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Research Article

Knowledge, Attitude, and Practice of Breast Self-Examination among Female Secondary School Students in Ibadan, Nigeria

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Abstract

Breast cancer is a major public health problem and a primary cause of cancer-related deaths among women globally. Breast self-examination (BSE) has been found to be the best preventive practice against breast cancer (BC). Not enough is known on knowledge and practice of BSE among young persons. The study investigated knowledge, attitude, and practice of BSE among female secondary school students (SSS) in Ibadan, Nigeria. The descriptive cross-sectional survey involved 348 female senior secondary school students, with mean age 15 ± 1.2 years. Only 9.5% had good knowledge of BC and BSE. Major sources of information were Radio/TV (82.5%) and health workers (81.6%). More than half (56.0%) had positive attitude; only 101 (29%) had ever practiced BSE while majority (74.6%) did not know how to perform it. Association existed between knowledge and practice. Those with good knowledge are more likely to have positive attitude towards BSE (OR=3.385, 95%CI, 1.249-9.172). Teaching BSE and issues about breast cancer as early as possible will go a long way to encourage positive behaviour towards BSE and increase the chances of adherence to BSE practice in the future.

Key Words: Breast Cancer, Breast Self-Examination, Female students, Knowledge, Attitude and Practice

INTRODUCTION

Breast cancer (BC) is a disease that is characterized by the abnormal growth of cells in the breast (CDC, 2021). It is the most common cancer among women both in developed and developing countries including Nigeria, and a major cause for public health concern. BC is currently the most common type of cancer worldwide with 2.26 million cases and the 5th leading cause of cancer death worldwide with 685,000 deaths attributed to it (WHO, 2021) while in Nigeria, it is the leading cause of cancer deaths representing about 23% of all cancer cases and approximately 18% of deaths in the country (GLOBOCAN, 2020).

In Nigeria, breast cancer was historically low but is now increasing because of urbanization and lifestyle changes. It has been reported that early screening of cancer of the breast can bring about the reduction of incidence rate of death among the affected persons and this can also be achieved by prompt diagnosis as studies have shown that few women check their breast status monthly (Agbonifoh, 2016). The emergence of breast disease and the subsequent development of cancer tend to be more aggressive in young women compared with breast cancer progression in the older population; young age at diagnosis correlates with worse prognosis and defines a subset of breast cancers with shared patterns of gene expression (Yonglan, Shenfeng, Temidayo, Ogundiran, Oladosu, 2018). Women in low- and middle-income countries usually present late for cancer of the breast (Rivera-Franco & Leon-

Rodriguez, 2019) this challenge can be overcome through breast self-examination (BSE), (Azubuike, 2017). Unlike Clinical breast examination (CBE), and mammography in which the person must visit hospital along with the use of special equipment by trained personnel, BSE is not capital intensive and can be easily performed by women themselves (WHO, 2019).

Studies (Rahman, Marzouki, Otim, Hoda, Khayat, Yousef, 2019; Memon, Kanwa, Sami, Larik, Farooq, 2015) show that most tumors of the breast are self-known and many of them are through self-discoveries by BSE actors (Birhane, Alemayehu, Anawte, Gebremariyam, Ruth, 2017). The knowledge and practice of BSE is very important in the prompt identification of any changes in the breast and the teenage period is a time in which some health behaviours could be entrenched, which would stay till adulthood (Kyle *et al*, 2013). Timely discovery of cancer of the breast could be achieved by enabling female students to be aware of BSE practices and this would make possible valuable intervention for preventing illness and death (Kyle *et al*, 2013). Although studies have been undertaken among various groups of populations in the world, targeting school teachers, young women, health workers, sex workers, pre-menopausal women, and university students (Ndikubwimana, Nyandwi, Mukanyangezi, and Kadima, 2016) not enough is known about the knowledge and practice of BSE among secondary students. We report in this article, results of a study that assessed the

knowledge, attitude, and practice of BSE among female senior secondary school students in Ibadan, Nigeria.

