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Practices of Mammography Screening and Predictive Factors of Mammography Screening Behaviours Among Women in Nnewi North Local Government Area, Anambra State Nigeria

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Abstract

Most Nigerian women with breast cancer are still diagnosed at advanced stages of the disease or when little or no benefit can be derived from any therapy. Identifying and understanding factors that predict mammography screening behaviours are primary to instituting measures to increase mammography screening, thereby enhancing early detection of breast cancer and reduction in mortality from the disease. This study investigated Mammography screening practices and the predictive factors of mammography screening behaviour among women in Nnewi North Local Government Area, Anambra State Nigeria Descriptive survey design was adopted for the study. A sample of 425 women was drawn from total population of 77,926 women aged 15-69 years using the formula for calculating sample size for descriptive study by Fox, Hunn & Mathers. Multistage and random sampling techniques were applied in selecting the respondents for the study. A validated Breast Cancer Screening Questionnaire (BCSQ) with a reliability index of 0.92 was used for data collection. Data collected were analysed in percentages, mean and standard deviation. Null hypotheses were tested using Chi-Square and Fishers' Exact tests, at alpha level of $p<0.05$. The results showed that the practice of mammography screening was low (5.9%). Significant predictors of mammography were age ($p=0.038$), level of education ($P= 0.036$) while parity and place of residence are not predictive factors to their mammography screening practices ($P=0.199$ and 0.289) respectively. Researchers concluded that there is need for more education of the women on mammography screening practices.

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Keywords: Mammography, Screening, Practices, Predictive Factors, Women

1. INTRODUCTION

Breast cancer is the leading cancer in women worldwide in both developed and developing countries (World Health Organization (WHO),2014). Breast cancer is responsible for about 450,000 female deaths per annum worldwide (World Cancer Research Fund (WCRF) International,2014). About 29% of newly diagnosed cancers in United State were breast cancer (American Cancer Society (ACS), (2013). Also, ACS estimated average of 93,000 new cases of breast cancer annually in Africa with 50,000 deaths. Most studies in Nigeria recorded high incidence of breast cancer and a progressive increase of the disease (Amin, Ewunonu, Oguntebi & Limen,2017). Azubuike, Muirhead and McNally (2018) reported advanced stage presentation of breast cancer in Nigeria with more than 70% presenting at stage III or IV.

Early detection remains a major effective approach to combat the disease (Olowokere, Onibokun & Oluwatosin, 2012). According to Tavafian, Hasani, Teamur and Zare (2009), a 95% survival could be achieved if breast cancer is detected early. Early detection of breast cancer makes the treatment more effective which leads to better health outcomes and higher survival rates. The 5-year survival rate reaches 93 and 88% when breast cancer is detected in its earliest stages 0 and I respectively, compared to 15% in stage IV (American Cancer Association, 2012).

There are two early detection strategies for breast cancer; screening and early diagnosis (WHO, 2014). According to WHO (2014), mammography screening is the only breast cancer screening method that has proved to be effective. Again, ACS (2018) reported that mammogram screening can detect breast changes that could be cancer years before physical symptoms develop, leading to early diagnosis and greater range of treatment options. International Agency for Research on Cancer (IARC), 2008) revealed that mammography screening can reduce breast cancer mortality by 20 to 30 percent in women over 50 years old. ACS (2014) recommends that women aged 40 years and above should have a mammography screening every year, as long as they are in good health while those 55 years and above should have mammography screening every two years.

Early detection of breast cancer with mammography screening is of great importance to improve the health of the women and to decrease the cost related to cancer death. Identifying and understanding factors that predict mammography screening behaviours are primary to instituting measures to increase mammography screening thereby enhancing early detection of the disease and reducing mortality from breast cancer. Such predictors of mammography screening behaviour may include; age, level of education, knowledge of signs and symptoms of breast cancer and risk factors of breast cancer and parity of the women.

