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**Original Research Article**

# The prevalence of practicing breast self-examination and knowledge of breast cancer disease among women attending secondary health facility

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## ABSTRACT

**Background:** Early diagnosis has been shown to improve the prognosis of breast cancer, hence breast self-examination (BSE) as a screening method may have its benefits. The aim of the present study is to determine the prevalence of BSE practice, the correctness of the practice steps and the knowledge of breast cancer disease among women attending secondary health facility.
**Methods:** The study was a descriptive study among women attending antenatal care and immunization clinics at State Specialist Hospital, Ikere-Ekiti between October and December 2015. A total of 238 women seen during the period and who consented to participate in the study were included. Structured self-administered questionnaire was used and data obtained was analyzed using SPSS version 20. Level of significance was set at $P<0.05$.
**Results:** Of 238 respondents, 94.2% were between 20 and 39 years and mostly married (86.1%). Overall, 56.7% were aware of BSE mainly through health workers (44.4%) and information media (30.4%). A little above half (55.6%) practiced BSE and 24% could be adjudged to have good practice. Performing BSE was significantly related to respondents' level of education ($p=0.001$) and marital status ($p=0.032$). There was high awareness (84%) of breast cancer but the vast majority (87%) had poor knowledge of breast cancer symptoms and signs.
**Conclusions:** This study revealed poor quality of BSE practice and poor knowledge of breast cancer symptoms among our women despite good awareness. There is need for more health education to improve the quality of BSE practice and knowledge of breast cancer disease for early detection and treatment.

**Keywords:** Breast cancer knowledge, Breast self-examination, Secondary health facility

## INTRODUCTION

The rising incidence of breast cancer and the increasing mortality from the disease are major health problems in both developing and developed countries.[1] The worldwide incidence of breast cancer has increased from 720,000 cases per year in 1985 to 1,000,000 new cases in the year 2000. About 32% of all cancer cases and 18% of all cancer deaths in women are reportedly due to breast cancer.[2] There has been substantial increase in incidence of breast cancer in Nigeria in recent times. Jedy-Agba et al reported an increase in the incidence of breast cancer from 33.6 per 100,000 in 1992 to 52.0 and 64.6 per 100,000 in 2012 in Ibadan and Abuja cities of Nigeria.[3] Other studies have shown breast cancer as the leading malignancy among women having overtaken cervical

cancer and is characterized by younger age distribution, more advanced stage of the disease and high mortality.[4,5] Late presentation is the hallmark of the disease in Nigeria and other developing countries. More than 70% of Nigerian women present with advanced stages of breast cancer at which time they hardly benefit from any form of therapy aside palliative care. The delayed presentation accounts for less than 10% five-year survival rate in Nigeria contrary to over 70% in western Europe and north America where more patients are diagnosed at earlier stage.[6-8]

The recommended screening methods for early detection of breast cancer are: monthly breast self-examination (BSE), clinical breast examination (CBE) and mammography. These screening modalities exist in Nigeria but to varying degrees. BSE is the only readily available option to women living in rural areas where there are no health facilities or doctors while mammography which is a relatively new screening method in the country is only available in the cities and many cannot access it for lack of affordability. Although the latter has been shown to reduce the incidence rate of advanced disease and breast cancer mortality.[9]

Screening mammography is considered to be expensive, not easily available and requires skilled expertise before its implementation. Apart from these limitations which are more common in low and middle-income countries, the relative risk reduction in mortality as shown in meta-analyses is about 20% to 35% in women aged 50 to 69 years and slightly less in women aged 40 to 49 years who had screening mammography compared to those who were not screened with mammography.[9,10]

Although a more recent study by Miller et al, showed that annual mammograms in women aged 40 to 59 years do not offer any reduction in mortality from breast cancer beyond that achieved with physical examination or usual care in the community.[11]

Clinical breast examination (CBE), which is examination of the breasts by health care professionals, is simple and less costly. Although the issue of CBE for breast cancer screening still remains controversial, it is particularly of value when there is prompt reporting of breast symptoms at health care facilities. There remains a role for the CBE in the care of women who present with breast complaints.[12]

In contrary to mammography and CBE, which require specialized equipment, expertise and hospital visits, BSE is inexpensive and is carried out by women themselves to detect any changes or abnormalities in the breast. Although, there are still conflict of opinions about the efficacy and effectiveness of BSE as a screening tool.[13-14]

Several studies have established that women who correctly practice BSE are more likely to detect breast cancer at early stage of its development.[15,16]

It is with this background that this study was carried out to determine the prevalence of practicing BSE, the correctness of the practice steps and the knowledge of breast cancer disease among women attending antenatal care and immunization clinic at State Specialist Hospital, Ikere-Ekiti.

