

# Breast Self Examination Practice among Female Students of Tertiary Institutions

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## Abstract

Against the background of the dangers posed by breast cancer world-wide, and the importance of its early detection and therefore breast self examination (BSE), this study investigated the practice of BSE among female students in tertiary institutions in Edo state. A sample of 723 participants selected through a combination of multi-stage, systematic and convenience sampling methods was surveyed with the aid of questionnaire. Out of this, 674 were retrieved and usable. Data analysis involved multiple regression and analysis of variance (ANOVA). The results indicated a high level of practice of BSE. While parental background and family history of breast cancer had no significant impact on practice of BSE, course of study, type of tertiary institution and knowledge of BSE impacted significantly on practice of BSE. It is therefore recommended that enlightenment campaigns on BSE should continue while research efforts should be directed at ascertaining under what circumstances knowledge of BSE does not translate into its practice.

**Keywords:** breast self examination, BSE, knowledge of BSE, practice of BSE, family background

## 1. Introduction

Breast cancer has been identified as the most common cancer and leading cause of cancer deaths among women worldwide (Ferlay, 2001). Outlook (2000) reported that breast cancer resulted in an estimated 189,000 deaths in developed countries and 184,000 deaths in developing countries, accounting for 16 and 12 per cent respectively, of all cancer deaths in women. The situation in Nigeria is not different as the prevalence of breast cancer is also reported to be very high and it is known to be one of the leading causes of death among women. It has overtaken cancer of the neck of the womb which hitherto, was the greatest killer of women (Aligbe, 2013). Breast cancer originates from breast tissues, most commonly from the inner lining of milk ducts or the lobules that supply the ducts with milk. Surveillance Epidemiology and End Results [SEER], 2013).

Although mortality from breast cancer could be reduced through early detection, studies show that only 20-25% of women routinely examine their breasts (Millar & Millar 1992) and there is evidence that screening for breast cancer has a favourable effect on mortality from the disease (Harvey, Miller, Baines & Corey 1997). The earliest signs of breast cancer are usually observable on mammograms, often before lumps can be felt. However, mammograms are not foolproof and total as they are not very effective for use on younger women, (the focus of this study), whose dense breast tissues can obstruct x-rays (World Cancer Report 2008). Despite the advent of these modern screening methods, cases of cancer of the breast can be detected by women themselves through breast examination. It is for this singular reason that experts are advocating breast self-examination (BSE), as a preventive measure for early detection of breast cancer. Somkin (1993) found that there were important benefits for teaching women BSE for the following reasons. Firstly, it was helpful in detecting 10% of breast cancers that could not be detected with mammography. Secondly, it was useful for younger women who were not generally recommended to undergo mammography screening. Also, in the opinion of Hailey, Lalor, Byrne and Starling (1992) BSE will encourage women to take responsibility for their own health. According to Simsek and Tug (2002) breast self-examination benefits women in two ways. Women become familiar with both the appearance and the feel of their breasts, and detect any changes as early as possible. Donatelle (2005); Karayurt, Ozmen and Cetinkaya (2008) opined that 90%-95% of the times, breast cancer is first noticed by the woman herself during the performance of BSE. Although some early studies supported the efficacy of BSE in the early detection of breast cancer (Foster, Lang, Constanza, Worden & Raines 1978) later research questioned the possible harmful effects. Grady (1992) pointed out that BSE may have caused unnecessary anxiety and needless worry for women because it could lead a woman to believe that a lump felt in her breast was cancerous when it was not. Conversely, BSE could erroneously reassure a woman who did not feel a lump in her breast that there was no need for further screening. Kegeles (1985) Grady (1992) and Collins (2005) however concluded that the potential negative aspects to performing BSE were outweighed by the life-saving benefit gained from regular BSE performance. Therefore, BSE appeared to have no significantly harmful side effects. The key strategy, therefore, for reducing breast cancer mortality is increasing the proportion of cases that are detected early through BSE, as the woman performs the act herself, and at her convenience (Philip, Harris, Flaherty & Joslin 1986). Other methods, such as clinical breast examination and mammography require hospital visitations, specialized equipment and expertise (Vorobiof 2001).