A descriptive study by Olowokere, Onibokun, and Oluwatosin (2012) on Breast Cancer Knowledge and Screening practices among women in selected rural communities of Nigeria showed that few women (3.9%) were aware of mammography and they did mammogram for the purpose of detecting breast cancer early. Popoola, Igwilo and Sowunmi (2013) in their study revealed that 64.1% of their respondents who were aware of mammography screening had attained tertiary level of education and that mammography screening practices dwindled with

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reducing educational attainment level. Akhigbe and Omuemu (2009) opined that high proportion of women had poor knowledge about risk factors for breast cancer and low knowledge of mammography as breast cancer screening method. Dahlui, Taib, Pritam and Lim (2012) in their study revealed that only14.6% (31 respondents out of 212 aged 40 and above) have had a mammography screening. Naggar and Bobryshev (2012) found from their study that only 15% had, had a mammogram once in their life and only 2% had the procedure every two or three years. They concluded that age and knowledge about mammography screening were statistically associated with the practice of mammography screening among the women. Documented evidence indicates that certain factors influence mammography screening behaviours among women (Azita & Rahim, 2011). It is against this background that this study investigated the mammography screening practices and the predictive factors of mammography screening behaviours for early detection of breast cancer among women in a densely populated city in Anambra State, Southeast Nigeria.

Statement of the Problem

Most Nigerian women with breast cancer are often diagnosed of the disease at advanced stage of the disease when little or no benefit can be derived from any therapy (Egwuonwu, Anyanwu, & Nwofor, 2012). Early detection with mammography screening remains a major effective approach to combat the disease. Identifying and understanding factors that predict mammography screening behaviours will necessitate the development of measures to improve the rate of mammography utilization thereby enhancing early detection of the disease and reduction in mortality from breast cancer.

Information from the mammography unit in Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi revealed that in 2012 only 45 women presented themselves for mammography screening, and only 6 out of this number voluntarily came for screening, 39 were referred cases. In 2013, 92 women were screened as a result of awareness sponsored programme. This notwithstanding only 40 of the women came for routine screening, others were referred cases. Also, in 2014, limited number of women (30) availed themselves for mammography out of which only 3 actually came for routine screening. The low response rate to mammography screening noted above is an issue of concern to the researchers. Bordered by this, the researchers embark on this study to determine the cancer screening practices and the predictive factors to mammography screening test among women in Nnewi North Local government Area of Anambra State, Nigeria.

Objectives of the Study

1. Determine the mammography screening practices among women in Nnewi North L.G.A.
2. Determine the factors that predict mammography screening behaviour among women in Nnewi North L.G.A.

Hypothesis

Ho: Demographic variables (age, level of education, parity and place of residence) do not significantly influence mammography screening practices of women in Nnewi North, L.G.A

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2. MATERIALS AND METHODS

A descriptive survey research design was applied to conduct this study in a densely populated Nnewi North Local Government Area, Southeast Nigeria. Nnewi North Local Government Area is an industrial and commercial city in Anambra State, Southeast Nigeria. It is made up of four sub-towns each of which is densely populated with bee-hive of activities in their extended landmass. Majority of the residents are mostly businessmen and women, artisans and few civil servants with high level of demand for quality healthcare services from the healthcare providers. Nnewi North harbours one Federal (tertiary), mission and many private health institutions each of which renders maternal health care services.

Sample of 425 participants was drawn from a population of 77,926 women aged 15-69 years using the formula for calculating sample size for descriptive study by Fox, Hunn and Mathers while multistage and simple random sampling techniques were used to select the villages and the respondents for the study. The women were recruited in their households at intervals calculated from each village population.

Data collection was achieved with investigators'-developed Breast Cancer Screening Questionnaire (BCSQ) guided by in-depth literature review. The instrument was validated for contents and tested for internal consistency using Cronbach's Alpha which yielded a reliability index of 0.92. .Ethical approval from the Research and Ethics Committee of Nnamdi Azikiwe University Teaching Hospital, Nnewi (NAUTH/CS/66/8/69) and the traditional ruler of the town permitted the researchers to embark on the study. Participation in the study was by self will and confidentiality of information from the participants was maintained.