## METHODS

Present study was a descriptive cross-sectional study.

### *Study population*

The study population consisted of 238 women who attended antenatal care and immunization clinic at State Specialist Hospital, Ikere-Ekiti in Ekiti State between October and December 2015 and who volunteered for the study. The hospital is a government-owned secondary healthcare facility established in 1970 as a district hospital, but was later upgraded to a SSH in 2001 as one of the three specialist hospitals located each in the three senatorial districts of the state. It is an 80-bed hospital and serves as a referral center for several private health institutions, maternity homes and primary health centres in the district.

### *Data collection*

After the objective of the study had been duly explained to all the women and their written consent gained, a structured pretexted self-administered questionnaire was given to the willing participants in their first hospital visit. The three parts of the questionnaire, which included their relevant socio-demographic variables, practice of BSE with the steps involved and the knowledge of breast cancer, were explained to the women before they started filling the questionnaire. Most of the questions were designed to elicit "yes", "no" or "don't know" answers apart from the socio-demographic section. The participants completed the questionnaires themselves. However, those who needed assistance in some areas or were illiterates were assisted by the medical officers in the filling of the questionnaires.

There were 12 steps under BSE practice (Al-Azmy et al) and 10 symptoms and signs of breast cancer as described below.[17]

### *BSE steps*

- Examining breasts at end of the menstrual period
- Looking at breasts in mirror with arms by the sides
- Looking at breasts in mirror with arms raised over head
- Looking at breasts in mirror with hands on thigh
- When looking at breast in mirror, looking for swelling, dimpling of skin, or changes in nipple
- Examining breasts while lying down, place a towel or pillow under shoulder before examining breast on that side

- Examining breasts while lying down, place hand above head before examining breasts on that side
- Use right hand to examine left breast and left hand to examine right breast
- Examining one breast at a time
- Examining breasts in a circular, clockwise motion moving from outside in
- When examining breast, feel for lumps, hard knots, or thickening
- Squeezing the nipple of each breast to look for discharge.

***Symptoms/signs***

- Painless breast mass
- Painful breast mass
- Recent onset nipple retraction
- Bloody nipple discharge
- Dimpling of breast skin
- Abnormal breast enlargement
- Asymmetric sagging of breast
- Enlargement of neighboring lymph nodes
- Abnormal arm swelling
- Nipple/ breast wounds.

Each correct step or symptom was given a score of 1 while 'no' and 'I don't know' were scored 0. The maximum score obtainable under BSE steps and symptoms/signs was 12 and 10 respectively. The respondents' performances in each were categorized as follows:

- Poor when the total score was 0-3
- Fair when the total score was 4-5
- Good when the total score was ≥6.

***Data analysis***

The data were analyzed using the statistical package for the social sciences (SPSS, version 20; SPSS Inc., Chicago, Illinois, USA) software. Chi square test was used to test for association. P <0.05 was considered significant.

## RESULTS

A total number of 238 women who attended antenatal care and immunization clinic participated in this study. The socio-demographic characteristics of the study population are illustrated in Table 1.

Four (1.7%) of the respondents were adolescents while 127 (53.4%) and 97 (40.8%) were in the age groups of 20-29 and 30-39 years respectively. Majority of participants (86.1%) were married while the rest were either single (no formal marriage), divorced or separated. Majority of the people 214 (89.9%) had formal education.

**Table 1: Socio-demographic characteristics of respondents.**

| Variable N=238 | Frequency | Percent |
|---|---|---|
| **Age group** | | |
| <20 years | 4 | 1.7 |
| 20-29 years | 127 | 53.4 |
| 30-39 years | 97 | 40.8 |
| 40-49 years | 10 | 4.2 |
| **Marital status** | | |
| Married | 205 | 86.1 |
| Others | 33 | 13.9 |
| **Religion** | | |
| Christianity | 219 | 92.0 |
| Islam | 19 | 8.0 |
| **Educational level** | | |
| None | 24 | 10.1 |
| Primary | 16 | 6.7 |
| Secondary | 68 | 28.6 |
| Tertiary | 130 | 54.6 |
| **Occupational status** | | |
| Non-employed | 48 | 20.2 |
| Employed | 190 | 79.8 |
| **Number of children** | | |
| 0 | 77 | 32.4 |
| 1 | 58 | 24.4 |
| 2 | 55 | 23.1 |
| 3 | 24 | 10.1 |
| 4 | 19 | 8.0 |
| 5 | 5 | 2.1 |

One hundred and thirty-five (56.7%) respondents were aware of BSE while 103 (43.3%) have not heard about it before. The leading source of information about BSE was health workers, 60 (44.4%); followed by information through media, 41 (30.4%). Nineteen (14.1%) women heard it from friends and neighbors while the rest 15 (11.1%) heard it from multiple sources.

