ORIGINAL PAPER

Assessment of the Knowledge and Practice of Breast Self Examination among Female Cleaners in Obafemi Awolowo University Ile Ife, Nigeria

Oginni Monisola Omoyeni, RN, RM, RPHN, MSc
Lecturer, Department of Nursing Science, College of Health Sciences, Obafemi Awolowo University, Nigeria

Popoola Eunice Oluwafeyikemi, RN, RM, RPHN
Nursing Officer, Comprehensive Health Centre, Modakeke, Osun State, Nigeria

Omolola Oladunni Irinoye, RN, RM, RPHN, MSc. PhD
Associate Professor Department of Nursing Science, College of Health Sciences, Obafemi Awolowo University, Nigeria

Olaogun Adenike O. RN, RM, RPHN, MSc.PhD
Senior Lecturer, Department of Nursing Science, College of Health Sciences, Obafemi Awolowo University, Nigeria

Corespondence: Oginni Monisola Omoyeni, Lecturer Department of Nursing Science, College of Health Sciences, Obafemi Awolowo University, Ile Ife, Nigeria. E-mail: nursemoj@yahoo.co.uk

Abstract

Background: The breast is a very important part of a woman's body. Breast problems and diseases like carcinoma bring distress to women and most women would do anything in their capacity to prevent its occurrence. Breast Self-Examination (BSE) is an important and cheap method for early diagnosis of breast cancer. The understanding of women's belief and behaviour towards this method is indispensable to enhancing early detection, prompt diagnosis and management of the breast disease to increase the survival rate.

Aims : to assess the knowledge, practice and attitude of female cleaners in Obafemi Awolowo University, Nigeria towards Breast Self-examination as a means of early detection of breast anomaly.

Methodology: The instrument used for data collection was a self- structured, validated, self-administered and interviewer administered questionnaire. The data collected were sorted and analysed using statistical package for science solutions, the results were presented in tables and figures and the hypotheses were tested with Chi-square.

Results: This revealed that 51% and 25% of the population respectively had average and excellent knowledge of Breast Self-examination and majority of them had a positive attitude towards it. However, only 10.7% and 3.1% of those with positive attitude respectively demonstrated fair and good knowledge of its practice in search for breast lumps.

Conclusion: The study showed more than half of the study population had an average knowledge of Breast Self-Examination but quite few practiced it well. This calls for an attention to women's reproductive health care and a need for dissemination of information through teaching and demonstration to educate women on Breast Self-examination for early detection and prevention of breast problems especially breast carcinomas.

Key Words: Assessment, Breast, Knowledge, Practice, Self-examination

Introduction

The breast is an accessory organ of reproduction in females and it is perceived by the society as an evidence of feminity, womanhood and motherhood. Women breasts are associated with sexual attractiveness, sexual stimulation and feeding of babies.

Female gender is usually faced with many health problems among which is breast cancer. Tennessee Comprehensive Center Control Coalition (TCCCC) (2007) reported that the incidence of breast cancer has been increasing steadily from an incidence of 1:20 in 1960 to 1:8 in women today. This high incidence necessitates that breast lumps are detected early enough so as to reduce its mortality rate. The ways by which breast lumps are detected and diagnosed include the following:

1. **Mammography**: This is the process of using low-dose amplitude-X-rays to examine the human breasts. The goal of mammography is the early detection of breast cancer, typically through detection of characteristic masses and/or micro calcifications. Mammography is believed to reduce mortality from breast cancer.

2. **Clinical Breast Examination** (CBE): is the physical examination of the breasts done by health professionals to find lumps or changes in the breasts that may mean that a serious problem such as breast cancer is present and to check for other breast problems that may need more treatment, such as mastitis or a fibroadenoma.

3. **Breast Self-Examination** (BSE): is the examination performed by individuals to help detect any abnormality within the breasts. It involves visually and manually inspecting the breasts for lumps, bumps and changes in the skin and nipples of the breasts. It should be performed monthly after the age of 20 years; preferably a few days after an individual's menstrual period when the breasts are least swollen.

