PREDICTORS OF BREAST SELF EXAMINATION AMONG FEMALE UNDERGRADUATES IN LAGOS STATE, NIGERIA

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Abstract:
Breast self-examination is a cheap and easy to practice method of detecting mad cells in the breast tissue, as early detection has been proven to increase the chance of survival. The study assessed the Breast Self-Examination (BSE) knowledge and practice among female undergraduates in Lagos State. A cross-sectional survey was conducted among two hundred and thirty female undergraduates in Lagos State. The respondents were drawn from Lagos State University and the University of Lagos using a simple random sampling technique. A self-developed breast self-examination questionnaire (BSEQ) was used to elicit information on knowledge and practice of BSE among the participants. Chi-square test of association was used to test the association between the variables. The result of this study revealed that there was a significant association ($\chi2$ =18.14, P-value = 0.234< 0.05) between knowledge of BSE and practice of BSE, but there exist no statistically significant association ($\chi2$ = 15.10, P-value = 0.009>0.05) between the age of the respondents and the practice of BSE. Family economic status does not have a significant association ($\chi2$ = 13.15, P-value = 0.02>0.05) with the practice of BSE. Also, the number of years spent in the school by the respondent does not have any significant association ($\chi2$ = 6.33, P-value = 0.007>0.05) with their practice of BSE. Having a close relative diagnosed with breast cancer encouraged ($\chi2$ = 11.05, P-value = 0.114< 0.05) the practice of breast self-examination. This study concluded that awareness of BSE and practice was high among the respondents; however, only a minor proportion practiced BSE properly and regularly. Therefore, there is a wide gap between knowledge and proper practice of breast self-examination, hence there is a need for health educators to rise up to their responsibility as the town crier through strategic advocacy using the media and other available means.

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1. Introduction

Breast cancer is characterised by the uncontrolled growth of cells in the milk-producing glands of the breast. Breast cancer is a major global public health problem with an estimated over 1.5 million new cases worldwide and over 459,000 related deaths annually (Amin, Ewunonu, Oguntebi, & Liman, 2018). The breast and cervix are the major cancer killers for women above 30 years in developing countries (WHO, 2018). In Nigeria, breast cancer is the most prevalent form of cancer of all female cancers. It accounts for about 46% of female cancer reported in Abuja and Ibadan population-based cancer registry between 2009 and 2010 (Jedy-Agba *et al.,* 2012).

Early diagnosis of breast cancer has a positive effect on the prognosis, as well as limits the development of complications and disability; it also increases life quality and survival. For breast examination, three tests were recommended by American Cancer Society: clinical method, mammography, and breast self-examination. Of these three methods recommended, breast self-examination (BSE) remains the cheapest and easiest method for early diagnosis of breast cancer in Nigeria. Other screening techniques such as mammography and clinical examination are not commonly done in Nigeria due to low level of awareness, ignorance, illiteracy, and cost.

Breast self-examination (BSE) is a method of breast examination in which a woman inspects and examines her breasts for lumps and changes in shape and colour as a result of abnormal growth of cells in the mammalian gland. It is also the awareness of the woman about her breasts' normal appearance, feel, and ability to identify changes that occur in terms of the breast size or shape, the existence of lumps, dimples in the skin, skin redness, and discharge (Baines 1992 in Salawu & Akindiya 2018). The best time to do a BSE is about 3– 5 days after a woman's menstrual period, at such point the breast is not tender or lumpy thus it's done once a month (Akuamoah, Awuah-Peasah, Acheampong & Asamoh 2013). A consistent BSE is an economical, non-invasive, personal, and straightforward method (Ozturk, Engin, Kisioglu & Yilmazer 2000).

Despite the much attention and inputs from international, government agencies and non-governmental organizations in Nigeria to sensitise and create awareness about breast cancer and the need for regular examination of the breast to detect the development of cancerous cells at the early stage, studies such as Salawu and Akindiya (2018), Salaudeen, Akande and Musa (2009) and Gwarzo, Sabitu and Idris (2009) have all reported high awareness level, but the discouraging level of practice of BSE among their respondents. This is a pointer to the fact that there is a wide gap between awareness and practice of breast self-examination. It is against this background, this study seeks to investigate the predictors of breast self-examination among female undergraduates in Lagos State, Nigeria.

