training on BSE should be given to women especially during antenatal care in order to increase the practice of BSE thus averting the severe morbidity and mortality of breast cancer in developing countries.

Key words: Breast, Nigeria, reproductive age, rural, self-examination

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INTRODUCTION

One of the best ways to early detection of breast cancer is screening.¹ The best acceptable ways of screening for the breast cancer are breast self-examination (BSE), clinical examination by the physicians or healthcare providers (Clinical Breast Examination), mammography and magnetic resonance imaging.² BSE from economical and human viewpoints has many benefits in comparison to two other methods, because it can be performed without any cost and is available everywhere.³ Surveys show that performing continuous BSE causes a decrease rate of 3.1%

in breast cancer cases with interfacing axillary lymph.⁴ Breast cancer is the leading female malignancy in the world accounting for 19% of all female cancers and the leading cause of cancer-related death in women.^{5,6} In 2010, nearly 1.6 million women worldwide were diagnosed with breast cancer, accounting for approximately 14% of the cancer deaths in women and 35% of all cancer cases. Nowadays, the cancer is the second cause of death throughout the world.^{6,7} The breast cancer is the most organ cancer among the women and the first cause of death among the women in the age of 40-45 years.⁷

Early detection of breast cancer plays an important role in decreasing its morbidity and mortality. Though BSE is one of the screening methods for early detection of breast cancer,⁸ early diagnosis of breast cancer is known to be vital to the treatment of the disease and the reduction in cancer deaths. The efficacy of BSE is usually tested with the help of mammography.⁹ Also, in terms of feasibility, the mammography screening method is inaccessible for many countries for financial reasons. In contrast, BSE is

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a simple, low-priced, secure, effective, appropriate and feasible diagnostic procedure for developing countries when compared with mammography and clinical breast examination.¹⁰

MATERIALS AND METHODS

This was a stratified randomised, questionnaire-based study on mammography awareness among women in a rural set-up in southwestern Nigeria, between 22 April and 13 May 2013. Using the formula below, the estimated sample size was 444. Sample size estimation was based on the formula:

$$N = \frac{Z^2pq}{d^2}$$

Where

N = Minimum sample size required

Z = Constant; a confidence level of 95% = 1.96

P = Measure of prevalence or proportion of event in % = 40.5% = 0.405

Q = Opposite of p = 1 - p = 1 - 0.405 = 0.595

D = Precision value (95% confidence interval) = 0.05

Therefore,
$$N = \frac{1.96 \times 1.96 \times 0.405 \times 0.595}{0.05 \times 0.05} = 370.3$$

20% non-respondent value = $20 \times \frac{370.3}{100} = 74.1$

Add 20% non-respondent value; 370.3 + 74.1 = 444.4

Hence, minimum sample size = 444

Ethical clearance was duly obtained and only participants who gave informed consent were recruited in the study. The data were processed and analysed using statistical package of social sciences (SPSS) 15 statistical software. Percentages or means and standard deviation were computed for baseline characteristics of women interviewed. The data analysis focused on univariate frequency table and bivariate cross tabulations that identify important relationships between variables.

The relationships between variables were examined through bivariate analysis, by computing odds ratio at 95% confidence level and chi squared and t-tests where appropriate. Predictor variables were restricted to outcome measures that were statistically significant. A P-value ≤ 0.05 or confidence limits which did not embrace unity (1) was considered as statistical significance.

RESULTS

A total of 495 women were interviewed in this study. The mean age of the respondents were 36.45 ± 5.12 years. Half [57.5%] of the respondents had tertiary education, 5.4% had no formal education, 12.8% had only primary education, while 24.3% had secondary education.

Those employed in unskilled settings were 49.4%, semi-skilled 12.1%, skilled 25.4%, unemployed 10.0% and 3.2% of respondents were professionals. Majority [68.0%] were married, 26.3% were never married, 1.0% were divorced and 4.7% were separated. Furthermore, 85.3% were in a monogamous marriage while 14.7% in a polygamous marriage. Most [71.1%] of the respondents were Christians, 27.3% were Muslims while 1.6% were traditional religion worshippers. Multi-parous women made up 48.1% of the respondents, primiparous women 35.2% and nulliparous women 16.8%. This is shown in Table 1 below.

