PREDICTIVE FACTORS OF BREAST SELF EXAMINATION (BSE) SCREENING BEHAVIOUR AND KNOWLEDGE OF BREAST CANCER SCREENING AMONG WOMEN IN NNEWI NORTH LOCAL GOVERNMENT AREA, ANAMBRA STATE.

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Abstract: *The increase of breast cancer incidence and late presentation has risen four times for about four decades. Early detection has been shown to reduce cancer mortality. This study investigated the predictive factors of BSE screening and knowledge of breast cancer screening among women in Nnewi North Local Government Area. Demographic variables of age, level of education, place of residence, and knowledge of breast cancer screening were considered. The sample consisted of 425 women. Multistage sampling technique was adopted for the study. Inclusion criteria: females aged 15-69 irrespective of marital status, residing at the study area; exclusion criteria: females aged 15-69 irrespective of marital status, not residing at the study area. A pretested researcher's developed Breast Cancer Screening Questionnaire (BCSQ) was the instrument for collection of data. Its reliability was established through Split Half Test and Spearman Brown Correlation Coefficient which yielded 0.94. Data obtained were subjected to descriptive statistics and analyzed using Chi-square and Fishers Exact Tests. Probability value less than 0.05 was considered statistically significant. The result showed that majority (63.7%) had good knowledge of breast cancer screening methods. Most women (89.2%) were more conversant with BSE. Practice of BSE was high (79.7%). Significant predictors of BSE were age (P=0.001), level of education (P=0.011),and place of residence (P=0.001). Conclusion, BSE provided special opportunity for the women to be familiar with their breast and to identify breast problem that will be reported for further investigations and early treatment, thus reducing breast cancer morbidity and mortality.*

Keyword: Predictive- factors, Breast, self- examination (BSE), screening, behavior, knowledge, breast cancer

Introduction

Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new cases diagnosed in 2012 (World Cancer Research Fund (WCRF) International, 2013). In United States, breast cancer accounts for 29% of newly diagnosed cancers (American Cancer Society (ACS), 2013). One in 8 women in the United States will develop breast cancer in her life time (ACS, 2013). Also, ACS (2011), stated that breast cancer

incidence death rates increase with age, in their opinion, 95% of new cases and 97% of breast cancer deaths occurred in women 40years of age and older.

In Africa, breast cancer is second (after lung cancer) leading cause of death among African women (Courage to Dare Foundation, 2013). Studies from Nigeria indicate that breast cancer has been the most common female malignancy in areas of western and Eastern Nigeria (Anyanwu, 2008),In Nigeria, Breast cancer incidence had risen at least four times over the decade and accounted for 40% of women cancers in 2010 (Adepoju, 2012).

Breast cancer is responsible for about 450,000 females deaths per annum worldwide (WCRF, 2014). Deaths from breast cancer could be avoided or reduced if people accept they are at risk, believe that screening is an effective tool against breast cancer, and utilize the available opportunities of breast screening, and go for prompt and effective treatment. Early detection remains a major effective approach to combat the disease (Olowokere, Onibokun & Oluwatosin, 2012). A 95% survival could be achieved if breast cancer is detected early (Tavafian, Hasani, Teamur & Zare, 2009). Egwuonwu, Anyanwu, Nwofor and Ame (2012) reported that Nigerian women with breast cancer are still diagnosed at advanced stages of the disease when little or no benefit can be derived from any therapy. Early diagnosis is only possible when the women can detect early changes in their breast by monthly breast self examination.

According to World Health Organisation (WHO) (2009) two components of early detection have been shown to reduce cancer mortality viz: education to help women recognize early signs of cancer and seek prompt medical attention; then screening to identify early cancer or pre-cancerous lesions before signs are recognizable.ACS (2012), is of the opinion that women should be familiar with how their breasts normally feel, and report any breast changes promptly to their health care providers, because 95% of breast cancers in advanced stages and 65% of breast cancers in primary stages are detected by women through Breast Self Examination (BSE). BSE practice is a gateway to health promotion behaviour that provides women with knowledge and attitude that set the stage for clinical breast examination and mammography screening later in life (Avei, 2008).

Predictive factors are those factors that can be used to determine whether a person is likely to take an action in a given situation (Ahmed, 2005). The predictive factors of breast screening may be seen in various contexts: educational, economic, socio-cultural, demographic and physical (Osubor, Fatusi & Chiwuzie, 2006).