2. Research Hypotheses

The following hypotheses were formulated to guide the study:
1. There is no significant association between knowledge and practice of BSE among female undergraduates in Lagos State.
2. There is no significant association between the age of the respondents and the practice of BSE among female undergraduates in Lagos State.
3. Family income will not have a significant association with the practice of BSE among female undergraduates in Lagos State.
4. The number of years spent in the school will not have a significant association with the practice of BSE among female undergraduates in Lagos State.
5. Having a close relative diagnosed with breast cancer will not have a significant association with the practice of BSE among female undergraduates in Lagos State.

3. Methods

This was a descriptive cross-sectional study on predictors of breast self-examination among undergraduates in Lagos State, Nigeria. The study population is all female undergraduates of Lagos State University, Ojo, and University of Lagos, Akoka Lagos, Nigeria. Structured Breast Self-Examination Questionnaire (BSEQ) which was developed by the researchers was used as an instrument for data collection. The questionnaire was self-administered, the respondents were informed about the objectives of the study and they voluntarily participated. The questionnaire was divided into four sections: Section A on socio-demographic characteristics of the respondents, Section B on Knowledge of breast cancer, Section C on knowledge of breast self-examination, and Section D on practice of breast self-examination. After briefing the respondents on the purpose of the research, the questionnaire was administered and collected on the spot. Simple random sampling technique was used to select the respondents from each university. A total of two hundred and thirty respondents were recruited for the study. Frequency counts were used to analyze demographic data while the Chi-square test of association was used to test the association between the variables and the level of statistical significance was determined by a P value of less than 0.05.

4. Results

The age of the respondents ranged from 16 years to 30 years with the mean age group of 21-25 years. The majority (94.8 percent) of the respondents were single with only 5.2 percent being married. 18.1 percent of the respondents were in their first year of study, with 25.6 percent in their second year of study while 12.2 percent and 44.1 percent were in the third and final year respectively.
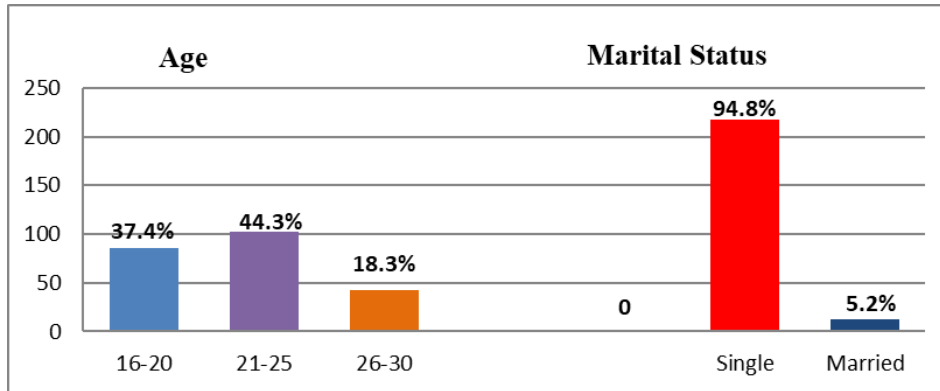
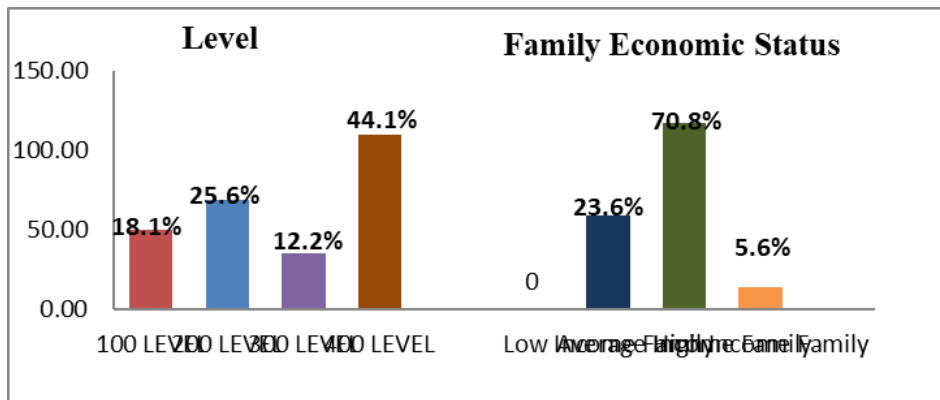**Figure 1:** Age and Marital status of Respondents