Breast Self-Examination (BSE) entails a process whereby women examine their breasts regularly to detect any abnormal swelling or lumps in order to seek prompt medical attention. Breast self examination is a useful tool for the early detection of breast cancer. This is very important because prognosis is directly associated with the stage at which the tumour is detected and how localized the lesion is. Early diagnosis usually results in treatment before metastasis of the cancerous cells and signifies a better outcome of management. It has been estimated that an effective screening programme may reduce mortality in the screening age group by up to 25% (Blamey, Wilson & Patrick, 2000).

It is well documented that early presentation of breast cancer improves outcome (Hermon & Beral, 1995; DoH, 2000a). Research regarding prevention and early detection is critically important in the reduction of mortality, as 70% of women presenting with a breast cancer have no identifiable risk factors (Chapman & Goodman, 2000).

Delay in seeking treatment for breast cancer is a barrier to the early diagnosis and management of the disease, resulting in a poorer prognosis. This was submitted by Ghazali et al., (2013) in a study estimating the prevalence of delayed presentation for breast cancer and possible influential socio-demographic factors among patients diagnosed with primary breast cancer at the Radiotherapy and Oncology Clinic in Kuala Lumpur Hospital. Delayed presentation for breast cancer symptoms among the women is high. Marital status and breast self-examination were found to play major roles in treatment-seeking for breast cancer symptoms.

Unfortunately, despite the benefits of regular BSE, few women actually and regularly practice it. In fact, a majority do not even know the correct ways to do a BSE (Stamler, Thomas, & Lafreniere, 2000; Al-Abadi, 2001). A study on cancer awareness in Nigeria showed that only 32% (out of 460 respondents) knew that breast lump was a warning sign of cancer, 58.5% were not aware of the warning signs, only 9.8% knew of methods for detecting cancer and 50% did not know that cancer was curable when detected early according to Uche (1999). In 2002, Haji-Mahmoodi et al. found out

that of 410 women studied in Tehran, only 63% claimed that they knew how to perform BSE.

In Abakaliki, South Eastern part of Nigeria, it was found that among 238 market women only 38.9% have heard of BSE, and just 23.9% have been taught how to perform BSE, while only one person (0.4%) knew the correct frequency of BSE, and also did it regularly. (Obaji et al., 2013). It could be concluded then that there is a low level of awareness and a poor practice of BSE among women. There is therefore a need to study more on the level of awareness and attitude of women towards BSE and how it influences their practice. This will be useful in developing strategies to improve their practice and a resultant decrease in morbidity and mortality arising from breast diseases.

Research Questions, Objectives of the Study.

The study will be answering the following questions:

i. What is the knowledge level of breast self-examination (BSE) among female cleaners in Obafemi Awolowo University (OAU), Nigeria?

ii. What is the attitude of female cleaners in O.A.U. towards BSE?

iii. How do the female cleaners in OAU practice BSE?

Methods

Setting

This study employed a descriptive survey to assess the knowledge and practice of Breast Self Examination among cleaners in Obafemi Awolowo University, Ile Ife, Nigeria. This is a Federal Government-owned University in the south-western part of the country. It is a big university where students from various parts of the world come to study. The sanitation of the university offices and environment is one of services that have been contracted out to private contractors. These contractors employed temporary workers or service workers of the university and among them are the cleaners to be studied. These cleaners are employed by various companies, these companies work together with the institution on contract basis. The total number of companies is 21 and each has various numbers of workforces ranging from 9 to 42.

The study employed thumb's rule (Gerald van & Steven, 1998) to calculate the number of respondents to participate among the female cleaners. There are 468 female cleaners in the institution and using thumb's rule will mean using 30% of the total population which equals to 140 people. Therefore, 140 participants who showed interest in participating in the study and who gave their consent had the questionnaires administered to them.

Research Instrument

A semi-structured questionnaire which was developed through the research objectives and literature review was intervier-administered to the respondents. It consists of 6 sections named Sections A-F. Section A contained 10 questions items on respondents' socio demographic data; Section B contained 7 questions which assessed their knowledge of breast cancer.