Oluwatosin (2010) conducted a study on assessment of women's risk factors for breast cancer and predictors of the practice of breast examination in two rural areas near Ibadan, Nigeria. The study revealed that marital status, educational status, knowledge of treatment of breast cancer and knowledge of BSE/CBE were significant predictors of BSE practice. A study by Azita, Tayyebh and Rahim (2010) on the determinants of breast self-examination performance among Iranian women: An application to Health Belief Model (HBM), indicated that only 7.6% of the respondents were practicing BSE regularly (monthly).The result also indicated a significant positive direct effect of age on BSE. Perceived benefits of BSE was the second predictor on BSE performance in their study. The women who perceived more benefits of BSE reported frequent breast self- examination. Their findings showed that among the modifying factors, age was the most important predictor for BSE practice, as older and also menopausal women performed more BSE. These women perceived themselves more susceptible to breast cancer. Therefore, they were inclined to perform more BSE.

Dahlui, Gan, Taib, Pritam and Lim (2012) are of the opinion that predictors of breast screening depends on good knowledge of breast cancer, marital status and attending CBE. Women who are more confident in performing BSE have greater knowledge of breast cancer, perceive greater benefits from BSE and have fewer barriers to BSE are more likely to perform BSE regularly (Dundar , Ozyurt & Erdurak, 2012). Education has a positive impact on knowledge and practice of breast cancer screening activities in women (Rasu,Rianon & Selwyn, 2011).They also identified that women with higher educational levels are more likely to know about BSE, about mammograms and to practice BSE.

This study looked at variables such as age, level of education, parity, place of residence and knowledge of breast cancer screening, to determine the predictors of breast self- examination practices among women in Nnewi North Local government area, Anambra State, Nigeria.

Statement of Problem

Despite health education efforts to enlighten women on breast health awareness including the awareness of different screening methods available, the increasing incidence of breast cancer and late presentation at an advanced stage are still challenges to health care professionals in Nnewi, North Local Government Area, Anambra State. Previous records (2009 – 2012) from cancer registry Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi showed that one thousand, two hundred and eleven (1,211) women were affected by breast cancer. Previous study by Anyanwu, (2008) in Nnewi showed that women still presents late for diagnosis, as 3% of patients presented with stage 1, 11% in stage iiA, 14% with stage iiB, 32% with stage iiiA, and 36% with stage iiiB. According to the study, their reasons for late presentation were due to ignorance, superstition, self-denial, fear of mastectomy and unavailability of treatment facilities. Identifying predictive factors of breast self examination will be of help in motivating women to practice breast examination thereby enhancing early detection of breast cancer and reducing mortality from breast cancer (Oluwatosin, 2010).The rise in incidence and late presentation stimulated the researcher to think about on the possible reasons for this by asking what are the factors that predict the women's behavior to Breast Self- Examination.

Purpose of the Study

The purpose of the study was to determine the predictive factors of breast self examination (BSE) behavior and knowledge of breast cancer screening among women in Nnewi North L. G. A., Anambra State. Specifically, the study determined:

- The level of knowledge of breast cancer screening methods among women in Nnewi North L.G.A.
- The practice/behavior of breast self examination among women in Nnewi North L.G.A.
- The factors that predict BSE screening behavior among women in Nnewi L.G.A.

METHODS AND MATERIALS
Research Design

Descriptive survey research design was used. The design has ability to identify relationships among variables. The purposes of survey research are to describe, explain, predict, and explore issues.

Area of the Study

The study was carried out in Nnewi North Local Government Area of Anambra State in Nigeria. The LGA is a one-town (Nnewi) Local Government Area.

Population of Study

The population for the study comprised 77,926 women aged 15-69years, resident

in Nnewi North LGA. The source is from the National Population Commission (2006) in Nnewi North LGA headquarter.

