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DEMOGRAPHIC DIFFERENCES IN THE KNOWLEDGE OF BREAST CANCER AMONG WOMEN IN EBONYI STATE, NIGERIA

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ABSTRACT: *Breast cancer is the most common of all cancers and is the leading cause of cancer deaths in women worldwide, a condition that may be predicated upon by lack of knowledge about fundamental regimen necessary for cancer prevention. The study was therefore designed to determine demographic differences in the knowledge of breast cancer among women in Ebonyi State, Nigeria. The sample of the study comprised 1,845 women drawn through the multistage sampling procedure. A 40-item questionnaire was used to elicit information on knowledge symptoms, risk factors, prevention methods and treatment options of cancer. Descriptive statistic of percentage was used to answer the research question and inferential statistic of chi-square was used to test the entire hypotheses formulated for the study at an alpha level of 0.05. Knowledge of breast cancer was found to be on the average (48.72%); differed by age with younger women (35-44years 56.43%) reporting higher knowledge of breast cancer than the older ones (45-54 years 46.03%); women with post-secondary education (67.66%) had higher knowledge than those with secondary (60.16%), primary (49.03%) and non-formal education (39.01%); urban women (55.61%) were more knowledgeable than rural women (47.81%). Chi-square analysis indicated that significant association existed between level of education and knowledge of breast cancer. However, no significant association was found between age and location of residence. It was concluded that breast cancer knowledge of women in Ebonyi State is on the average and associated significantly with education, but not with age and location of residence of the women. Consequently, it is recommended that breast cancer education should be used to improve the women's knowledge of the disease, especially for those with non-formal education, older women and those in the rural areas through interventions by government and non-governmental agencies and through curriculum revision for schools.*

KEYWORDS: Breast Cancer, Knowledge, Risk Factors, Education, Women, Age, Location

INTRODUCTION

Breast cancer is the commonest of all cancers and one of the major threats to health especially among women (Lakeshore Cancer Center, 2014). Report on the incidence of breast cancer reveals that one out of every eight women in the world stand a chance of having the disease in her life time (American Cancer Society, 2015). Although the incidence of breast cancer is increasing all over the world, the rate of increase is reportedly higher in developing countries where late detection of disease is common (World Health Organization, 2015). Breast cancer is already a well-known health problem in Nigeria with about 1 death in every

25 reported cases (Olaleye, 2012). A major worry about breast cancer in Nigeria is the continuous rise in the number of cases and deaths (Cancer Epidemiology, 2012), a situation which confirms LakeShore Cancer Center (Lakeshore Cancer Center, 2014) prediction that breast cancer cases may rise to 42 million by 2020 in both males and females in the country.

The primary reason for this increasing mortality rate is due to lack of early detection of disease (Badar, Faruqui, Ashraf, & Uddin, 2007). This factor is invariably a direct consequence of lack of breast cancer awareness observed in most developing countries. Knowledge about breast cancer is a fundamental element necessary for the early detection, prevention and treatment of this condition (Outlook, 2002). Knowledge for this study was considered as the possession of accurate understanding of breast cancer, its symptoms, risk factors, prevention, treatment options and centers. Adequate knowledge of breast cancer will equip women with the ability to observe and identify symptoms on time before the disease starts to spread and seek medical assistance in good time; knowledge of causes and risk factors of cancer will help in the prevention of this disease by adoption of appropriate measures and lifestyles.

Breast cancer is essentially preventable. Early detection of lump remains the most acceptable and surest means of breast cancer prevention. This action involves the adoption of three screening approaches, namely, Breast Self-Examination (BSE), Clinical Breast Examination (CBE) and mammography (Modeste, Caleb-Drayton, & Montgomery, 1999). While the practice of BSE is recommended for women starting from 20 years and should be practiced monthly, CBE is recommended for women aged 20-39 every three years. Women 40 years and above are expected to have it done yearly (Badar, Faruqui, Ashraf, & Uddin, 2007). As for mammography, the procedure is recommended for women over 40 years (every one or two years) and, after age 50, screening should be annual (Richard, McCartney, & Teresa, 2004). Women should also have knowledge of the different options available in the treatment of breast cancer. Knowledge of these treatment options will help them make wise choices since no one treatment fits every patient, and some combination is often needed in most cases (Simon, 2002). The four basic breast cancer treatments, according to Agha and Duroshola (2002), are surgery, chemotherapy, and radiotherapy and hormone therapy.