A correctly answered question attracts '3' marks, I don't know attracts '2' and an incorrect answer attracts'1'. The maximum obtainable score is 21 while the least obtainable is 7. Therefore, a score of 16-21 (equaling 70% -100%) is taken as excellent knowledge of breast cancer, average knowledge of breast cancer will have a score of 11-14 (denoting 50-69%), while poor knowledge of breast cancer will have a score of 0-11 (less than 50%).

Section C had 4 different questions on the knowledge of breast self examination. A correctly answered question attracts '3', I don't know attracts '2' and incorrect answer attracts'1'. The maximum obtainable score is 12 and the least is 4. Therefore, women with excellent knowledge of breast self examination will have a score of 9-12. An average knowledge of breast self examination will have a score of between 6-8 while poor knowledge of breast self examination will have a score of 0-5.

In Section D, 5 different questions were asked about their attitude towards BSE. A positive attitude attracts '3', indifferent attitude attracts '2' and negative attitude attracts '1'. The maximum obtainable score being 15 and least being 5, therefore, women with positive attitude to BSE will have a total score of 11-15; indifferent attitude will have a score between 7-10, while negative attitude will be a score of less than 7. In Section E, 5 questions were designed to seek information about respondents' practice of BSE and Section F explored the factors that can influence respondents' BSE practice. Data gathered were coded and analysed using the Statistical Package for Services Solutions (SPSS).

Ethical Consideration

The overall Head of the department of the cleaners in Obafemi Awolowo University gave official permission to use the setting for the research. Through the sub-heads of each cleaning firm, meetings were organized with the female cleaners. At that meeting, adequate information was given about the study and their informed consent was gained. Maximum cooperation was enjoyed among the cleaners.

Results

Socio-demographic data

The age distribution of the respondents showed most were between 40-49 years (42%), followed by the age range of 50-59years (39%), those between 30-39 years were 11%; those above 60 years were 5% while 5% of them did not specify their ages either because they did not know their actual ages or because of cultural reasons. Most of them (96%) of them were married and majority of them (72%) have been married for 20years or more.

Majority (86%) were Christians, 13% are Muslims while 1% did not specify their religion. Concerning their tribe, 89% belong to the Yoruba tribe, 7% were Igbo, 3% were from other tribes while 1% did not specify their tribes. Nearly half (44%) had only primary education, 38% had secondary education, 4% had a diploma education, only 1% had first degree, 10% had no formal education at all, while 4% did not specify their educational level.

Higher percentage (58%) of the women was married in monogamous settings, 42% were in polygamous settings. About 3% of them had one child, 8% had two children, 19% had 3 children, 28% have four children while 38% have five or more children and 4% of them did not specify. (See table 1)

Knowledge of breast cancer

The distribution of the respondents based on their knowledge of breast cancer revealed that less than 1% of the respondents had poor knowledge, 73% had average knowledge, and only 26% had excellent knowledge with the maximum knowledge level being 21 and the minimum score being 7. The mean value was 14.50 while the Standard Deviation was 2.35**.** Table 2 shows respondents' knowledge of risk factors for breast cancer. (See tables 2a & 2b)

Knowledge of Breast Self-Examination (BSE)

The distribution of the respondents based on their knowledge of breast self-examination revealed that 24% displayed poor knowledge of BSE; half of the population had an average knowledge, while only 25% had an excellent knowledge. The overall mean score was 8.04; Standard Deviation was 1.9 out of a minimum score of 4 and a maximum of 12. (See tables 3a & 3b)

Attitudes to BSE

It can be inferred from this study that only 2% had negative attitude towards BSE, 15% were indifferent while 78% had positive attitude.(See table 4)

Practice of BSE

Majority (69%) of the women claimed to have practiced BSE. Out of these, 18% practiced it monthly, 44% practiced rarely, 36% claimed they did it every day and 1% did not respond to the question. As regards what time these women usually practiced their BSE, 19% of them observed it a week after menstrual period, 12% observed it