The practice of BSE among the women is shown in Figure 1.

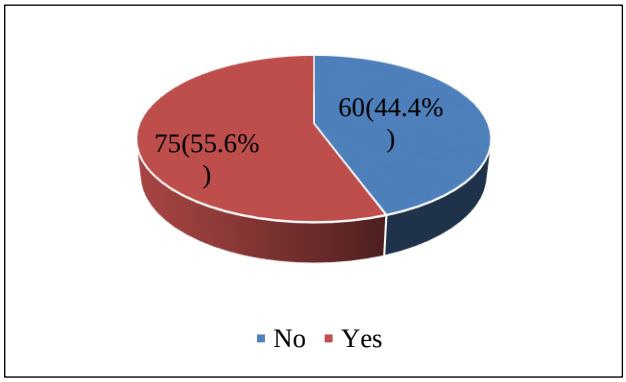


**Figure 1: Practice of BSE.**

Out of those that were aware of BSE, 75 (55.6%) of the respondents were practicing BSE while the rest were not. However, most of the respondents 168 (70.6%) agreed that monthly BSE is advisable and could be beneficial, 51 (21.4%) were indifferent and 19 (8.0%) disagreed that breast self-examination could be of any value. The association between awareness of BSE and the practice of breast self-examination is shown in Table 2.

**Table 2: Association between awareness of BSE and the practice of breast self-examination.**

| Awareness of BSE | Perform BSE | | Total | Statistical indices |
|---|---|---|---|---|
| | No | Yes | | |
| No | 96 (93.2%) | 7 (6.8%) | 103 (100.0%) | $\chi^2$= 51.400 |
| Yes | 67 (49.6%) | 68 (50.4%) | 135 (100.0%) | df=1 |
| Total | 163 (68.5%) | 75 (31.5%) | 238 (100.0%) | p =0.000 |

Sixty-eight (50.4%) of those who were aware of BSE practiced it compared to only 7 (6.8%) that practiced it among those who were unaware ($\chi$2=51.400, p =0.000).

The relationships between awareness of BSE and selected socio-demographic characteristics of the respondents are shown in Table 3 while BSE practice and socio-demographics are shown in Table 4.

**Table 3: Awareness of breast self-examination.**

| Variable N=238 | Categories | Awareness of BSE | | Statistical indices |
|---|---|---|---|---|
| | | No | Yes | |
| Number of children | None | 43 (55.8%) | 34 (44.2%) | $\chi^2$=7.327 |
| | At least one | 60 (37.3%) | 101 (62.7%) | p = 0.007 |
| Occupational group | Not employed | 20 (41.7%) | 28 (58.3%) | $\chi^2$= 0.064 |
| | Employed | 83 (43.7%) | 107 (56.3%) | p = 0.801 |
| Educational level | Uneducated | 12 (50.0%) | 12 (50.0%) | $\chi^2$=0.491 |
| | Educated | 91 (42.5%) | 123 (57.5%) | p=0.483 |
| Marital status | Married | 96 (46.8%) | 109 (53.2%) | $\chi^2$= 7.599 |
| | Divorced/separated | 7 (21.2%) | 26 (78.8%) | p = 0.006 |
| Age group | < 30 years | 61 (46.6%) | 70 (53.4%) | $\chi^2$= 1.283 |
| | >30 years | 42 (39.3%) | 65 (60.7%) | p =0.257 |
| Religion | Christianity | 94 (42.9%) | 125 (57.1%) | $\chi^2$= 0.141 |
| | Islam | 9 (47.4%) | 10 (52.6%) | p =0.708 |