MATERIALS AND METHODS

Study design and data collection: The study was a descriptive cross-sectional survey using a self-administered semi structured questionnaire. The data collection took place in July 2017 among female senior secondary school students (SSS) in Ibadan Southwest Local Government Area, Ibadan, Nigeria. A multi-stage sampling technique was used to select 348 female students in SS1 and SS2 from 10 public and 6 private schools. The 37-items questionnaire consisted of five (5) sections. The first section (A) explored the socio-demographic characteristics of the respondents, section (B) assessed the level of knowledge of the respondents on BC and BSE which was in ‘true’, ‘false’ and ‘don’t know’ format. Section (C) identified the sources of information of BC and BSE among respondents. Section (D) determined the attitude of respondents towards BC and BSE using Likert scale format including ‘agree’, ‘disagree’ and ‘undecided’ options. Section (E) assessed practice of BSE. The questionnaire was pretested among 36 female students in a public and private school in another local government with a reliability coefficient of 0.93.

Data analysis: The data were entered into the computer using the SPSS Statistics version 22.0. A37-point scale was used to summarize the overall knowledge of BC and BSE: knowledge scores of ≤12, 13-25 and >26 were categorized as poor, fair, and good respectively. Similarly, a14-point scale was used to summarize attitude: scores of ≤8 and >8 was classified as positive and negative attitude respectively. In addition, a15-point scale was used to summarize practice scores: ≤8 and >8 were classified as poor and good practice respectively. Descriptive analysis (with inferential statistics set at 95% confidence interval were conducted. Relationships between the variables were conducted using the chi-square at p<0.05 level of confidence. Logistic regression analyses were tested on significant variables.

Ethical consideration: The Research Ethics Review Committee, Ministry of Health, Oyo State, Nigeria, approved the study protocol. Permissions were also obtained from the administrators of the schools before data were collected from the students. Written informed consents were obtained from each study participant after appropriate explanations and clarification were provided.

RESULTS

Demographic profile of participants: The demographic profile of the respondents is shown on Table 1. Majority (72.1%) of the respondents were within the age bracket 15-19; about half (52.3%) of the respondents were from public schools and majority (86.5%) from mixed schools. A larger number (73.3%) are Christians.

The majority (80.4%) had overall fair knowledge of BC and BSE (Figure 1). The radio and television were the primary source of information of BC and BSE (82.5%) followed by health workers (81.6%) Table 3.

Knowledge of BC and BSE: A large majority (85.6%) respondents have the knowledge that BC can be caused by mosquito bites, 43.7% know that discharge from the nipple is

among signs and symptoms of BC. Less than half (31.9%) know that BSE is carried out monthly and only 15.2% also know that BSE should be done after menstruation’ (See Table 2).

Practice of BSE: Less than a third (29.0%) had ever practiced BSE while 71.0% have never done so (Figure 2). From the above result of 101 practice; 26 (25.7%) had good and 75 (74.3%) poor practice of BSE. Reasons for not performing BSE are summarized on Table 5. Lack of knowledge (74.6%) was cited as the primary reason for not performing BSE; 12.6% said they never taught a young girl can have BC. The mean practice score was 7.3±1.7 (minimum=3, Maximum=10).

Attitudes toward BC and BSE: Less than half (44.0%) of the respondents had negative attitude towards BC and BSE with 56.0% having positive attitude. The mean attitude score was 8.5±2.7, with minimum and maximum score being 0.0 and 13.0 respectively.

Table 1:
Respondents’ Socio-demographic Characteristics (N=348)

Socio-demographic characteristics	Frequency	Percentage (%)
*Age (years)		
10-14	97	27.9
15-19	251	72.1
Class		
SS1	180	51.7
SS2	168	48.3
School type		
Public school	182	52.3
Private school	166	47.7
School category		
Single school	47	13.5
Mixed school	301	86.5
Religion		
Christianity	255	73.3
Islam	92	26.4
Traditional	1	0.3
Ethnic group		
Yoruba	310	89.1
Igbo	26	7.5
Igala	4	1.1
Hausa	3	0.9
Others**	5	1.4
Mother/female level of education		
No formal education	10	2.9
Primary education	151	43.4
Secondary education	186	53.4
Tertiary education		
Father/male level of education		
No former education	8	2.3
Primary education	117	33.6
Secondary education	221	63.5
Tertiary education		