Further it is important for women to know available breast cancer treatment centers. Breast cancer treatment centers, according to Stanford Comprehensive Cancer Center (2006), brings together a highly specialized team of physicians dedicated to providing the most advanced treatments, diagnostic techniques, and surveillance for breast cancer and routine breast care. In Nigeria most of such centers are found in specialist hospitals. Some centers can also be found independently outside the big hospitals. Thus women can obtain breast cancer treatment from specialist hospitals or from breast cancer special centers. All the aspects (symptoms, risk factors, prevention, treatment options and treatment centers) of breast cancer discussed above are important knowledge, which every woman is expected to possess. This is particularly necessary since it is obvious that the disease is of unknown cause, nonspecific treatment and poor prognosis (Self & Aziz, 2000). Knowledge is power and remains the best defense. Every woman is therefore expected to properly arm herself with information to fight this highly dreaded disease

Nonetheless, some factors are known to influence breast cancer knowledge among women. These factors include, age, education and location. Studies (Ozturk, Engin, Kisioglu, & Yilmazer, 1999; Self & Aziz, 2000) showed that knowledge significantly correlated with level of education. It was observed that women who are educated were more likely to possess

satisfactory breast cancer knowledge. Similarly, the disease was found to be more common among women in the urban communities than rural (Pheby, 2002). Although breast cancer occurs frequently among older women, younger women tend to have more knowledge of the disease than the elderly (Jones, Thompson, Oster, Samid, Davis, Maryberry, et al., 2003).

Ebonyi State which is the study area is a developing state has comparably more illiterate rural women than literate and urban settlements. The zonal urban centers in the three senatorial zones of Ebonyi state are, Abakaliki, Onueke and Afikpo, and scarcely can any other be added to these three cities (Ebonyi State House of Assembly, 2006).

Most breast cancer cases in Nigeria are characterized by late presentation of patients at advanced stages of the disease when little or no benefit can be derived from any form of therapy (Okobia, Bunker, Okonofua, & Osime, 2001).This trend is quite worrisome. Again, as stated earlier, statistics indicate rising global incidence of breast cancer and the increase is occurring at a faster rate in populations of developing countries that hitherto enjoyed low incidence of the disease. These reasons constitute the stimulus for this study.

The purpose of this study therefore, was to determine levels of breast cancer knowledge among women in Ebonyi State Nigeria and to determine the difference in knowledge in line with the variables of level of educational attainment, age and location of residence of these women. The study also tested whether the difference in level of knowledge with regard to these socio-demographic variables was significant.

METHODS

Design and participants

The cross-sectional survey research design was use for the study. The population of the study comprised 1844496 women aged 35-54 years residing in the thirteen local government areas in Ebonyi State. A sample of 1845 women using the multistage sampling technique was drawn from the thirteen local government areas in the State. This represented less than 1 per cent of the total population of women aged 35-54 years residing in the state.

Instrument

A self-constructed Knowledge of breast cancer questionnaire (KBCQ) was used for the study. The KBCQ consisted of 40 items spread over sections (A- F). Section A elicited questions on personal data and embodied three questions relating to age, residence of respondent and education qualification. Section B, C, D, E and F included series of items of true and false options covering knowledge about breast cancer symptoms, risk factors, prevention, breast cancer treatment options and breast cancer treatment centers respectively. Face validity of the instrument was determined by three experts in health education. Based on the approval of these experts a final copy of the questionnaire was produced and utilized for data collection. The split half method yielded a reliability coefficient of 0.76 using Spearman Brown correlation.

Analysis

Out of 1845 copies of the questionnaire administered, 1843 representing about 99.9% return rate, were used for analysis. In describing the participants' breast cancer knowledge, a

proportion of less than 20% correct responses was considered 'very low' level of knowledge; 21-39%, 'low'; 40-59%, 'average'; 60-80%, 'high', and above 80%, 'very high' level of knowledge (Ashur, 1977; Okafor, 1997). Chi-square statistic was used to analyze data in order to ascertain the association of breast cancer knowledge and level of education, age and location of residence of the participants. An alpha level of 0.05 was set for the chi-square test. All data analyses were done with Statistical Package for Social Sciences (SPSS) Version 20.0 for Windows.