Figure 2: Level and Family Economic Status of Respondents

The majority (70.8 percent) of the respondents belong to the average income family while 23.6 percent and 5.6 percent of the respondents belong to low income and high-income family respectively.

Table 1: Distribution of Respondents according to Knowledge of Breast Cancer

Variables	Response	Frequency	Percentage
Heard of breast cancer	Yes	218	95
	No	12	5
Source of information	Media	132	57.3
	Family	31	13.4
	Health center/clinic	60	26.1
	Others (school, etc.)	7	3.0
Family member diagnosed with breast cancer	Yes	18	7.4
	No	212	92.6

Regarding knowledge of breast cancer, a good number 95 percent of the respondents are aware of breast cancer. 57.3 percent of respondents mentioned mass media, 13.4 percent from family, and 26.1 percent from health centre/hospital while the remaining 3.0 percent identified others which include school and social gathering as the first source of information on breast cancer. 7.4 percent have members of their family diagnosed with

breast cancer while 92.6 percent do not have any member of their family diagnosed with cancer.

Table 2: Distribution of respondents according
to the knowledge of Breast Self-Examination (BSE)

Variables	Response	Frequency	Percentage
Heard of breast self-examination	Yes	206	89.6
	No	24	10.4
Source of information	Media	138	60
	Family	44	19.1
	Health center/clinic	48	28.9
BSE effective for early detection of breast cancer	Yes	211	91.7
	No	19	8.3
Know how to perform BSE	Yes	169	73.5
	No	61	26.5
Best time to start BSE	Puberty	80	34.8
	After first menstrual period	37	16.1
	Above 20 years	61	26.5
	Recently	62	22.6

Regarding knowledge of breast self-examination, 89.6 percent of the respondents have heard of breast self-examination, with 59 percent having mass media as their first source of information about breast self-examination followed by health center/hospital 23 percent and then family 18 percent. The majority of the respondents (91.7 percent) agreed that BSE is a useful tool for early detection of breast cancer while a few proportions (8.3 percent) do not agree with this view.

Table 3: Distribution of Respondents according
to Practice of Breast Self-Examination (BSE)

Variables	Response	Frequency	Percentage
Ever self-examined your breast	Yes	165	71.7
	No	65	28.3
Frequency of BSE	Weekly	60	26.1
	Monthly	89	38.7
	Once in a year	81	35.2
Appropriate time of BSE	During menstruation	102	61.8
	Few days after menstruation	46	27.9
	During pregnancy	17	10.3
Reason for not practicing BSE	Don't know how to do it	20	30.8
	I don't have breast problem	19	29.2
	I do forget	26	40
Observed any abnormality in the breast while performing BSE	Yes	16	10.9
	No	149	89.1
What to do when an abnormality is discovered	Pray other it	30	12.1
	Consult a doctor	197	85.7
	Seek friend's advice	3	1.3

The majority of the respondents (71.7 percent) have performed BSE at least once in their lifetime, while 28.3 percent have never performed it. On the frequency of performance of breast self-examination, 26.1 percent of the respondents practice BSE weekly, 38.7 percent practice it monthly while 35.2 percent practice it once a year. On the age of start of BSE, 34.8 percent of the respondents started at puberty, 16.1 percent started after their first menstrual period and 26.5 percent started after 20 years of age while 22.6 percent started recently. For those that have never practiced breast self-examinations, the reason given are as follows: I don't know how to perform it 40.4 percent, I don't have breast problem 29.8 percent, I usually forget 29.8 percent. On the best time to examine the breast, 61.8 percent are of the opinion that the breast should be examined during the menstrual period, 27.9 percent a few days after the menstrual period while 10.3 percent chose during pregnancy. The majority of the respondents (93.4 percent) have not discovered abnormalities while examining their breasts. Lastly, on what to do when an abnormality is discovered, 13.0 percent prefer to pray over it, 85.7 percent will consult a doctor while 1.3 percent will seek a friend's advice.