Sample and Sampling Technique

The sample size for the study was 425 subjects drawn from the target population. Multi-stage sampling and simple random sampling were adopted in this study. First stage, Nnewi was clustered into four quarters (Otolo, Uruagu, Umudim & Nnewichi). 2nd stage, simple random sampling was used to select two quarters from the four quarters (Otolo & Uruagu). 3rd Stage, simple random sampling was also used to select ten (10) villages from the two randomly selected quarters i.e (5) villages from each selected quarter. 4th stage, the number of subjects from each village selected for the study was proportionately determined for proper representation of the village population. The women were recruited in their households at intervals calculated from each village population, for example, Okpunoeze with a population of 1315 women were recruited at interval of 3 households, Okofia with a population of 1018 women was recruited at household interval of 2. This procedure was applied in all the villages until 425 respondents were recruited. In each household selected only one eligible woman (respondent) was randomly selected to participate in the study.

Instrument for Data Collection

The instrument for data collection was a validated, self-developed structured questionnaire entitled breast cancer screening questionnaire (BCSQ) which has a reliability result of 0.94. The BCSQ consisted three (3) sections, A, B, & C. In section A, the respondents were required to provide the demographic information such as age, education and parity. Section B of the questionnaire was on knowledge of breast cancer screening. Section C consisted of questions which elicited the practice of BSE and predictors of BSE.

Method of Data Collection

Permission to conduct the study was requested for and obtained from the traditional ruler of Nnewi, Igwe, Orizu and the Obi of Uruagu. Ethical approval was obtained from the ethical committee of Nnamdi Azikiwe University Teaching Hospital (NAUTH) and informed consent was individually obtained after the purpose of the study was explained to the participants and confidentiality was assured. The service of research assistants was employed to facilitate the work. The researcher and the 3 assistants visited the community in the early morning and evenings to enable them meet many subjects at home. Though, some subjects were not met in one visit, hence many visits were made by the researcher and her assistants. The instrument was interviewer administered to the 425 respondents face to face, and this ensured high percentage of the return rate and to accommodate literate and non literate subjects.

Method of Data Analysis

The descriptive statistics of range of scores, percentages, mean and standard deviation were used in answering the research questions. Chi-square and Fishers' Exact tests were used to test the research hypotheses. Statistical significance was set at $p<0.05$.

RESULT

Table 1: Demographic Characteristics of the study population

		Frequency	Percent	
Age n = 419	20-29 yrs	87	20.8	
	30-39 yrs	132	31.5	
	40-49 yrs	154	36.8	
	50+ yrs	46	11.0	
	Range			20-64
	M±SD			37.83±9.29
Marital status n = 421	Single	81	19.2	
	Married	329	78.1	
	Divorced	5	1.2	
	Widow	6	1.4	
Highest Educational Level n = 395	No formal	1	0.3	
	Primary	12	3.0	
	Secondary	107	27.1	
	Tertiary	275	69.6	
Place of residence n = 418	Urban	314	75.1	
	Rural	104	24.9	
Parity n = 379	0-1 child	102	26.9	
	2-3 children	133	35.1	
	4-5 children	124	32.7	
	> 5 children	20	5.3	
	Range			0-10

Table I: Shows that the age range of the participants was 20- 64 years, the mean and standard deviation were 37.83 ± 9.29, while majority were between 30 – 49 years (68.3%). The table also reveals that most of the respondents were currently urban dwellers (75%), married (78.1%), and received tertiary education (69.6%). The parity range was 0-10 children, those with 2-3 children were most (35.1%) being seconded by those with 4-5 children (32.7%).

Table 2: Knowledge of Breast Screening among women   n = 424

		Frequency	Percent
Understanding of breast cancer screening	**Methods/types of breast examination/tests to detect breast cancer early	270	63.7
	Examination of breast to check for lumps	100	23.6
	Examination of breast to check sizes of breast	4	0.9
	Examination of breast to prevent breast cancer	18	4.2
	Not sure (Multiple Response)	30	7.1
	Don't know	2	0.5
*Breast cancer screening methods known	**Breast self examination (BSE)	378	89.2
	**Clinical Breast Examination (CBE)	210	49.5
	**Mammography	202	47.6
	**Magnetic Resonance Imaging	41	9.7
	Ultrasound	65	15.3
	Palpation of breast at ANC	67	15.8
	Touching the breast during bath	105	24.8
	Don't know		
Breast cancer screening will lead to early detection and cure	**Yes	404	95.3
	No	11	2.6
	Don't know	9	2.1
Breast cancer screening will prevent women from dying of breast cancer	**Yes	388	91.5
	No	12	2.8
	Don't know	24	5.7
Breast cancer can be prevented by screening	Yes	293	69.1
	**No	106	25.0
	Don't know	25	5.9
Overall knowledge of breast cancer screening	Poor	92	21.7
	Fair	204	48.1
	Good	128	30.2