RESULTS

Table 1: Percentage of correct responses of breast cancer knowledge

S/N	Variables	% Correct Response	Decision
	Symptoms		
1	Painless lump is a symptom of breast cancer	53	Average
2	Soreness of nipples is a symptom of breast cancer	59	Average
3	Dimpling of the skin of the breast is a symptom of breast cancer	53	Average
4	Change in the shape of the breast is a symptom of breast cancer	52	Average
5	Redness of the breast is symptom of breast cancer	54	Average
6	Thickening in the breast is a symptom of breast cancer	59	Average
7	Wrinkling of the skin of the breast is a symptom of breast cancer	55	Average
	Overall %	55	Average
	Risk Factors		
8	Family history of breast cancer is a risk factor	57	Average
9	Induced abortion increases breast cancer risk	41	Average
10	First childbirth after 30 years increases the risk of breast cancer	42	Average
11	Not having a child increases breast cancer risk	36	Low
12	Menstrual cycle before the age of 12 increases breast cancer risk	33	Low
13	Alcohol consumption increases the risk of breast cancer	47	Average
14	Smoking increases the risk of breast cancer	40	Average
15	Consumption of high fat diet increases risk of breast cancer	44	Average
16	Obesity increases risk of breast cancer	41	Average
17	Poor breast-feeding increases risk of breast cancer	35	Low
18	Lack of physical activity increases risk of breast cancer	44	Average
19	Constant use of hair dyes increases risk of breast cancer	34	Low
20	Hurting the breast increases the risk of breast cancer	42	Average
21	Dense breast tissue increases risk of breast cancer	52	Average
	Overall %	42	Average
	Prevention		
22	Breast self-examination is a screening method	53	Average
23	Every woman above 20 years should do breast self-examination.	60	High
24	Breast self-examination is done with the pads of the finger and in a circular motion	63	High
25	Clinical breast examination is a method of breast examination by trained health worker.	53	Average
26	Women 20-39 years should do Clinical Breast Examination once	58	Average

	every 2 years		
27	Women 40 years and above should do Clinical Breast Examination once every year	53	Average
28	Mammography is the examination of breast lump with a special machine	49	Average
29	Mammography utilizes x-rays to detect lump	55	Average
30	Mammography can reveal early breast lump that Clinical Breast Examination cannot detect	66	High
	Overall %	57	Average
	Treatment Options		
31	Breast cancer can be treated with the use of x-ray	43	Average
32	Certain drugs are used for the treatment of breast cancer	53	Average
33	Certain hormone inhibitors are used to treat breast cancer	57	Average
34	Breast cancer can be treated by surgical removal of lumps	64	High
35	Removal of affected breast through surgery can cure breast cancer	54	Average
36	Removal of the entire breast and tissues under the arm can treat breast cancer	40	Average
	Overall %	52	Average
	Treatment Centers		
37	Breast cancer can be diagnosed and treated in Specialist Hospitals	59	Average
38	General hospitals cannot diagnose and treat breast cancer	59	Average
39	Breast cancer cannot be diagnosed and treated in herbal homes	52	Average
40	Breast cancer special centers can diagnose and treat breast cancer	59	Average
	Overall %	60	High
	Cumulative Overall %	49	Average

Table 1 above reveals that women's knowledge of breast cancer was average in all the components (symptoms 55%, risk factors 42%, and prevention 57%, and treatment options 52%, except for treatment centers (60%) were the women demonstrated high knowledge. However, the table shows that the participants' overall knowledge (49%) of breast cancer was average.

Table 2: Percentage of correct responses and chi-square analysis of breast cancer knowledge among women based on level of education attained

S/N	**Variables**	**Level of Education Attained**						
		NFE (n = 922) % Correct Response	PE (n = 76) % Correct Response	SE (n = 516) % Correct Response	PSE (n = 329) % Correct Response	χ^2-value	p-value	Dec.
1	Symptoms	37.68	56.39	64.59	74.42	12.498*	0.006	S
2	Risk Factors	34.41	40.41	47.76	55.43	5.587	0.134	NS
3	Prevention	42.83	57.89	69.08	76.22	10.336*	0.016	S
4	Treatment Options	37.82	48.03	65.31	72.14	13.275*	0.004	S
5	Treatment Center	50.62	50.99	68.07	72.95	6.599	0.096	NS
	Overall	39.01	49.34	60.16	67.66	8.714*	0.033	S

NFE = Non formal education, PE = Primary education, SE = Secondary education, PSE = Post secondary education

*S = Significant at $p < 0.05$

Table 2 indicates that women with post-secondary education demonstrated higher (67.66%) overall knowledge of breast cancer than others with secondary education (60.16%) out scoring those of primary (49.34%) and non-formal education (39.01%). Table 2 also shows that when chi-square is run, a significant association between levels of education attained by the women and their knowledge in overall and most of breast cancer items is found.