*Mean age of respondents = 15.2±1.2

**others (Benin, Urhobo, Efik, Isoko)

Table 2:
Knowledge on BC and BSE

	Statements	Frequency	Percentage (%)
Understanding of breast cancer (BC)	Unusual growth changes in breast tissues	234*	68.4
	Disease in which the cells in the breast reduce out of control	83	23.8
	Disease in which the cells in the breast grow out of control	170 *	48.9
Causes of BC	Supernatural powers (spiritual causes)	213	61.2
	Mosquitoes bite	301	86.5
	Not supporting the breast with bra firmly	225	64.7
Early signs and symptoms of BC	Having an infection affecting the breast	295*	84.4
	Temperature of the breast usually high	116	33.3
	Changes in breast color, shape, and redness of the breast	222*	63.8
	Discharge from the nipple	152*	43.7
Methods for detection of BC	Sagging of the breasts	153	44.0
	Mammography	74*	21.3
	X-ray	121	34.8
	Breast self-examination	231*	66.4
Ways of preventing BC	Clinical examination	184*	52.9
	Early detection and prompt treatment	293*	84.2
	Wearing of bra regularly	201	57.7
Understanding of BSE	Washing the breasts regularly	137	39.3
	Assessment of the breasts and underarm areas by an individual to check for any unusual growth, signs, pains, or changes in size	220*	63.2
	Assessment of the breasts and underarm areas by a health provider to check for any unusual growth, signs, pains, or changes in size	114	32.8
	Assessment of the breasts and underarm areas by family members to check for any unusual growth, signs, pains, or changes in size	219	63.0
Frequency of BSE	Monthly	111*	31.9
When to carry out BSE	2-5 days after menstruation	53*	15.2
	Changes in size, colour of the breasts, pains, discharge from the nipples	250 *	71.8
Signs to look out for during BSE	Wound on the breasts, size of the nipples	146	42.0
	Bra tightening, sagging of the breasts	188	54.0
	Makes you know when you are about menstruating	178	51.1
Likely benefits of BSE	Makes you detect changes in breasts size, colour, look and nipple discharge	235*	67.5
	Helps to detect early pregnancy signs	166	47.7
Best method used in palpating the breast during BSE	Vertical method	159	45.7
	Circular method	219*	62.9
	Horizontal method	161	46.3
Regular BSE contribute to early detection of BC		172*	49.4

*Correct responses

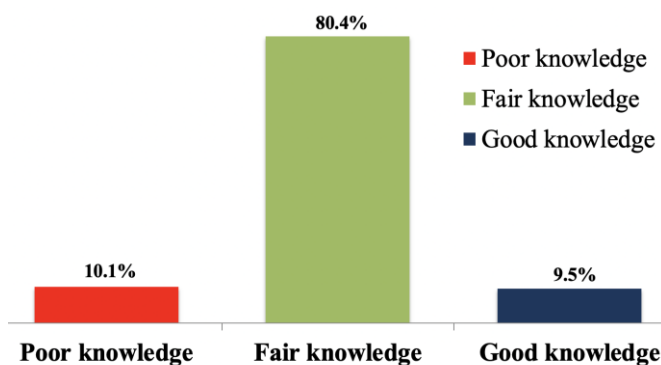


Figure 1:
Knowledge of BC and BSE

Table 3:
Respondents' Sources of Information of BC and BSE (N=348)

Source of information	Frequency	Percentage (%)
Television/Radio	287	82.5
Health care workers	284	81.6
Newspaper/Magazine	235	67.5
Mother	212	60.8
Friends	193	55.5
Posters in school/town	155	44.5
Relatives	142	40.8
Church/Mosque	77	22.1
Father	39	11.2
Others*	72	20.7