**Table 4: Practice of breast self-examination.**

| Variable, N=135 | Categories | Practice of BSE | | Statistical indices |
|---|---|---|---|---|
| | | No | Yes | |
| Number of children | None | 19 (55.9%) | 15 (44.1%) | $\chi^2$=0.711 |
| | At least one | 48 (47.5%) | 53 (52.5%) | p = 0.399 |
| Occupational group | Not employed | 16 (57.1%) | 12 (42.9%) | $\chi^2$=0.798 |
| | Employed | 51 (47.7%) | 56 (52.3%) | p=0.372 |
| Educational level | Uneducated | 11 (91.7%) | 1 (8.3%) | $\chi^2$=11.895 |
| | Educated | 49 (39.8%) | 74 (60.2%) | p=0.001 |
| Marital status | Married | 59 (54.1%) | 50 (45.9%) | $\chi^2$=4.582 |
| | Divorced/separated | 8 (30.8%) | 18 (69.2%) | p=0.032 |
| Age group | <30 years | 35 (50.0%) | 35 (50.0%) | $\chi^2$=0.008 |
| | >30 years | 32 (49.2%) | 33 (50.8%) | p=0.929 |
| Religion | Christianity | 65 (52.0%) | 60 (48.0%) | $\chi^2$=3.793 |
| | Islam | 2 (20.0%) | 8 (80.0%) | p=0.096 |

Only the marital status (p=0.006)) and the parity (p=0.007) of the respondents were significantly associated with awareness and those who were married and parous had more awareness. The educational level (p=0.001) and marital status (p=0.032) were significantly associated with BSE practice. Those who were unmarried, divorced or separated and those with formal education practiced BSE more than the married and uneducated.

The quality of BSE practice vis-à-vis the timing and the correctness of steps involved among those who practiced it showed that 38 (50.7%) had poor practice and 19 (25.3%) fair practice. Only about a quarter 18 (24.0%) of them had good quality of BSE practice.

Out of 238 respondents, 200 (84%) were aware of breast cancer disease while 38 (16%) were unaware. Majority, 107 (53.5%) heard it through information media (radio/television). Other sources of information include: health workers, 42 (21%); friends and neighbors, 23 (11.5%); newspapers and journals, 16 (8%) and multiple sources, 12 (6%). Although their awareness about breast cancer was high, majority (87%) of the respondents had poor knowledge of breast cancer when examined on symptoms and signs of the disease as shown in Figure 2.

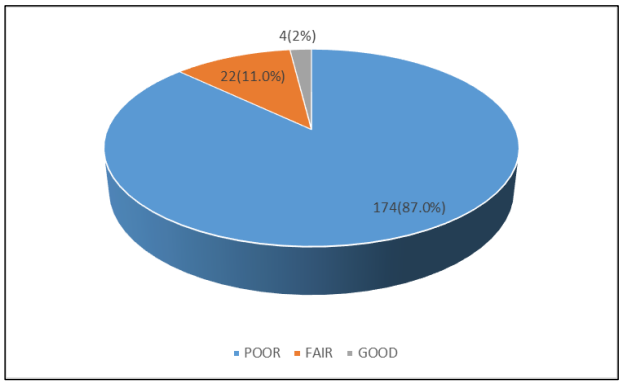


**Figure 2: Knowledge of breast cancer.**

**Table 5: Association between respondents' knowledge of breast cancer and the practice of breast self-examination.**

| Knowledge | Practice of BSE | | Total | Statistical indices |
|---|---|---|---|---|
| | No | Yes | | |
| Poor | 128 | 46 | 174 | $\chi^2$= 30.487<br>df=2<br>p =0.000 |
| | 73.6% | 26.4% | 100.0% | |
| Fair | 5 | 17 | 22 | |
| | 22.7% | 77.3% | 100.0% | |
| Good | 0 | 4 | 4 | |
| | 0.0% | 100.0% | 100.0% | |
| Total | 133 | 67 | 200 | |
| | 66.5% | 33.5% | 100.0% | |

The association between respondents' knowledge of breast cancer disease and the practice of BSE is shown in Table 5. All the respondents (100%) with good knowledge and the majority (77.3%) of those with fair knowledge of breast cancer were practicing BSE. Only (26.4%) of those with poor knowledge were practicing BSE ($\chi^2$=30.487, p =0.000).

## DISCUSSION

Breast self-examination is one of the important screening modalities for early detection of breast tumours especially in resource-poor settings. Although it has not been shown to reduce breast cancer mortality, it is a part of general body awareness in which women are familiar with the appearance of their breasts so that any irregular changes could be recognized and reported early. Its importance cannot be overemphasized, especially when practiced adequately and effectively, in developing countries of Africa where there is limited access to screening mammography because of non-availability and relatively high cost.[18]

The majority (94.2%) of the respondents in this study were between 20 and 39 years. This was close to 96% reported by Onwere et al, in a similar study.[19] These are the women in the reproductive age group mostly seen in the antenatal and children immunization clinics. This population group is therefore a target for breast self-examination awareness for them to be able to discover and report appropriately any perceived abnormal changes in their breasts. Studies on breast cancer in Nigeria have shown that the disease occurs in women of younger age group than what obtains in Caucasian women in which the average age is 55 years.[7,8]

Self-breast examination awareness level varied among different populations in Nigeria. In this study, only slightly more than half of the respondents (56.7%) were aware of BSE as they have heard about it before.