Table 3: Percentage of correct responses and chi-square analysis of breast cancer knowledge among women based on Age

S/N	**Variables**	**Age**				
		35-45 years (n = 977) % Correct Response	45-65 years (n = 866) % Correct Response	χ^2-value	p-value	Dec.
1	Symptom	59.32	49.97	0.800	0.371	NS
2	Risk Factors	45.58	38.22	0.646	0.421	NS
3	Prevention	68.68	49.96	2.954	0.086	NS
4	Treatment option	57.45	45.32	1.432	0.232	NS
5	Treatment Centers	60.26	58.69	0.021	0.886	NS
	Overall	56.43	46.03	1.056	0.304	NS

Table 3 shows that younger women showed better cognition of breast cancer components compared (symptoms 59.32%, risk factors 45.58%, and prevention 68.68%, 57.45%, and 60.43%) to older women (symptoms 49.97%, risk factors 45.58%, prevention 68.68%, 57.45%, and 60.43%). This is evident in a grand mean score of 56.43 percent for younger women (35-45) compared to 46.03% score for older women (45-54 years). Table 3 also indicates that there is no significant association between age of the women and their knowledge of overall and specifics of breast cancer.

Table 4: Percentage of correct responses and chi-square analysis of breast cancer knowledge among women based on location of residence

S/N	**Variables**	**Location of Residence**				
		Urban (n = 614) % Correct Response	Rural (n = 1229) % Correct Response	χ^2-value	p-value	Dec.
1	Symptom	59.45	52.67	0.410	0.522	NS
2	Risk Factors	49.90	37.66	1.711	0.191	NS
3	Prevention	60.59	55.57	0.217	0.641	NS
4	Treatment option	51.68	51.84	0.000	0.988	NS
5	Treatment Centers	63.64	57.45	0.316	0.574	NS
	Overall	55.61	47.81	0.588	0.443	NS

Summary of data in Table 4 shows that urban women with average score of 55.61% demonstrated higher knowledge of breast cancer than the rural women with an average score

of 47.81%. The data further indicate that there is no significant association between location and knowledge of overall and specifics of breast cancer among the women.

DISCUSSION

Findings in Table 1 reveal that generally, women in Ebonyi State had average knowledge in all the components of breast cancer. This result disagrees with the popular opinion that women in developing countries like Nigeria have poor knowledge of the disease (Okobia, 2003; Richard, McCartney, Teresa, 2004). Fregene and Newman (2005) observed that even among the most affluent Nigerian, breast cancer awareness tends to be relatively low in their list of health care priorities. Findings also disagree with those of Oluwatosin, and Oladipo (2006), which reported that women lacked knowledge of vital issues about breast cancer and early detection measures. In this study it was upheld that community-dwelling women in Ebonyi State, Nigeria have rather poor knowledge of breast cancer

Nonetheless, this result might have been accounted for by the aggressive campaign mounted by some non-governmental agencies through women meetings and other such gatherings. Examples the Ebonyi State Medical Doctors Wife Association that has mounted this campaign since 2005, ongoing Maternal and child Care programme by the wife of the state governor of the state, other interventions Omaka (2004) reported.

Summary of results Table 2 reveals that education was a strong determinant of knowledge of breast cancer among the women. It was also observed that women with post-secondary education in all most all the items had higher knowledge than women with secondary, primary and non-formal levels of education respectively. This result collaborated those of Ozturk, Engin, Kisioglu and Yilmazer (1999) which reported that women who graduated from secondary school were 22 times more likely to know and 3 times more likely to perform BSE than others. In the same light Okobia, Bunker, Okonofua and Osime (2001) reported that women with higher level of education were significantly more knowledgeable about breast cancer.