Table 4: Chi-Square association between Knowledge and Practice of BSE

Knowledge	Practice		Total	DF	χ^2	P-value
	Yes	No				
Yes	184	24	208	1	18.14	0.234
No	14	8	22			
Total	220	32	230			

There was a statistical association (χ^2 = 18.14, P-value = 0.234< 0.05) between knowledge of breast self-examination and practice of breast self-examination, which showed that only 27.9 percent of respondents with good knowledge of breast self-examination practiced breast self-examination.

Table 5: Chi-Square Association between Age and Practice of BSE

Age	Practice		Total	DF	χ^2	P-value
	Yes	No				
16 – 20	36	50	86	1	11.34	0.009
21 - 25	49	53	102			
26 – 30	16	26	42			
Total	101	129	230			

Table 5 shows that there was no significant association (χ^2 = 15.10, P-value = 0.009>0.05) between the age of the respondents and the practice of breast self-examination.

There was also no significant association (χ^2 = 13.15, P-value = 0.02>0.05) between family income and practice of breast self-examination. This implies that the family income of the respondents does not influence their practice of breast self-examination. Also, the number of years spent in the school by the respondent does not have any

significant association ($\chi2$ = 6.33, P-value = 0.007>0.05) with their practice of breast self-examination.

Lastly, a family member diagnosed with breast cancer has statistical association ($\chi2$ =11.05, P-value = 0.114< 0.05) between family member diagnosed with breast cancer and the practice of breast self-examination.

Table 6: Chi-Square Family Economic Status and Practice

Family Economic Status	Practice		Total	DF	$\chi2$	P-value
	Yes	No				
Low	22	33	55			
Average	87	75	162	1	13.82	0.02
High	8	5	13			
Total	117	113	230			

5. Discussions

The age of the respondents ranged from 16 years to 30 years. Most of the respondents in this survey were aware of breast cancer. Similar findings were reported in studies conducted by Sambo, Idris, Dahiru, and Gobir 2013, and Okolie 2012. The awareness of breast cancer among the respondents could be attributed to the level of education of the respondents who are in tertiary institutions and are opportune to obtain information from various sources. The major source of information about breast cancer was electronic media in the study. A similar observation was reported in the Eastern state of Nigeria by Nwagbo and Akpala (1996), Salaudeen, Akande, and Musa (2009), where 38.8% of the respondents' first source of information on breast cancer was the electronic media. The respondents had the opportunity and access to these social media and watch television while in school and at home.

A good number of the study participants have heard of BSE; this is similar to a study conducted in Osun State Nigeria by Salawu and Akindiya (2018), which documented that majority of the respondents, had heard of BSE. This is also similar to another study conducted by Irurhe, Olowoyeye, Arogundade, Bassey, and Onajole (2009) among medical students in Lagos and another study by Gwarzo, Sabitu and Idris (2009) among female undergraduate students in Zaria, Northwestern Nigeria. The high level of awareness could be because the respondents were university students. Respondents' main source of information on BSE was electronic media, this is inconsistent with the study conducted in Qassim College of Medicine, Qassim University, Buraydah, Saudi Arabia by Ibnawadh, Alawad, Alharbi, Alduawihi, Alkowiter *et al.* (2017) and the one conducted in Ilorin Kwara State by Kayode, Akande and Osagbemi 2017, where television, radio (media) were the main source of information.