Table 1: Distribution of respondents by their social demographic characteristics

Variables	Frequency	Percentage
AGE		
30 – 39	16	11%
40 – 49	59	42%
50 – 59	55	39%
60 ABOVE	5	4%
Unspecified	5	4%
Marital Status		
Married	134	96%
Not Married	5	4%
Unspecified	1	1%
Religion		
Christianity	121	86%
Islamic	18	13%
Traditional	0	0%
Others	0	0%
Unspecified	1	1%
Ethnicity		
Yoruba	125	89%
Igbo	9	7%
Hausa	0	0%
Others	4	3%
Unspecified	2	1%
Formal Educational Level		
None	14	10%
Primary	61	44%
Secondary	53	38%
Diploma	6	4%
First Degree	1	1%
Unspecified	5	4%
Family Type		
Monogamous	81	58%
Polygamous	59	42%
Number Of Children		
1	4	3%
2	11	8%
3	27	19%
4	39	28%
5 And More	53	38%
Unspecified	6	4%

Table 2a: Knowledge of breast cancer

Mean	Standard Deviation	Minimum score for the Level of Knowledge	Maximum score for the Level of Knowledge
14.50	2.35	9	21

Table 2b: Distribution of respondents' by their level of knowledge of breast cancer.

	Score	**Frequency**	**%**
Poor	0-≤ 9	1	0.7%
Average	10-15	102	73%
Excellent	16-21	36	26%
Non Respondent	0	1	0.7%
Total		140	100

Table 3a: Knowledge of breast self-examination

Mean	Standard Deviation	Minimum score for the Level of Knowledge	Maximum score for the Level of Knowledge
8.04	1.903	4	12

Table 3b: Distribution of respondents' based on their level of knowledge of breast self-examination.

	Score	**Frequency**	**%**
Poor	0-6	33	24%
Average	7-8	71	51%
Excellent	9-12	35	25%
Non Respondent	0	1	1%
Total		140	100

Table 4: Distribution of respondents' based on their attitude to BSE

SECTION D			
	Score	**Frequency**	**%**
Negative Attitude	0-6	3	2%
Indiferent	7-11	21	15%
Positive Attitude	12-15	109	78%
No Response	0	7	5%
		140	100

Table 5: Distribution of respondents based on their practice of BSE

Variables	Frequency	%
Practise Of Bse		
Yes	97	69%
No	39	28%
Unspecified	4	3%
Total	140	100
Frequency Of Practice		
Monthly	17	17.1%
Once In Every 2 Mth	5	5.3%
Rarely	29	29%
Every Day	36	37%
No Specific Time	10	10%
Total	97	100
Time Of Practice		
A Week After Menstration	18	19%
During Menstration	12	12%
Before Menstration	8	8%
Other Times	58	60%
No Response	1	1%
Total	97	100
Part Of The Hand Used		
Fore Arm	2	2%
Palm	17	18%
Any Part Of Finger	24	25%
Pads Of 3-4 Fingers	45	47%
No Response	9	8%
Total	97	100
Pattern Of Search		
Vertical Strip	19	20%
Wedge Pattern	16	16%
Circular Pattern	26	28%
All Of The Above	6	6%
No Response	30	30%
Total	97	100

Table 6a: Cross tabulation of Knowledge of Breast Self-examination and Knowledge of Breast Cancer

Knowledge of breast self-examination	Knowledge of breast cancer			
	Poor	Average	Excellent	Total
Poor	1 (0.7%)	24 (17.3%)	8 (5.8%)	33 (23.7%)
Average	0 (0.0%)	52 (37.4%)	19 (13.7%)	71 (51.1%)
Excellent	0 (0.0%)	26 (18.7%)	9 (6.5%)	35 (23.7%)
Total	1 (0.7%)	102 (73.4%)	36 (25.9%)	139 (100.0%)
$\chi^2 = 3.27$	df (4)	p-value = 0.51		