* implies items with multiple correct responses   ** implies correct knowledge to the items

Table 2 shows that most participants had adequate understanding of breast cancer screening methods / types of breast examination to detect breast cancer early (63.7%). The most known screening method was Breast Self Examination (89.2%) while knowledge of CBE (49.5%) and mammography (47.6%) was a bit below average. Almost all the participants knew that breast cancer screening will lead to early detection of cancer and cure (95.3%) and will also prevent women dying from the disease (91.5%), however,

only few knew that breast screening cannot prevent the disease (25.0%).

Table 3: Breast Cancer Screening Behaviour among women

		Frequency	Percent
Performance of BSE	Yes	338	79.7
	No	86	20.3
	Total	424	100.0
Reason BSE performance	For early detection of breast cancer	310	91.7
	Due to advice by health workers	102	30.2
	Due to my husbands' support	17	5.0
	Due to influence from health campaign	31	9.2
	My age is above 40	42	12.4
	Because I know how to do it	13	3.8
	Breast cancer of a friend	15	4.4
	Encouragement by family members	3	0.9
	Free screening health programme	7	2.1
	Media information	19	5.6
Frequency of BSE performance	Every month	242	71.6
	Every 2 months	15	4.4
	Every 3 months	41	12.1
	Every 6 months	29	8.6
	No regular interval	11	3.3
*Time of BSE performance with regards to menstrual cycle	Before the menstruation	17	5.0
	During menstruation	6	1.8
	After the menstruation	118	34.9
	During ovulation	5	1.5
	After ovulation	6	1.8
	During/after menstruation	1	0.3
	During menstruation/ovulation	1	0.3
	Any time I feel like	175	51.8
*Last time of BSE performance	Last month	191	56.5
	Last 2 months	56	16.6
	Last 3 months	18	5.3
	Last 6 months	16	4.7
	Can't remember	52	15.4

* some participants did not respond to the item

Table 3 indicated that most participants performed BSE (79.7%) and the prominent reason was for early detection of breast cancer (91.7%). 71.6% performed BSE on

a regular monthly basis. The performance with regards to menstrual cycle only 34.9% did BSE after menstruation, and

51.8% performed BSE any time they feel like. A greater percentage (56.5%) performed BSE within the last month

Table 4: Predictors of Breast Self Examination Behaviour among the women

		BSE Performance		Total	Chi-Square	Df	p-value
		Yes	No				
Age	20-29 yrs	66(75.9)	21(24.1)	87(100.0)	44.465	3	0.001
	30-39 yrs	84(63.6)	48(36.4)	132(100.0)			
	40-49 yrs	143(92.9)	11(7.1)	154(100.0)			
	50+ yrs	43(93.5)	3(6.5)	46(100.0)			
	Total	336(80.2)	83(19.8)	419(100.0)			
Level of Education (formal)	None/Primary	9(69.2)	4(30.8)	13(100.0)	8.952	2	.011
	Secondary	75(70.1)	32(29.9)	107(100.0)			
	Tertiary	229(83.3)	46(16.7)	275(100.0)			
	Total	313(79.2)	82(20.8)	395(100.0)			
Place of Residence	Urban	265(84.4)	49(15.6)	314(100.0)	19.069	1	.001
	Rural	67(64.4)	37(35.6)	104(100.0)			
	Total	332(79.4)	86(20.6)	418(100.0)			

BSE performance among the different age groups was significantly different (p = .001). The elderly women, those 40-49 years (92.9%) and those 50 years and above (93.5%) were more associated to it than the younger women. The odds of the elderly women (≥ 40yrs) performing BSE were 6.1 times that of younger women (< 40yrs) with 95% C.I of 3.31, 11.29.
Performance between the different education levels (p = .011) was significant. In educational level, the odds of women with tertiary education on BSE

performance were 2.1 times that of women without tertiary education with 95% C.I of 1.29, 3.35
Urban dwellers (84.4%) performed significantly more than the rural dwellers (64.4%), p = .001). Their odds to that of rural dwellers were 2.99 with 95% C.I of 1.80, 4.94. Hence, age, educational level and place of residence significantly predict breast self examination behavior of the women.