In early detection of breast lump, practice of BSE is very important as this will go a long way in making women become breast aware and in the process, discover any abnormality that may exist in their breast. Studies by various researchers in Nigeria found that practice of BSE was generally low. Kayode, Akande and Oshagbemi (2005) reported that despite the positive attitude of respondents to BSE, its practice was low. This was corroborated by Balogun and Owoaje (2005), Chioma and Asuzu (2007), Agboola, Deji-Agboola, Oritogun, Musa, Oyebadejo and Ayoade (2009); Gwarzo, Sabitu and Idris (2009). They all agreed that there was low practice of breast self examination among the respondents in Nigeria. This finding is also same for Swedish women as only 10% of the women studied practised BSE regularly (Person & Johansson 1995). Haji-Mahmoodi, Montazeri, Jarvandi, Ebrahimi, Haghightat and Harirchi (2002) also opined that only 60% performed BSE on a monthly basis, 50% performed occasionally and 44% never practised BSE. In similar studies done in United Arab Emirate, (Bener, Alwash, Miller, Denic & Dunin 2001) and in Brazil, by Fidelis and Manalo (2013) it was asserted that the practice of BSE was also generally low among women. In the light of the scenario sketched above, one may ask, 'At what age should a woman begin BSE'? The American Cancer Society recommended age 20. However, the American Academy of Pediatrics suggested that girls begin BSE at age 14 as this would enable them imbibe the culture of routine performance of BSE (Cromer, Frankel, Hayes & Brown, 1992). In view of all the initiatives put in place by individuals and governments through radio/television campaigns and jingles to create awareness and encourage BSE practice among women, it has become necessary to ascertain the current level of practice of BSE in Edo state. In this regard, this study focuses on the practice of BSE among female students of tertiary institutions in Edo state.

This study investigated the following research questions: Is the proportion of female students that practises BSE different from the proportion that does not practise BSE in tertiary institutions in Edo state? Is there any relationship between practice of BSE and parental educational background, family history of breast cancer, course of study, type of tertiary institution and knowledge of BSE, among female students in tertiary institutions in Edo state?

## 2. Hypotheses

The following hypotheses were tested:

- i. The proportion of female students that practises BSE is not significantly different from the proportion that does not practise BSE in tertiary institutions in Edo state.
- ii. There is no significant relationship between practice of BSE and parental educational background, family history of breast cancer, course of study, type of institution and knowledge of BSE among female students in tertiary institutions in Edo state.

## 3. Methodology

A descriptive survey design was used for this study. The population was made up of all female students in tertiary institutions in Edo state. There were 36045 female students in these institutions in 2012/2013 academic year according to the official records of the Academic Planning Departments of the respective institutions. The sample size used was 723 female students, which was arrived at using Yamane's (1967) formula. In addition, this sample size was consistent with Owie's (2006) recommendation that for a population of over 10,000, a minimum sample size of 370 is adequate. The researcher adopted multi stage, systematic and convenience sampling techniques. The three step multi-stage process involved the sampling of faculties/schools to study, the departments from the selected faculties/schools and the respondents from the selected departments. First, six faculties/schools were randomly selected from each institution through balloting. Second, the systematic random sampling technique was applied to select the departments by picking every even numbered department from the list compiled by the Academic Planning Department. Finally, the respondents were selected from the departments through convenience sampling. However, the number of the retrieved instrument that was usable was 674 (93%)

## 4. Results

### 4.1 Practice of BSE

Table 1 shows that in eleven out of the fourteen items, more than 0.50 of the respondents answered "yes" to the statements, indicating that they practise the various dimensions of BSE. However, it is in only two items, (items 11 & 14) that the proportion is up to 0.70. For the fourteen items, the average number of persons who answered "yes" to practice of BSE was 310 representing a proportion of 0.59 while the proportion for "no" is 0.41