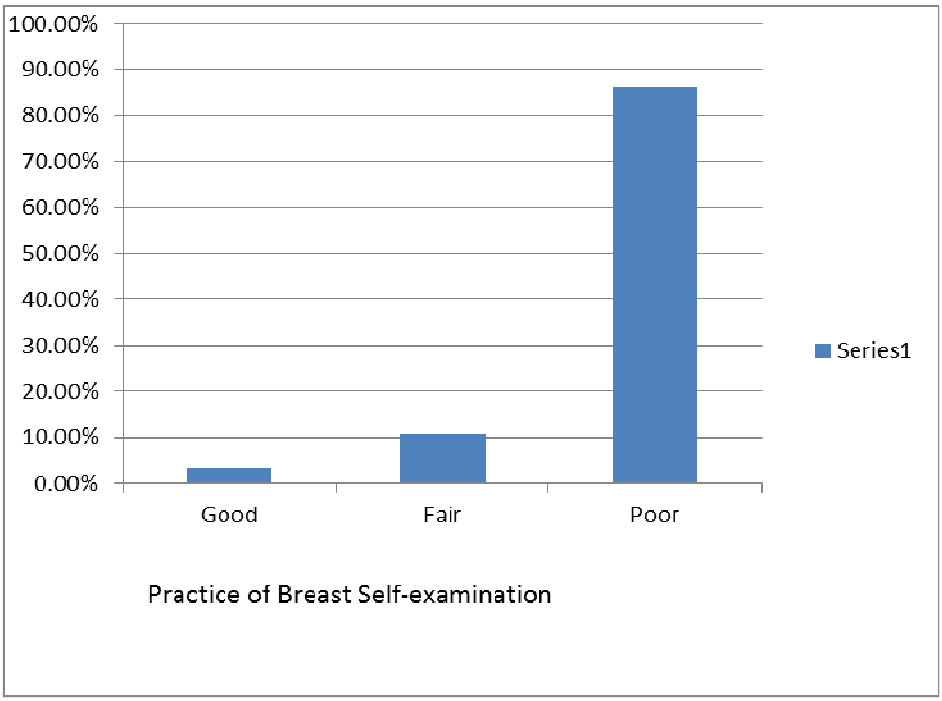
Table 6b: Cross tabulation of Practice of Breast Self-Examination and Knowledge of Breast Self-Examination

Practice of breast self-examination	Knowledge of breast self-examination			
	Poor	Average	Excellent	Total
Poor	31 (22.5%)	63 (45.7%)	25 (18.1%)	120 (87.0%)
Fair	2 (1.4%)	6 (4.3%)	6 (4.3%)	14 (10.1%)
Good	0 (0.0%)	1 (0.7%)	3 (2.2%)	4 (2.9%)
Total	33 (23.9%)	70 (50.7%)	34 (24.6%)	138 (100.0%)
$\chi^2 = 9.31$	df (4)	p-value = 0.16		

Table 6c: Cross tabulation of the Attitude to Breast self-examination and their practice of Breast self-examination

Practice of breast self-examination	Attitude to breast self-examination			
	Negative	Indifferent	Positive	Total
Poor	3 (2.3%)	19 (14.5%)	91 (69.5%)	113 (86.3%)
Fair	0 (0.0%)	2 (1.5%)	12 (9.2%)	14 (10.7%)
Good	0 (0.0%)	0 (0.0%)	4 (3.1%)	4 (3.1%)
Total	3 (2.3%)	21 (16.0%)	107 (81.7%)	131 (100.0%)
$\chi^2 = 1.40$	df (4)	p-value = 0.84		

Figure 1: Distribution of respondents based on their practice of Self Brest-examination



during menstrual period, 8% would do it before menstrual period; 60% did at any other time while 1% did not specify. A relatively good number (47%) of them used pads of 3-4 of their fingers in performing the examination, 25% used any part of their fingers, 18% said they used their palm, 8% did not specify any part of the hand they used while 2% said they used their forearm. The pattern of search for breast lump; 20% claimed using the vertical strip pattern, 16% employed wedge pattern, 28% used a circular pattern, only 6% used all the above mentioned pattern of search while 30% did not respond to the question. Table 5 shows the respondents' practice of BSE.