DISCUSSION

Knowledge of breast cancer screening among women in Nnewi North LGA
Findings from the study show that greater percentage of the women (63.7%) had good knowledge of breast screening methods to detect breast cancer. Majority of the women (89.2%) were more

conversant with BSE. Olowokere et al (2012), in their study of breast cancer knowledge and screening practices among women declared that 52.8% of the participants have heard about BSE. Majority of the women (95.3%) had the knowledge that breast screening will lead

to early detection and cure of the disease. Bilal et al (2009), stated that 85% of the respondents believed that early detection of cancer improved survival. Finding also show that 91.5% of the women were aware that breast screening will prevent women from dying of breast cancer, but majority of the women (69.1%) erroneously believe that breast cancer can be prevented by screening. Bilal et al (2009) also affirmed that Breast screening practices lead to early detection, which increases successful treatment and decreases health burden of morbidity and mortality.

Breast cancer screening behaviour among women

With respect to the breast screening behaviour towards BSE, the result of the study showed that majority of the women (79.7%) practiced BSE and their main reason for performing BSE was for early

PREDICTIVE FACTORS FOR BSE AMONG WOMEN
Age

Findings from the study showed that there was an association between age and BSE practice among the women. The study revealed that elder women (40 years and above) were more likely to perform BSE than younger women below 40 years.

From the study women aged 50 years and above were more likely to perform BSE than those women aged 20-29years. Above all, age is a predictor of breast self examination screening behaviour of women in Nnewi North LGA

This finding corresponds to the findings of Azita, Tayyebh and Rahim (2010) which revealed that age is the most important predictor for BSE practice.

Level of education

The result of the study revealed an association between level of education and BSE practices (P = 0.011).The higher the level of education the higher the practices of BSE screening. Thus women with

detection of breast cancer (91.7%) among those that performed BSE, 71.6% performed it on a regular monthly basis. Few of the women (34.9%) performed BSE after their menstruation, and majority (51.8%) also performed it when they feel like. The result of the present study is supported by the findings of Bello et al (2011) and Dahlui (2012) which revealed that 55.6% and 58.5% of the participants practiced BSE on monthly basis respectively. The result disagreed with the findings of Azita et al (2010) in which only 7.6% of the participants performed BSE regularly. The disparity may be related to the locality, time and characteristic of each group of respondents. This study was done in Anambra State, Nigeria, with a predominately tertiary educated women living on urban/semi urban area with greater awareness.

tertiary education were more likely to perform BSE screening than those with lower level of education. Hence, level of education is a significant predictor of BSE screening behaviour of the women.
The result of the study is supported by the findings of Rasu, et al (2011) and Popoola, et al (2013) which showed that education had a positive impact on breast cancer screening practices in Bangladeshi women and that practice of BSE dwindled with decreasing educational attainment . It is also similar with the findings of Oluwatosin (2010) and Azita, et al (2010) which revealed level of education as a predictor for BSE.

Place of residence

Urban dwellers (84.4%) performed significantly more than the rural dwellers (64.4%). This shows that place of residence significantly predict breast self examination behavior among women. This finding is supported by the study of Gangane et al (2015) which observed that urban women demonstrated more positive

attitude towards breast cancer screening practices than their rural counterparts.

CONTRIBUTIONS OF THE STUDY

- Assist the health care providers to determine the best health education measures to apply among women to ensure their compliance to BSE practices
- Help policy makers in the health sector to understand the factors responsible for poor BSE practices among women and thus formulate best policies that will encourage and motivate the practice among women thereby reducing morbidity and mortality from breast cancer
- Serves as a source of relevant information for further research.

Conclusion: The result shows that while substantial number still remains ignorant of breast cancer issues, a good number of those who have knowledge were yet to translate knowledge and attitudes into practice. Knowledge was significantly found to influence the practice of BSE ($p < 0.001$). In spite of the good knowledge of respondents about breast cancer, screening practices is not satisfactory. There should, therefore be more emphasis on screening practices, especially monthly BSE.

Recommendation: Healthcare providers should utilize every opportunity at their disposal to reveal, teach and demonstrate BSE to the public, for instance during antenatal clinics, health talks at Welfare clinics and General Outpatient Department. Also, every woman should start today, with the practice of monthly BSE.

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