The mean age of menarche of our respondents was 15.53 ± 7.64 years. The mean age of first birth was 24.4 ± 4.53 years. The mean number of children given birth to was 3.3 ± 2.1 years. The mean duration of breastfeeding among respondents was 1.42 ± 3.16 years.

Majority (95.6%) were non-smokers, with only 4.4% as smokers. Of the 4.4% of smokers, the average pack year was 2 pack years. Only 24.5% used contraceptives while 75.5% did not acknowledge any oestrogen-containing contraceptive use. Majority at 85.7% have no family history of breast lesions while only 14.3% had a family history of such. Of those that had a family history of breast lesions, 50% were to second degree relatives, 28.6% to third-degree

Table 1: Socio-demographic characteristics and breast self examination

	Total No [%]	Periodic Breast Self Examination No[%]	P-value
Age of Respondents			0.054
<30 yrs	91 [18.2]	28 [23.1]	
31-40 yrs	211 [42.6]	50 [41.3]	
41-50 yrs	127 [25.7]	30 [28.4]	
51-60 yrs	48 [9.7]	8 [6.6]	
>60 yrs	18 [3.6]	5 [4.1]	
Total	495 [100.0]	121 [24.4]	
Level of Education			0.012
Nil	26 [5.4]	5 [4.2]	
Primary	62 [12.8]	23 [19.0]	
Secondary	118 [24.3]	36 [30.0]	
Tertiary	279 [57.5]	57 [46.9]	
Occupation			0.08
Professional	15 [3.2]	10 [16.3]	
Semi- skilled	57 [12.1]	13 [11.2]	
Skilled	135 [25.4]	39 [33.6]	
Unskilled	233 [49.4]	45 [38.8]	
Unemployed	47 [10.0]	14 []	
Marital Status			0.024
Single	131 [26.3]	30 [24.8]	
Ever Married	364 [73.7]	91 [75.2]	
Religion			0.78
Christainity	352 [71.1]	81 [67.2]	
Islam	135 [27.3]	37 [30.3]	
Traditional	8 [1.6]	3 [2.5]	

relatives while 21.4% were to first-degree relatives. This is shown in Table 2.

About half (58.2%) of respondents have heard of self-breast examination while 41.8% have not heard of it. Of those aware of BSE, 36.1% responded that only women should perform it, 36.1% responded both men and women should perform it while 27.8% did not know. And, 44.1% did not know at what age BSE should be performed, 36.4% replied as above 19 years of age while 19.5% replied as below 19 years of age.

Few (24.4%) of the respondents have ever perform BSE. Only 5.3% of our respondents perform BSE regularly (monthly) as recommended. Of those that were aware of BSE, barrier to non performance of BSE were perception of not being at risk (47.6%), lack of knowledge of how to perform BSE (47.6%) while 2.4% did not because of a lack of time and 2.4% did not because they were too old.

Only 18.5% of respondents have ever had their breast examined by physicians for lump and all of them had continued to perform BSE. This is 75.8% of those that have ever performed BSE. Of those that had their breast examined, 100% had a clinical examination and not a mammographic examination.

There was a statistically significant difference in the awareness and practice of BSE among respondents with high educational level [$X^2 = 16.25, P = 0.012$], family history of breast cancer [$X^2 = 13.87, P = 0.008$], marital status [$X^2 = 17.71, P = 0.024$] and smoking habit of respondents [$X^2 = 20.82, P = 0.0001$]. The gravidity of the respondent [$X^2 = 4.57, P = 0.34$], age [$X^2 = 7.52, P = 0.68$], religion [$X^2 = 1.78, P = 0.78$] and type of marriage background [$X^2 = 7.75, p = 0.10$] were not statistically significantly associated with the awareness and practice of BSE. This is as shown in Tables 1 and 2 below.

In the multiple logistic regression models, four measures that were statistically significantly associated with awareness and practice of breast self examination were entered into the model. The only predictor of awareness and practice of breast self examination was tertiary level of education (OR = 1.43 CI = 1.12–2.18). This is shown in Table 3 below.