Data generated from the study were analyzed with the aid of IBM, Statistical Package for Social Science (SPSS) version 20. Descriptive statistics of range of scores, percentages, mean and standard deviation were used for the research questions, while null hypotheses were tested using Chi square and Fishers Exact test. Statistical significance was set at $p< 0.05$.

3. RESULTS

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Table 1: Demographic Characteristics of the Respondents

n=425

		Frequency	Percent	
Age	20-29 yrs	87	20.5	
	30-39 yrs	134	31.5	
	40-49 yrs	156	36.7	
	50+ yrs	48	11.3	
	Range			20-64
	M±SD			37.83±9.29
Marital status	Single	81	19.1	
	Married	329	77.4	
	Divorced	7	1.6	
	Widow	8	1.9	
Highest Educational Level	No formal	4	0.9	
	Primary	23	5.4	
	Secondary	123	28.9	
	Tertiary	275	64.8	
Place of residence	Urban	314	73.9	
	Rural	111	26.1	
Parity	0-1 child	109	25.7	
	2-3 children	168	39.5	
	4-5 children	125	29.4	
	> 5 children	23	5.4	
	Range			0-10
Menstruation Status	Still menstruating	369	86.8	
	Stopped menstruating	56	13.2	

Demographic characteristics of the respondents presented on table 1 showed that majority of the respondents were between 40-49 years (36.7%) The mean age and standard deviation were 37.83 ± 9.29. Most of them 275 (64.8%) attended higher education and majority, 168(39.5%) had 2-3 children. Most of the respondents, 329 (77.4%) were married and 369 (88.4%) still menstruate.

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Table 2: Mammography screening Practices of the respondents. n=425

		Frequency	Percent
Performance of mammography	Yes	26	6.1
	No	399	93.9
Reason for mammography performance	To detect breast cancer earlier than CBE and BSE	8	32.0
	Having breast cancer symptoms	2	8.0
	Doctors' advice	14	56.0
	Free x-ray test check-up	3	12.0
	Referred to do mammogram after CBE	4	16.0
	Age above 50 years	3	12.0
Frequency of mammography performance	Every year	14	53.9
	Every 2 years	7	26.9
	Not specific	5	19.2
Last time of mammography performance	That year	3	11.5
	Last 1 years	14	53.8
	Last 2 years	5	19.2
	Last 3 years	4	15.4
Place of performance	Nnamdi Azikiwe Teaching Hosp. Nnewi	24	92.3
	Iyi-Enu Mission Hospital, Ogidi	2	7.7

Table 2 showed that only (5.9%) performed mammography, and the prevailing reason for these participants was based on doctors' advice (56.0%). Most participants (56.0%) performed it yearly and have performed it the last year (56.0%). Almost all the participants performed mammography at the teaching hospital (96.0%).

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Table 3: Predictors of Mammography Screening

		Mammography Performance		Total	Chi-Square	Fishers Exact	df	p-value
		Yes	No					
Age	20-29 yrs	4(4.5)	85 (95.5)	89(100.0)	8.438		3	.038
	30-39 yrs	11(8.3)	122(91.7)	133(100.0)				
	40-49 yrs	5(3.2)	149(96.8)	154(100.0)				
	50+ yrs	6(12.2)	43(87.8)	49(100.0)				
	Total	25(6.1)	399(93.9)	425(100.0)				
Level of Education	None/Primary	4(14.3)	24(85.7)	28(100.0)	6.656		2	.036
	Secondary	5(4.1)	117(95.9)	1222(100.0)				
	Tertiary	17(6.2)	258(93.8)	275(100.0)				
	Total	26(6.1)	399(93.9)	425(100.0)				
Parity	0-1 child	4(3.7)	105(96.3)	109(100.0)	4.657		3	.199
	2-3 children	12(7.9)	156(92.9)	168(100.0)				
	4-5 children	7(4.8)	118(95.2)	125(100.0)				
	> 5 children	3(13.0)	20(87.0)	23(100.0)				
	Total	26(6.1)	399(93.9)	425(100.0)				
Place of Residence	Urban	22(7.0)	293(93.0)	315(100.0)	1.122		1	.289
	Rural	4(3.6)	106(96.4)	110(100.0)				
	Total	26(6.0)	399(94.0)	425(100.0)				