The test of the hypothesis that the proportion of female students that practices BSE is not significantly different from the proportion that does not was achieved by using the binomial test. Table 2 shows that it is for only three of the fourteen dimensions of practice of BSE (statements 7, 8 and 12) that the null hypothesis is supported. These statements relate to being able to detect lump, the use of the pads of the three middle fingers

for BSE and the use of both hands to palpate the breasts in alternate manner. What this means is that most of these respondents do not practise BSE correctly. For the other thirteen (13) practice items, the null hypothesis is rejected. Consequently, the null hypothesis that the proportion of female students that practised BSE is not significantly different from the proportion that does not practise it is rejected. It is therefore concluded that the proportion of female students that practise BSE is significantly different from the proportion of female students that do not practise BSE.

#### 4.2 Practice of BSE as a function of parental background, family history of breast cancer, course of study, type of institution and knowledge of BSE

The relationship between practice of BSE and the variables specified above was tested using multiple regression and analysis of variance (ANOVA).

Table 4 shows that  $R = 0.323$  and  $R\text{-Square} = 0.104$ . This indicates that only 10% of the variation in the practice of BSE is explained by the combination of the five independent variables in the model, namely, parental background, family history of breast cancer, course of study, type of institution and knowledge of BSE. The empirical results show that parental background positively influences practice of BSE, although not in a significant way. Indeed, the parameter estimate failed the test of statistical significance at the 1%, 5% and 10% levels. In the same way, the impact of family history of breast cancer on the practice of BSE by respondents though positive is not statistically significant. The impact of the course of study variable on respondents' practice of BSE is surprisingly negative. This seems to suggest that even respondents who study disciplines that are related to BSE and are thus in a position to understand and appreciate the importance of BSE do not practice it. The variable too, surprisingly passed the test of significance at all levels, making it a policy relevant variable.

Table 1. Students' responses on practice of breast self examination (BSE)

| S/N     | Practice of Breast Self Examination (BSE)                          | Answer       | N          | Observed Prop. |
|---------|--|--------------|------------|----------------|
| 1       | Do you practice breast self-examination (BSE)?                     | Yes          | 397        | .62            |
|         |  | No           | 248        | .38            |
|         |  | Total        | 645        | 1.00           |
| 2       | I can perform BSE confidently                                      | Yes          | 356        | .61            |
|         |  | No           | 228        | .39            |
|         |  | Total        | 584        | 1.00           |
| 4       | I perform BSE without clothes on                                   | Yes          | 277        | .66            |
|         |  | No           | 142        | .34            |
|         |  | Total        | 419        | 1.00           |
| 5       | I perform BSE in front of the mirror                               | Yes          | 322        | .57            |
|         |  | No           | 239        | .43            |
|         |  | Total        | 561        | 1.00           |
| 6       | I use the correct part of my fingers when I perform BSE.           | Yes          | 313        | .55            |
|         |  | No           | 252        | .45            |
|         |  | Total        | 565        | 1.00           |
| 7       | I would be able to detect, an abnormality in my breast during BSE? | Yes          | 260        | .46            |
|         |  | No           | 310        | .54            |
|         |  | Total        | 570        | 1.00           |
| 8       | I use the pads of the three fingers for BSE.                       | Yes          | 272        | .49            |
|         |  | No           | 279        | .51            |
|         |  | Total        | 551        | 1.00           |
| 9       | I do BSE while bathing   | Yes          | 389        | .69            |
|         |  | No           | 174        | .31            |
|         |  | Total        | 563        | 1.00           |
| 10      | I feel the armpit when I perform BSE                               | Yes          | 306        | .55            |
|         |  | No           | 251        | .45            |
|         |  | Total        | 557        | 1.00           |
| 11      | I raise one hand above my head when doing BSE                      | Yes          | 373        | .70            |
|         |  | No           | 163        | .30            |
|         |  | Total        | 536        | 1.00           |
| 12      | I use both hands to palpate the breasts in alternate manner        | Yes          | 239        | .44            |
|         |  | No           | 301        | .56            |
|         |  | Total        | 540        | 1.00           |
| 13      | In performing BSE, I press the breast firmly                       | Yes          | 329        | .61            |
|         |  | No           | 213        | .39            |
|         |  | Total        | 642        | 1.00           |
| 14      | I touch the entire breast area during BSE                          | Yes          | 385        | .70            |
|         |  | No           | 166        | .30            |
|         |  | Total        | 551        | 1.00           |
| Average |  | Yes          | 310        | .59            |
|         |  | No           | 218        | .41            |
|         |  | <b>TOTAL</b> | <b>528</b> | <b>1.00</b>    |