*Others: social media, seminars, teachers, August girls' camp

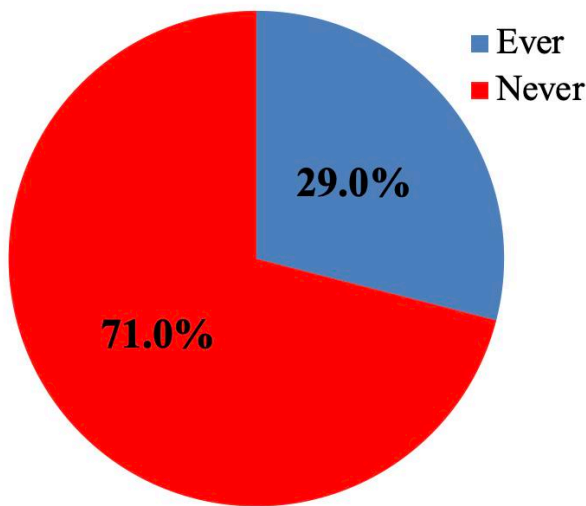


Figure 2:
Ever practice BSE

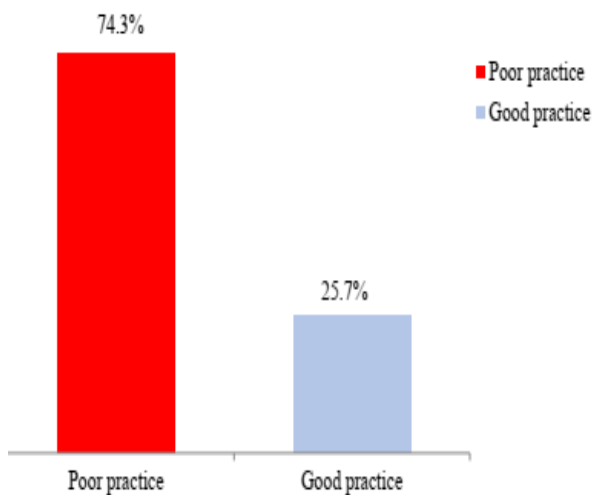


Figure 3:
Practice of BSE (n=101)

Association between Knowledge, Attitude and BSE:

We found a significant positive relationship between knowledge and attitude towards BC and BSE ($p= 0.035$, $X^2=6.724$, $df=2$) (Table 6). Also, knowledge is also positively related to practice of BSE ($p<0.001$, $X^2=15.939$, $df=2$) (Table 7).

Respondents with good knowledge of BSE and BC are 3times more likely to have positive attitude than those with poor knowledge (OR=3.385, 95% CI: 1.249-9.172) while respondents with fair knowledge are 2times more likely to have positive attitude than those with poor knowledge (OR=2.256, 95% CI: 1.092-4.661) (Table 8). Similarly, those with poor and fair knowledge are less likely to ever practice BSE than those with good knowledge (OR=0.152, 95% CI: 0.050-0.466). Likewise, respondents with fair knowledge are also less likely to ever practice BSE than those with good knowledge (OR=0.275, 95% CI: 0.131-0.575) (Table 9)

Table 4:
Respondents’ Attitude towards BC and BSE (N=348)

STATEMENTS	Agree (%)	Undecided (%)	Disagree (%)
Support that breast self-examination is necessary for early detection of any breast changes	320 (92.0)*	13 (3.7)	15 (4.3)
Avoid breast self-examination because I can’t have breast cancer	64 (18.4)	38 (10.9)	246 (70.7)*
Against breast self-examination because breast cancer is for adult women only	27 (7.8)	23 (6.6)	297 (85.6)*
Not comfortable with the practice of breast self-examination because it is strenuous and time wasting	32 (9.2)	41 (11.8)	275 (79.0)*
Can encourage the practice of breast self-examination	281 (80.7)*	25 (7.2)	42 (12.1)
Breast self-examination is against my cultural belief and practice	40 (11.5)	37 (10.6)	271 (77.9)*
Does not matter whether I practice it or not	79 (22.7)	53 (15.2)	216 (62.1)*
Can develop breast cancer because of my feminine nature	85 (24.4)*	57 (16.4)	206 (59.2)
Cannot develop breast cancer because am divinely protected	104 (29.9)	33 (9.5)	211 (60.6)*
At risk of developing breast cancer if any of my relatives has been diagnosed with it	100 (28.7)*	59 (17.0)	189 (54.3)
Whether or not I have the risk of breast cancer, I can be diagnosed of it	139 (40.0)*	60 (17.2)	149 (42.8)
My advancement in age predisposes me to developing breast cancer	102 (29.3)*	68 (19.5)	178 (51.2)
It is not necessary to practice breast self-examination since am not yet married	41 (11.8)	29 (8.3)	278 (79.9)*
Advise my friends to practice breast self-examination even though I may not be practicing it	183 (52.6)	40 (11.5)	125 (35.9)*