Hypotheses testing (Tables 6a-6c)

The test of the hypotheses for this research work was done using Chi-square to determine whether certain variables were influenced by some other variables among the study population. At a significant p-value $\leq$ 0.05, it was observed that there is no statistically significant relationship between the respondents' knowledge of breast cancer and their knowledge of breast self-examination (χ^2 = 3.27, df= 4, p-value = 0.51). The respondents' knowledge of Breast Self-examination has no statistically significant relationship with their practice of Breast self-examination (χ^2 = 9.31, df = 4, p-value = 0.16).

Also, there existed no statistically significant relationship between the respondents' Attitude to Breast self-examination and their practice of the same ($\chi^2 = 1.40$, df = 4, p-value = 0.84).

Discussion

The results of the study have given an insight to the level of knowledge and the attitude of the female cleaners in Obafemi Awolowo University, Ile-Ife, Nigeria towards the practice of Breast Self-examination (BSE). Even though majority of them displayed a positive attitude towards the practice of BSE, only a few of them demonstrated excellent knowledge on how it is practiced. It is evident that very few among them practiced it regularly, using the correct patterns of search for breast lumps and practiced it at the most appropriate time that is, few days after menstruation.

Globally, breast cancer is the most common malignant neoplasm among women (Leszczynska, Krajewska & Leszczynski, 2004; WHO, 2012), but surprisingly in this study, only 26% have excellent knowledge about breast cancer though majority of them reported they have heard about it before. This is not too far from what Onwere, et al found out in 2009 when he said 97% of females in Aba teaching hospital in Nigeria have heard about breast cancer. Evidence from this study showed that half of the respondents have heard about BSE before which is better than what was discovered among market women in Ibadan, Nigeria, in 2003 where only 37.1% of them were aware of BSE as ssubmitted by Balogun & Owoade in 2005 but in great contrast with what was reported among women in Port Harcourt, southern part of Nigeria, where 85.5% of them have heard about BSE (Jebbin & Adotey, 2004) and also among women in Ilorin, Nigeria, where it was said that 95.6% of the female teachers have heard about BSE (Kayode, Akande & Osagbemi, 2004).

Concerning knowledge about BSE, only 25% had excellent knowledge. This is better than what Khadiga, Dandash & Al-Mohaimeed in 2007 found out among female teachers in Buraidah, Saudi Arabia where only 12% of them had a high or excellent knowledge. About their attitude towards BSE, it is clear from this study that 78% have positive attitude which also is in line with Kayode *et al's* report of 2004 about Ilorin female teachers that 75% of them had a positive attitude towards BSE. The percentage of women who practice BSE from this study is 69% though majority of them did not practice it correctly and regularly.

This supports the findings from Pinto & Fuqua, 1991, that a relatively low percentage of women practice BSE regularly and competently. Gwarzo, Sabitu & Idris' report of 2008 , and Balogun & Owoades' of 2005 also supported fewer people said they practice it on a monthly basis . From this study, only 18% of the total population practiced BSE on a monthly basis though this is a bit better than Haji-Mahmoodi et al.,'s findings of 2002 where only 6% out of 410 women studied in Tehran practice BSE monthly.

It has also been seen from this study that just 19% of those practicing BSE practiced it within a week after their menstrual period, while 60% of them do it at other times. As well, only 6% of those practicing BSE use all the three patterns of search that is available and this suggests that those practicing BSE may not even be able to find any lump in their breast early even when it is present. In the present study, the single greatest factor identified to influence the practice of BSE is that the respondents claimed they did not know how to perform it and this differs from what Persson & Svensson found out in 1997 that age is the only significant predictor for BSE.

It is evident from the test of hypotheses that the respondents' knowledge on breast cancer had no significant relationship on their knowledge of Breast Self-examination as only 6.5% of them demonstrated excellent knowledge of breast cancer and BSE even though majority have heard about the two before (table 6b).