The results reveal too that both types of institutions and knowledge of BSE variables positively influence respondents' practice of BSE. Both variables interestingly passed it at the 3% level of significance.

While the former passed it at the 3% level of significance, the latter passed it at even the stringent 1% significance level. Both variables are therefore relevant to formulation of policies that are targeted at influencing the practice of BSE in a desired direction.

Table 2. Binomial test on practice of breast self examination (BSE) among female students

|    | <b>Practice of Breast Self Examination (BSE)</b>                  | <b>Answer</b>      | <b>Freq.</b>      | <b>Observed Proportion</b> | <b>Test Proportion</b> | <b>Sig.</b> |
|----|---|--------------------|-------------------|----------------------------|------------------------|-------------|
| 1  | Do you practice breast self-examination (BSE)?                    | Yes<br>No<br>Total | 397<br>248<br>645 | .62<br>.38<br>1.00         | .50                    | .000        |
| 2  | I can perform BSE confidently                                     | Yes<br>No<br>Total | 356<br>228<br>584 | .61<br>.39<br>1.00         | .50                    | .000        |
| 3  | Do you do a monthly BEST regularly?                               | Yes<br>No<br>Total | 121<br>88<br>209  | .58<br>.42<br>1.00         | .50                    | .027        |
| 4  | I perform BSE without clothes on                                  | Yes<br>No<br>Total | 211<br>142<br>419 | .66<br>.34<br>1.00         | .50                    | .000        |
| 5  | I perform BSE in front of the mirror                              | Yes<br>No<br>Total | 322<br>239<br>561 | .57<br>.43<br>1.00         | .50                    | .001        |
| 6  | I use the correct part of my fingers when I perform BSE.          | Yes<br>No<br>Total | 313<br>252<br>565 | .55<br>.45<br>1.00         | .50                    | .012        |
| 7  | I would be able to detect an abnormality in my breast during BSE? | Yes<br>No<br>Total | 260<br>310<br>570 | .46<br>.54<br>1.00         | .50                    | .040        |
| 8  | I use the pads of the three fingers for BSE.                      | Yes<br>No<br>Total | 211<br>279<br>551 | .49<br>.51<br>1.00         | .50                    | .798        |
| 9  | I do BSE while bathing  | Yes<br>No<br>Total | 389<br>174<br>563 | .69<br>.31<br>1.00         | .50                    | .000        |
| 10 | I feel the armpit when I perform BSE                              | Yes<br>No<br>Total | 306<br>251<br>557 | .55<br>.45<br>1.00         | .50                    | .022        |
| 11 | I raise one hand above my head when doing BSE                     | Yes<br>No<br>Total | 373<br>163<br>536 | .70<br>.30<br>1.00         | .50                    | .000        |
| 12 | I use both hands to palpate the breasts in alternate manner       | Yes<br>No<br>Total | 239<br>301<br>540 | .44<br>.56<br>1.00         | .50                    | .009        |
| 13 | In performing BSE, I press the breast firmly                      | Yes<br>No<br>Total | 329<br>213<br>642 | .61<br>.39<br>1.00         | .50                    | .000        |
| 14 | I touch the entire breast area during                             | Yes<br>No<br>Total | 385<br>166<br>551 | .70<br>.30<br>1.00         | .50                    | .000        |
|    | Average   | Yes<br>No<br>Total | 310<br>218<br>528 | .59<br>.41<br>1.00         | .50                    | .027        |