*These are positive attitudinal statements

Table 5:
Respondents’ Reasons for not Performing BSE(n=247)

Reasons for not performing BSE	Frequency	Percentage (%)
Don’t know how to do it	184	74.6
Never taught a young girl can have breast cancer	31	12.6
Don’t know where to do the examination	11	4.4
Nothing	8	3.2
Have never taught of it as necessary	7	2.8
Have not develop breasts	3	1.2
It is weird to touch the breast	2	0.8
Not yet married and not pregnant	1	0.4
Total	247	100

Table 6:
Association between Respondents' Knowledge and Attitude

Knowledge Category	Attitude Category		Total	X ²	df	p-value
	Negative (%)	Positive (%)				
Poor	22 (62.9)	13 (37.1)	35 (10.1)	6.724	2	0.035*
Fair	120 (42.9)	160 (57.1)	280 (80.4)			
Good	11 (33.3)	22 (66.7)	33 (9.5)			
Total	193(56.0)	153(44.0)				

*Significant (P<0.05)

Table 7: Association between Respondents' Knowledge and Ever Practice

Knowledge Category	Ever Practiced BSE		Total (%)	X ²	df	p-value
	Ever (%)	Never (%)				
Poor	6 (17.1)	29 (82.9)	35 (10.1)	15.939	2	<0.001*
Fair	76 (27.1)	204 (72.9)	280 (80.4)			
Good	19 (57.6)	14 (42.4)	33 (9.5)			
Total	101 (29.0)	247 (71.0)				

*Significant (p<0.05)

Table 8:
Logistic Regression Analysis between Respondents' Knowledge and Attitude

Knowledge Category	OR	95%CI OR	P-value
Good	3.385	1.249-9.172	0.017*
Fair	2.256	1.092-4.661	0.028*
Poor**			

**reference category

*Significant (P<0.05)

Table 9:
Logistic Regression Analysis between Respondents' Knowledge and Ever Practice

Knowledge Category	Odds ratio	95%CI OR	P-value
Poor	0.152	0.050-0.466	0.001*
Fair	0.275	0.131-0.575	0.001*
Good**			

**reference category

*Significant (p<0.05)

DISCUSSION

The ages of the respondents' ranges from 10 to 19 years of age, with a mean age of 15.2±1.2 which is similar with the study conducted by Elemile *et al.*, 2020; Irurhe *et al.*, 2012. The study was appropriate in this age group as they fall within the age bracket of adolescents who are they fall within the age bracket of adolescents who are always eager to find out information about things happening around them. Most of the students had fair knowledge of BC and BSE, a finding consistent with study by Habib *et al.*, 2010. Most of the respondents in this study knew that changes in the breast is a symptom of BC but more than half (56.3%) did not know other warning signs of BC such as discharge from nipple and sagging of the breast. Similar observation has been reported in previous studies (Sambaje *et al.*, 2012; Irurhe *et al.*, 2012; Isara and Ojedokun, 2011). This reflected their lack of knowledge regarding early symptoms of the disease. Knowledge of symptoms of breast cancer is important in ensuring that women present early at health care facilities for diagnosis and treatment. Majority (67.2%) of the respondents do not know that BSE is not an assessment conducted by a health provider, with majority understanding that it is an assessment by an individual.