It could also be seen from table 6b that respondents' knowledge of Breast Self-examination has no statistically significant relationship with their practice of Breast self-examination as only 2.2% (3 people) of the total

population had excellent knowledge of BSE with good practice of same while almost half of the female cleaners (45.7%) had average knowledge of BSE but poor practice of same. The conclusions of the third hypothesis' testing in table 6b is that there existed no statistically significant relationship between the respondents' Attitude to Breast self-examination and their practice of the same because on a general note, the cleaners had positive attitude to BSE but lacked good practice as 69.5% had positive attitude but poor practice. Only 3.1% had positive attitude with good practice of BSE**.**

Conclusion

This study has shown that larger percentage of the respondents lacked adequate knowledge about breast cancer and many of them were either not aware of BSE or did not have correct knowledge of it. Moreover, those who knew about BSE did not practice it correctly. It is to this effect that these following recommendations are made.

I. **Health Education:** The female folk should be health educated and enlightened on breast cancer and the usefulness of BSE as a primary means of prevention. Since it has been deduced from this study that the knowledge of BSE among the respondents was not good enough, information and education should be provided to improve their knowledge through the use of leaflets, handbills, posters and the media. With this, they will be empowered to identify deviation from the normal in their breasts, know when to do BSE and even be sure of what they expect to find out. Teaching sessions may be organized by nurses for the study population during their meetings, through their supervisors or even through their overall head.

II. **Demonstration:** To be able to perform BSE correctly, women need not only be taught what to do and how to do same but must see it done because it involves been able to use the correct skill, pattern of search and even the right part of the hand. Therefore, model of the breast could be used to teach them while they are allowed to practice with the model at the point of been taught to ensure a proper understanding and guidance towards good performance.

III. **Impact Study:** After determining how much the individual knows through a study like this, it will be suggested that further studies should be embarked upon which will entail organisation of health education and demonstration session for a number of times; after which will be followed by another study to assess any improvement in the level of knowledge and practice of BSE. There is also a need to study what factors contribute to the improvement of women's attitude and practice of BSE.

IV. **Advocacy:** Since breast cancer has social and economic implications on individuals, families and even the community at large, nurses may help advocate for people by sensitizing the government on the need to reach people in their own community and teach them on the prevention of breast cancer telling them what should be done; should they find lump in their breasts or should they be diagnosed of breast cancer. There should also be accessible adequate health care services at a very low cost for people with breast cancer since the National Health Insurance Scheme coverage is yet to be accepted by many individuals in Nigeria. This will encourage regular practice of BSE and prompt seek for treatment whenever they detect any abnormality in their breasts.

Acknowledgements

We appreciate Mrs Olowookere Adekemi for her immense contribution, and even for giving me some materials for the study and the permission to use them.

Mr Awosope Femi for helping with data analysis.
Osaze Emokpae for helping with data collection and analysis.

Oluyide Omolara for helping with data collection.
Mr Popoola Elijah Oluwamayowa is appreciated for all round support throughout the period of the research work

References

Al-Abadi, N. (2001). Factors influencing BSE practice among Jordanian nurses. Unpublished master's thesis. Jordan University for Science and Technology, Irbid, Jordan.

Balogun, M.O. & Owoaje, E.T. (2005). Knowledge and Practice of Breast Self-Examination Female Traders in Ibadan, Nigeria. Annals of Ibadan Postgraduate Medicine,Vol. 3(2) page52-56

Blamey, R.W. Wilson, A.R.M. Patrick, J. (2000). Screening for breast cancer. BMJ 321: 689–693. Accessed at http://www.nature.com/bjc/journal/v86/n9/full/6600260a.html

Chapman D, Goodman M. (2000). Breast cancer. In Yarbro C et al (Eds) Cancer Nursing: Principles and Practice . Fifth edition. Boston, Jones and Bartlett.