Table 4. Multiple regression analysis: Practice of BSE

| Model summary of multiple regression tests |       |                |                         |                            |                       |          |     |     |             |
|--|-------|----------------|-------------------------|----------------------------|-----------------------|----------|-----|-----|-------------|
| Model                                      | R     | R <sup>2</sup> | Adjusted R <sup>2</sup> | Std. Error of the estimate | Change statistics     |          |     |     |             |
|  |       |                |                         |                            | R <sup>2</sup> Change | F change | Df1 | Df2 | Sig. change |
| 1  | .323a | .104           | .097                    | .461                       | .104                  | 13.528   | 5   | 581 | .000        |

Coefficients

|                                 | Unstandardized Coefficients |            | Standardized Coefficients | t sig. |      | Correlations |         |       |
|---------------------------------|-----------------------------|------------|---------------------------|--------|------|--------------|---------|-------|
|                                 | B                           | Std. Error | Beta                      |        |      | Zero Order   | Partial | Part  |
| (Constant)                      | .132                        | .136       |                           | .970   | .332 |              |         |       |
| Parental Background             | .026                        | .024       | .044                      | 1.112  | .267 | .042         | .046    | .044  |
| Family history of Breast Cancer | .088                        | .079       | .044                      | 1.117  | .265 | .058         | .046    | .044  |
| Course of Study                 | -.135                       | .040       | .133                      | -3.340 | .001 | -.172        | -.137   | -.131 |
| Type of Institution             | .074                        | .025       | .117                      | 2.941  | .003 | .143         | .121    | .115  |
| Knowledge of BSE                | .052                        | .008       | .243                      | 6.163  | .000 | .248         | .248    | .242  |

- Predictors; (Constant). Type of institution. Parental Background, Family history of Breast Cancer, Course of Study. Knowledge of BSE;
- Dependent Variable: Practice of BSE

The ANOVA (Table 5) shows that with an F statistic of 13.528 computed  $v_1 = 5$  and  $v_2 = 581$  degrees of freedom, the model passed the test of overall significance at all levels. Therefore the variables in the specification can, in the light of the empirical findings be considered to be good predictors of practice of BSE among female students in tertiary institutions in Edo state.

Table 5. Result of the ANOVA from the multiple regression

| Model      | Sum of squares | Df  | Mean squares | F      | Sig  |
|------------|----------------|-----|--------------|--------|------|
| Regression | 14.395         | 5   | 2.879        | 13.528 | .000 |
| Residual   | 123.646        | 581 | .213         |        |      |
| Total      | 138.041        | 586 |              |        |      |

- Predictors: (Constant), Type of institution, Parental Background, Family history of Breast Cancer, Course of Study and Knowledge of BSE;
- Dependent Variable: Practice of BSE

## 5. Discussion of findings

The study revealed a high level of practice of BSE among the female respondents in tertiary institution in Edo state. Out of the fourteen (14) statements on practice of BSE, fifty percent or more of the respondents answered "yes" to the statements. This finding was however contrasted with studies done in the past by Kayode et al (2005); Balogun et al (2005); Chioma et al (2007); Agboola et al (2009) and Gwarzo et al (2009) which all showed a low level of practice of BSE among their various respondents. Also, in similar studies in Brazil (Fidelis & Manalo, 2013) and United Arab Emirate (Bener, Alwash, Miller, Denic & Dunin, 2001) it was asserted that practice of BSE was generally low. The reason for this low practice among previous respondents could have been because such studies focused on rural/market women who do not know the benefits of BSE. The result of the analysis of the relationship between practice of BSE and parental background shows no relationship between the two variables. This finding differs from those obtained in some known previous studies such as Salaudeen, Akande and Musa (2009) who found that 13% of those who practised BSE were influenced by their parents and that practice was more prevalent among those whose parents had tertiary level of education (Isara & Oyedokun 2011).