The majority of the respondents have practiced BSE at least once in their lifetime. Of 169 respondents that know how to perform BSE, only 46 (27.2 percent) practice it correctly and are consistent with the practice. This is surprising considering their level of awareness of BSE, but a similar situation was reported by other studies in Nigeria such

as, Adamu, Shuaib, and Adamu (2016) and Casmir, Anyalewechi, Onyaka, Agwu, and Regina (2015). However, the 27.2 percent reported in this study is higher than 25 percent documented by Osai, Azuogu, Ogaranya, Ogenyi, Enemor, and Nwafor (2019) among female undergraduate students in Abakaliki and 9 percent reported by Motilewa, Ekanem, and Ihesie (2015) among female undergraduate students in Uyo.

Only a few proportions (27.9 percent) of the respondents practice BSE a few days after menstruation which is the right time to do a BSE. This is higher than the proportion 20.4% and 9.2% reported by Motilewa, Ekanem and Ihesie (2015) and Salawu and Akindiya (2018) respectively. Most of the respondents started BSE after the age 20 years. This is similar to the report of a study in India among nurses where a large proportion of the respondents started practicing BSE after 19 years.

There was a statistical association ($\chi 2$ = 18.14, P-value = 0.234< 0.05) between knowledge of breast self-examination and practice of breast self-examination. Though there is a significant association but only 27.9 percent of respondents with good knowledge of breast self-examination practiced breast self-examination. This is an indication that knowledge does not really translate to practice. This is in agreement with the report of Salawu and Akindiya (2018), who reported that there is the poor practice of BSE among female students of Adeleke University in Osun state despite good knowledge of BSE.

With regards to family members diagnosed with breast cancer, there was also a statistical association ($\chi 2$ =11.05, P-value = 0.114< 0.05) between family members diagnosed with breast cancer and the practice of breast self-examination. Having a family member diagnosed with breast cancer is a motivation to examine the breast regularly as one will not want to go through the pain and agony such a family member is going through. Furthermore, there was no significant association ($\chi 2$ = 15.10, P-value = 0.009>0.05) between the age of the respondents and the practice of breast self-examination. There was no significant association ($\chi 2$ = 13.15, P-value = 0.02>0.05) between family income and the practice of breast self-examination. This implies that the family income of the respondents does not influence their practice of breast self-examination. Lastly, the number of years spent in the school by the respondent does not have any significant association ($\chi 2$ = 6.33, P-value = 0.007>0.05) with their practice of breast self-examination. This is in contrast with the report of Segni, Tadesse, Amdemichael, and Demissie (2016) from Ethiopia, who reported that the period of stay in the university increases access to information about breast cancer by different means like through formal education in courses and participation in clubs may increase the knowledge

6. Conclusion and Recommendations

The study concludes that there is a high level of awareness of breast self-examination among the studied students, however, the regular practice of breast self-examination is poor. The observed wide gap between knowledge and practice could be reduced through

strategic advocacy to promote the practice of breast self-examination as a simple and cheap method of early detection of breast cancer using all available means such as electronic media, health workers, campus campaigns among others. The major reasons for not doing BSE were that they don't know how to do it, thinking that they are healthy and don't have breast problems, and forgetfulness.

This study recommended that the school management should intensify campaigns to educate specifically female students on the proper way of performing breast self-examination. Also, the emergence of groups with the objective of campaigning and educating the university community about breast cancer and how to prevent it should be encouraged. It is also of utmost importance for the health education department of each school to rise up to their responsibility of educating the university community of the menace of breast cancer and the importance of early detection by launching educational programs to increase public awareness of the prevalence of breast cancer, its risk factors and the importance of breast self-examination within the school community.

Conflict of Interest Statement
The authors declare no conflicts of interest.

About the Authors
Bidemi Bilkis Lafiaji-Okuneye (PhD) is a Professor of Health Education whose publications have concentrated more on Sexuality Health Education. Literature is sparse on this aspect of Health Education, the reason for the massive intervention by the author. She is a member of many Professional bodies including International Council for Health, Physical, Education, Recreation, Sports and Dance (ICHPER_SD). She is currently the Provost, Adeniran Ogunsanya College of Education.
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