Department of Health (2000a). Breast screening programme, England 1998–99. Bulletin 2000/7 London: DoH. http://www.nature.com/bjc/journal/v86/n9/full/6600260a.html

Gerald van B & Steven P. M. (1998). STRUTS: Statistical Rule of Thumb, Seattle, WA.

http://www.nrcse.washington.edu/research/struts/chapter2.pdf

Ghazali SM, Othman Z, Cheong KC, Hock LK, Wan Mahiyuddin WR, Kamaluddin MA, Yusoff AF, Mustafa AN. (2013). Non-Practice of Breast Self Examination and Marital Status are Associated with Delayed Presentation with Breast Cancer. Asian Pac J Cancer Prev, 14(2):1141-5

Gwarzo, U.M.D. K., Sabitu, & Idris, S. H. (2009). Knowledge and Practice of Breast Self Examination among Female Undergraduate Students of Ahmadu Bello University Zaria, Northwestern Nigeria. Usmanu Danfodiyo University Teaching Hospital, Annals of African Medicine Society, 8(1) pp 55-58

Haji Mahmoodi, M., Montazeri, A., Jarvandi, S., Ebrahim, M., Haghighat, S. & Harirchi, I. (2002). Breast self-examination: Knowledge, attitudes, and practices among female health care workers in Tehran, Iran. Breast J, 8(4): 222 - 225.

Hermon, C.; Beral, V. (1995). Breast cancer mortality rates are levelling off or beginning to decline in many western countries: analysis of time trends, age-cohort and age-period models of breast cancer mortality in 20 countries. Br J Cancer. 1996 Apr;73(7):955–960. Accessed at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2364068/

Jebbin, N.J.& Adotey, J.M.; (2004). Attitudes to knowledge and practice of breast self-examination (BSE) in Port Harcourt. Niger J Med, B (20): 166-170

Kayode, F.O., Akande, T.M. & Osagbemi, G.K.; (2004). Knowledge, Attitude and Practice of Breast Self Examination among Female Secondary School Teachers in Ilorin, Nigeria. European journals of Scientific Research, 10, 3: 42 – 47. (Published by AMS Publishing, Inc. Austria. Lulu Press Inc, Morrisville, USA. http://www.eurojournals.com/EJSR%20past%20issues.htm)

Khadiga, F., Dandash & Abdurrahman Al- Mohaimeed . (2007). Knowledge, Attitudes, and Practices Surrounding Breast Cancer and Screening in Female Teachers of Buraidah, Saudi Arabia. Int J Health Sci (Qassim), 1(1): 61–71

Leszczynska, K., Krajewska, K. & Leszczynski, G. (2004). The knowledge of preventive measures and early detection of breast cancer among students of the Medical University in Lublin Wypadeck, 57 Suppl 1: 188 –191.

Obaji N, Elom H, Agwu U, Nwigwe C, Ezeonu P, Umeora O.(2013). Awareness and Practice of Breast Self-Examination among Market Women in Abakaliki, South East Nigeria. Ann Med Health Sci. Res, 3(1):7-12.

Onwere, S., Okoro, O., Chigbu, B., Aluka, C., Kamanu, C. & Onwere, A. (2009). Breast Self-Examination as a method of early detection of breast cancer: knowledge and practice among antenatal clinic attendees in South Eastern Nigeria. Pak J Med Sci, 25(1):122-125.

Persson, K., Ek AC., Svensson, P.G.; (1997). Factors affecting women to practice breast self-examination. Scand J Caring Sci, 11(4):224-31

Pinto, B., & Fuqua, W. (1991). Training breast self-examination: A research review and critique. Health Education Quarterly, 18(4), 495-516.

Stamler, L.L., Thomas, B. & Lafreniere, K.; (2000). Working women identify influences and obstacles to breast health practices. Oncology Nursing Forum, 27(5), 835–842.

Tennessee Comprehensive Center Control Coalition (TCCCC) (2007) Burden of Cancer in Tennessee .

Tennessee Comprehensive Cancer Control Program http://www2.state.tn.us/health/CCCP/index.htm

Uche EEO (1999). Cancer awareness among a Nigerian population. Trop Doct. 29(1): 39-40. 20.

www.who.int/entity/bulletin/volumes/90/3/12-030312/en/ - 33k

WHO, (2012). Awareness is the first step in battle against breast cancer