Result in Table 3 indicates that that age has significant influence on knowledge of breast cancer symptoms, risk factors, preventive measures, treatment options and treatment centers respectively. For most of these items, younger women (35-44 years) had higher knowledge than the older ones (45-54 years). These findings are not surprising since they agree with most related studies. For instance, Self and Aziz (2000) reported that women participants less than 40 years, were found to have higher percentage (22.7%) of satisfactory knowledge preprogram, than those aged 40 years and above (10.6%). Grunfeld, Ramirez, Hunter, and Richard (2002) also reported that older women were particularly poor at identifying symptoms of breast cancer, risk factors associated with breast cancer and their personal risk of developing the disease. Poorer knowledge of breast cancer knowledge among older women they observed may help to explain the strong association between older age and delay in seeking help. In the same light, Fregene and Newman (2005) observed that breast cancer case ascertainment is low among older African women because of their lower literacy rates, poor socioeconomic status, and diminished awareness of breast cancer.

The difference in the level of knowledge observed among urban and rural women as could be seen in Table 4 women is not misleading. This is in line with the observations of Fregene and

Newman (2005) that understanding and awareness of breast cancer is particularly low within the general population of Africa outside of urbanized areas. Oluwatosin and Oladipo (2006) also reported that majority of rural women were not aware of early warning signs of breast cancer and only 1.9% acknowledged a painless lump as an early warning sign. The overall knowledge of treatment of breast cancer was also very poor. However the reason for disparity in the knowledge of breast cancer between urban and rural women in the present study may be drawn from the opinion of Pheby (2002) that Breast cancer is more common in the urban than rural areas. Hoffman, de Pinho, Cooper, Sayed, Dent, Gudgeon et al. (2000) also observed a doubling of breast cancer incidence rates in women living in urban areas compared with those residing in the rural. In general high incidence of a disease increases it awareness among community members. It is a common knowledge that urban dwellers in general have more access to health and media services the role of which according to Yucel, Dekremen, Acar, Elldokuz, Albayrak, and Haktanir (2005) may enhance their knowledge of health issues especially those occurring in the community. In most rural communities in Nigeria health and media facilities and services are limited, thus rural women are less likely to have adequate knowledge of health information.

The implication of the present study is that although the percentage of women who have knowledge in almost all the items is average (40-59) a good percentage of women still lack accurate information concerning the disease, especially in the area of risk factors where they have scores ranging from 33%-47%. The researcher expects that for a disease like breast cancer a high percentage of knowledge is required among the women in other to achieve success in preventing the disease. Jones, Thompson, Oster, Samid, Davis, Maryberry et al. (2003) observed that adequate knowledge of breast cancer risks especially the role of family and personal history is significantly related to screening behaviour. These authors therefore opined that it is critical to educate women about breast cancer risk factors, early detection, prompt symptom care, treatment options and effective intervention programmes for dealing with the consequences of breast cancer.

Again, the relative implication of younger women having higher knowledge than the older ones suggests that a good percentage of the older class lack knowledge of breast cancer issues. This is not a cheering situation since breast cancer is predominantly an age related disease occurring more in older population than younger ones (Tamimi, Byrne, Colditz et al., 2007). Similarly with respect to the disparity in knowledge across educational levels, findings imply that majority of the women with non-formal and primary education is yet to have adequate knowledge of the disease. This is also the case with women in the rural areas. These findings have serious implications on the incidence of breast cancer in the state which current data suggests is already in the increase in the country (Okobia, Bunker, Okonofua & Osime, 2001).

CONCLUSIONS

Women in Ebonyi state had average knowledge of breast cancer. However knowledge of breast cancer significantly differed among women of diverse education, age and location. Women with post-secondary education demonstrated higher level of knowledge while those with non-formal education indicated low level of knowledge. While younger women demonstrated better cognition of breast cancer, women in the rural demonstrated better knowledge of this disease compared to those in the rural. However there is need for improved

breast cancer education intervention to enhance women's breast cancer knowledge in the State

RECOMMENDATIONS

Based on the findings of this study the following recommendations are made:

1. Health workers should embark on intensive breast cancer education programmes with emphasis on early detection of symptoms and personal risk assessment.

2. There is also need for the presentation of more specific programmes on breast cancer using all channels of the state and national media.

3. Programmes on breast cancer interventions should focus more on rural women, women with non-formal level of education as well as older women (44 years and above).

4. Government should sponsor Health education intervention programmes aimed at breast cancer eradication through school curriculum reviews and policies.

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