The result obtained in this study with respect to the relationship between practice of BSE and family history of breast cancer is not different from those obtained in previous studies. The study revealed no relationship between practice of BSE and family history of breast cancer. This finding corroborates those obtained by Salarzar (1994), Petro-Nustus and Mikhail (2002), Secglini and Nahcivan (2006), Parsa, Kandiah and Parsa (2011); Fidelis and Manalo (2013) who all reported that family history of breast cancer was not a predictor of practice of BSE. On the contrary however, Rosvold, Hjataker, Bjertness and Lund (2001), Okobia, Bunker, Okonofua and Osime (2010); Omotara, Yahya, Amodu and Bimba (2012) found that those who practised BSE, did so because one of their family members had suffered from breast cancer. This finding is also

in agreement with those obtained by Ertem and Gocer (2009) and Gwarzo et al (2009) that most physicians and nurses with family history of breast cancer performed BSE and that the practice of BSE was higher in such families.

The finding with respect to the relationship between practice of BSE and course of study revealed a significant relationship, thus corroborating the results obtained by Bassey, Irurhe, Olowoyeye, Adeyomoye and Onajole (2011) who found that majority of health care service providers and nursing students claimed they carried out BSE regularly. This finding was however, at variance with those obtained by Cavdar, Akyolcu, Ozbas, Oztekin, Ayoglu, and Akyuz (2007) who reported that 28% of nurses and 32% of the doctors that responded to the survey did not perform BSE. This was further corroborated by Agboola et al (2009) and Doshi, Reddy, Kulkani, and Karunakar (2012). The present study also revealed the existence of an inverse relationship between course of study and practice of BSE. The implication of this is that those in non-health related courses tended to practise BSE more than those in health-related courses. This finding seems to defy any logical explanation.

With regards to the relationship between practice of BSE and type of tertiary institution enrolled in, our results show that there is a positive relationship between practice of BSE and type of institution. It further reveals that female students in universities practise BSE more than their counterparts in polytechnics and colleges of education. This assertion however, could not be corroborated as there was no known previous research work, known to the researcher that investigated the relevance of this variable in accounting for the practice of BSE. Evidence from this study shows too the existence of a significant relationship between practice of BSE and knowledge of BSE. In comparison, Bloom, Grazier, Hodge and Hayes (1991), Champion and Menon (1997) and Ashing-Giwa (1999) found that women were more likely to practise BSE when they are knowledgeable about breast cancer and BSE. On the contrary, however, Chavez, Hubbel, McMullin, Martinez, and Mishra (1995) asserted that knowledge of BSE does not always translate into practice of BSE. In support of this were Danigeles, Roberson and Worden, (1995); Gwarzo et al (2009) who reported the existence of a wide gap between knowledge of BSE and practice of BSE, as only 2% of their respondents practised BSE whereas 25% had knowledge of BSE. In the light of these conflicting research findings, it is not clear under what circumstances knowledge of BSE can translate to practice of BSE.

## 6. Conclusion and Recommendations

This study revealed a high level of practice of BSE among female students of tertiary institution in Edo state. The model passed the test of overall significance at all levels. Therefore the variables in the specification can, in the light of the empirical findings be considered to be good predictors of practice of BSE among female students in tertiary institutions in Edo state. In the light of the findings above, it is recommended that female students and women generally, should be encouraged through radio/television jingles and health talks to continue their practice of BSE. The campaign should be targeted at all women irrespective of parental educational background and family history of breast cancer. Finally, researchers on the subject should seek to ascertain the circumstances in which knowledge of BSE translates into practice of BSE, and conversely, when knowledge of BSE does not translate into practice of BSE.

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