Only 49.4% knew that regular BSE contribute to early detection of BC. This is contrary to findings by Isara and Ojedokun (2011) in which more than half (52.3%) knew that BSE can be used to detect BC. Most of them had no idea of

the correct timing for BSE: only 15.2% knew it should be done few days after menstruation, and only 31.9% of them knew that BSE should be performed once a month. This was in tandem with study of Karayurt *et al.*, (2014) where 13.2% of the students had knowledge about appropriate time for BSE and 21.8% know frequency of BSE (21.8%) (Isara and Ojedokun 2011). By contrast, Irurhe and colleagues (2012) reported that 47% knew BSE is performed post menstruation. Therefore, it is important for younger women to become familiar with how their breasts look and feel through routine monthly BSE. The major source of information about BC was mass media, of which television/radio (82.5%) dominated, followed by hospital/health care (81%) and newspaper/magazine (67.5%). Similar findings were reported in Saudi Arabia, Hong Kong, and Eastern state of Nigeria where primary source of information on BC was the electronic media (Karayurt *et al.*, 2008; Isara and Ojedokun 2011; Yuk 2009; Onwere *et al.*, 2009). This underscores the need to use these media to promote BSE.

More than half of the participants had positive attitudes towards BC and BSE. Majority opined that BSE is necessary for early detection of any breast changes; 79.0% disagrees that practice of BSE is a waste of time. This finding implies a positive attitude which if well-developed can help promote practice of BSE for early detection of BC. This will in turn help in reducing the rate of late-stage diagnosis of breast cancer. In other words, if there is negative attitude toward BC and resultant poor practice of BSE, the rate of development of breast cancer will continue to rise.

We found only less than a third 101(29.0%) of the students had practiced BSE. Although this number is small, it is still higher than 10.1% reported by Isara and Ojedokun (2011); from the 101, 74.3% reported poor practice which was also documented by Karayurt *et al.*, 2014; Oluwatosin and Oyedepo, 2012). The most common reasons by respondents' for not doing BSE was "not knowing how to perform BSE" (74.6%) which is in line with findings by Karayurt *et al.*, 2014; Isara and Ojedokun 2011 where almost all (98.5%) gave same reason above. In the current study, students' knowledge about BSE might have affected their performance. However, it is encouraging that they all intended to continue to perform it. Teachers can also be trained and empowered to provide accurate information to students on BC and BSE. This suggestion is reinforced by the fact that significant positive association was found between knowledge and practice of BSE, those with good knowledge of BC and BSE are more

likely to practice BSE than respondents with fair, poor of these variables. This is in tandem with the studies by Isara and Ojedokun (2011) in which positive association between knowledge of BSE and practices was reported.

The limitations of this study is acknowledged. Our sample is drawn from schools in one local government area in Ibadan metropolis, so findings may not be generalized for the students in the metropolis *let alone* the state and country. Data on BSE are self-reported and may be subject to recall bias.

In conclusion, this study revealed a low knowledge of BC, BSE, and practice of BSE among female secondary school students in Ibadan Southwest local government area, Oyo State. Lack of knowledge about how to perform BSE may be due to insufficient education programs for breast health awareness. This justifies the need for intervention programmes to be directed at this age group. This is also a pointer to health education instructors not to limit information about BSE only to older women who they feel are more susceptible. Imbibing early behavioral patterns concerning BSE and having adequate in-depth information and demonstrations for these adolescents is imperative to ensure correct and effective BSE practice now and in future because, it is not possible to practice what one does not know about.

It is encouraging that most students are willing to practice BSE if taught. Adequate knowledge of breast cancer and BSE can influence attitude and practice of BSE which can help prevent late presentation of breast cancer and poor practice of BSE. We recommend use of mass media, training of teachers and peer education as appropriate intervention targeting secondary school students on BC and BSE. Peer teaching can help in development of skills and self-confidence to perform in BSE. Teaching BSE and issues about breast cancer as early as possible will go a long way to encourage positive behaviour towards BSE and increase the chances of adherence to BSE practice in the future.

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