The level of awareness was far lower than what was reported in Ilorin and Lagos where 95.6% and 92% had heard about it respectively.[16,20] Bassey et al, also reported 97.3% in South-eastern Nigeria.[21] The reasons for the wide disparity in the awareness rates of the present study and these previous ones may not be far-fetched. The present study was carried out in the rural setting unlike the previous studies that were done in urban areas (cities) of Nigeria where people are better informed. Also, this study involved people with different levels of education, some with no formal education, unlike that of Kayode and Bassey et al studies which were more selective and involved secondary school teachers with higher educational status.[16,21] However, lower rates 31.7% and 38.9%, have also been reported among traders by Balogun et al and Obaji et al respectively.[22,23]

Most of the respondents obtained their first BSE information from the health workers, followed by mass media and friends. Fifteen (11.1%) of the respondents heard it from multiple sources. This is at variance with what kayode et al reported where the least source of information was through health personnel.[16] Since the majority of the respondents at the immunization clinic had attended antenatal care where health information would have been disseminated, this may account for the highest information from health workers. The information through health workers could also have accounted for the statistically significant difference (p=0.007) between the parous and non-parous as regards BSE awareness in Table 3.

Despite this level of BSE awareness, just a little above half of the participants (55.6%) were practicing it. This rate was higher than 34.9% reported by Okobia et al, but far below the practicing prevalence of 78% reported by Onwere et al in southeastern Nigeria and 89% by Odusanya and Tayo among Nigerian nurses in Lagos.[18,19,24] The professional background of the latter respondents (nurses) could have accounted for the higher prevalence. However, the quality of BSE practice was reportedly poor even in these aforementioned studies. The rate in the current study is also higher than 17.4% and 21% reported from similar studies conducted on university students in Yemen and Kuwaiti female teachers respectively in spite of their educational backgrounds.[25,26] It is still a subject of further discussions why women with high educational background expected to be well informed are not practicing BSE.

About half (50.7%) of the respondents who practiced BSE had poor practice when rated on the timing of the procedure, frequency and the correctness of the steps involved. Only about one-quarter (24%) of them had good quality of BSE practice while the rest (25.3%) were considered to be fair. Since the respondents mostly obtained information on breast self-examination from health workers, there is a need to expand on that information base and educate more women about its value and what BSE entails vis-a vis the timing, frequency and steps. This is the only way it can be practiced effectively.

Different conflicting reports about the relationships between the socio-demographic variables and BSE practice have been documented.[18,25,27] Statistical analysis in the current study showed that performing BSE was significantly related to the educational level and the marital status with the educated people and the unmarried more likely to practice BSE. Similar to this study, other investigators have reported that respondents' educational level was a significant determinant of BSE practice.[18,19] However, the study by Al-Azmy et al, did not show a significant relationship between the practice of BSE and the level of education.[17] The reason why the married were not practicing breast self-examination may not be unconnected with more family responsibilities and may be a subject for future studies. Other factors like age, parity, occupational status and religion did not significantly affect the practice.

Compared to BSE (56.7%), more respondents were better informed about breast cancer (84%) and they mostly obtained their information from radio/television (53.5%) followed by health workers (21%). This further emphasizes the importance of mass media and health workers in increasing the level of awareness of people concerning this deadly disease in the developing countries. Despite this awareness, it is disturbing that the vast majority of the people (87%) still have poor knowledge of the breast cancer symptoms and signs. This means it is not just enough to sensitize the people about the deadly nature of breast cancer but equally important is making them know the usual presentations of the disease.

Higher knowledge score of breast cancer symptoms and signs was a significant determinant of BSE practice in the study. Though quite few, all those with good knowledge 4 (100%) and majority with fair knowledge (77.3%) practiced BSE contrary to about a quarter who practiced it in those with low knowledge of the symptoms (Table 5).

## CONCLUSION

This study has revealed the low level of BSE practice and the poor knowledge of breast cancer disease among the studied women. There is a need to initiate more health education programs to improve women's practice of BSE vis-à-vis timing, frequency and procedure steps and also improve their knowledge of breast cancer disease. Furthermore, health professionals should endeavor to educate women on "breast awareness" during their hospital visits even for other health problems.

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