DISCUSSION

This study has revealed poor awareness and practice of BSE. Only 24.4% of respondents have ever performed BSE and 5.3% of the respondents performed BSE on monthly basis. Studies on female healthcare staff have reported regular BSE performance rates of 6–83%.¹¹⁻¹⁵ However, different studies show that the development of level of knowledge and the society’s attitude about BSE can play a positive role on screening performances of the society’s

women.^{16,17} In order to raise awareness, it is advised for women to have a regular breast examination every month and to report any abnormalities found through observation.

This study reported that higher level of education was statistically significant associated with BSE practice. In many findings, practice of BSE was determined by the awareness of women or their having of information about diagnostic methods of breast cancer.¹⁸⁻²⁰ Investments should be made in improving women’s awareness of and access to BSE. Public education and awareness programs should be developed to promote earlier diagnosis using a multi-pronged approach that includes simple, cost-effective ways of disseminating the relevant information (such as through the mass media). The participation of non-governmental and charitable organizations in creating awareness about breast cancer will also be helpful in improving the practice of BSE.

This study shows that family history is statistically significantly associated with BSE and low personal

Table 2: Other factors influencing breast self examination

	Total No [%]	Periodic Breast Self Examination No[%]	P-value
Gravidity			0.34
Nulliparous	83 [16.8]	18 [14.9]	
Primiparous	174 [35.2]	51 [42.1]	
Multiparous	238 [48.1]	52 [43.0]	
Family history of cancer			0.008
Positive	55 [11.2]	18 [15.0]	
Negative	440 [86.2]	103 [85.0]	
Smoking			0.0001
Yes	22 [5.4]	11 [9.0]	
No	473 [94.6]	110 [90.9]	
Structure of family			0.1
Monogamous	422 [85.3]	104 [86.1]	
Polygamous	73 [14.7]	17 [14.0]	

Table 3: Multivariate logistic regression

	Odds Ratio [C.I.]
Level of Education of head of household	
Nil	1.00
Primary	0.18 [0.61-4.72]
Secondary	0.89 [0.12-4.3]
Tertiary	1.43 C.I.=1.12-2.18].
Type of family	
Nuclear	1.15 [0.79-1.68]
Extended	1.00
Family history of breast cancer	
Yes	1.38 [0.82-2.33]
No	1.00
Smoking Status	
Yes	1.79 [0.42-1.50]
No	1.00

perception of risk of developing breast cancer was a major factor for non-performance of BSE. Several studies have reported similar findings that family history of cancer significantly influenced the practice of the BSE.^{12,20-22} One of the most important factors that increase the risk of developing breast cancer among women is family history.^{23,24} The perception that most of the young women do not consider themselves at risk for developing breast cancer can discourage them from doing BSE. Identification of barriers regarding BSE is very essential and can be used to design appropriate educational interventions which promote this preventive behaviour.

The study shows an association between clinical examination of breast by the physicians and continual BSE by respondents. All of those examined by the clinicians had continued BSE though not regularly. Several studies have shown that acquiring information on BSE from health professional, discussion with families on the importance of BSE, and history of breast exam by health professional were the factors found associated with BSE practice.^{17,18} Therefore, training on BSE should be given to increase the practice of BSE which in turn would have the impact to avert the severe morbidity and mortality of breast. Moreover, giving training on the techniques of BSE for health extension workers is the way of reaching the wider community and the best opportunity to tackle the problem at wider perspective. Evidences suggest that BSE is a reliable screening tool when used as an adjunct to clinical breast examination and imaging studies.^{25,26} In addition, early diagnosis of breast cancer has been related to the frequency of BSE.²⁷ Early diagnosis is an important strategy, particularly in low- and middle-income countries where the diseases is diagnosed in late stages and resources are very limited. There is some evidence that this strategy can produce “down staging” of the disease to stages that are more amenable to curative treatment.²⁸ Breast cancer deaths can be reduced significantly if the tumor is discovered at an early stage.²⁹

Keeping in mind that most breast cancers are diagnosed by women themselves, the importance of regular self-breast examination becomes obvious. Therefore, women should be encouraged to perform BSE, due to its importance in the early diagnosis of breast cancer. It is of the utmost importance to raise awareness and knowledge regarding the early diagnosis of breast cancer at an early age, and to teach the appropriate techniques. BSE is significant only when performed at regular intervals and conscientiously. If discovered early, breast cancer can usually be cured; however, early detection through screening is the only way to reduce mortality.

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