Table shows that significant difference exists between different age groups and mammography performance, (p = 0.038) and educational levels (p = 0.036). Age is associated with mammography practices especially among the elderly women, those up to 50 years and above (13.0%) while educational level was associated with those with no formal/primary (23.1%).

In parity (p = 0.199), place of residence (p = 0.289).

4. DISCUSSION

Mammography screening practices among women in Nnewi North LGA

Findings from the study showed that only 5.9% of the women present themselves for mammography, screening indicating poor mammography screening practices. Those that performed the mammography do so mostly as means of adhering to doctors' directive for detecting of breast cancer and reaching diagnosis and not just as routine screening like Breast Self Examination and Clinical Breast Examination. This agrees with the findings of Dündar *et al*,

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(2006), where only 5.1% of their study population had had an annual mammography for over a two year period. This also agrees with the findings of Bilal *et al* (2009) in which only 4.9% practiced mammography as a screening method. The result was not different from the findings of Obajimi, *et al* (2013) where proportion of women who ever heard of mammography was 5%, and they demonstrated poor knowledge of the procedure.

The result differs from the findings of Boxwala *et al* (2009), where they reported high rate (63.8%) of mammography among Asian-Indian women. Among the few women who performed mammography, (56.0%) did so yearly. It also disagrees with the findings of Nagger and Bobrysher (2012) where 6% of the participants practice mammography every year.

The researchers hereby concluded that practice of mammography screening that detects breast cancer early was poor in the study area, indicating possible lack of awareness of breast and cancer screening methods especially mammography that can detect breast cancer years before physical symptoms develop.

Influence of age on mammography screening practices among the women

Study showed that age is associated with mammography practices with the elderly women having more practice interest ($p = 0.038$) than the younger women. Hence age is a predictor of mammography screening behaviour of women in Nnewi North LGA

This finding is similar to the findings of Naggar and Bobryshev (2012) where they found out that age was significantly associated with mammography practice. It could be that elderly women perceived themselves more susceptible to breast cancer leading to their presenting themselves for mammography screening practice than the younger women. Risk of developing breast cancer is higher among the elderly women.

Influence of level of education on mammography screening practices among the women

This study revealed an association between level of education and mammography uptake ($p = 0.036$). That is, the higher the level of education of the women the higher their practice of breast cancer screening. Women with tertiary education presented themselves for mammography than those without tertiary education. Hence, level of education is a significant predictor of mammography screening behaviour of the women.

This agrees with 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 mammography dwindled with decreasing educational attainment. Again, Ahmadian, *et al* (2012) in their study showed significant relationship between education and mammography practice. Since women with tertiary education were more likely to perform breast cancer screening than those with lower level of education, it indicates that education may likely play a role in the awareness of breast cancer among the women. This notwithstanding, it differs from the findings of Al-Mulhim (2001) where poor knowledge and considerable negative attitude towards mammography in all identified age groups, and on all educational levels.

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Influence of parity on mammography screening practices among the women

The findings from the study revealed lack of significant association between parity and mammography screening practices among women in Nnewi North Local Government Area (p = 0.199). This is similar with the findings of Ahmadian, *et al* (2012) where they indicated lack of significant association between parity and mammography screening practice among their study population.

Influence of place of residence on mammography screening practices among women

Study showed that there is no association between place of residence of the women (urban/rural) and their mammography screening practices (P=0.289). This agrees with the findings of Leung and Arthertonf (2015) where they concluded that women living in rural areas are not less likely to attend for screening mammography compared to women living in urban areas. On the contrast, the finding differs from the findings of Stamenic and Strnad (2011) where they concluded that living in rural areas may be associated with lower access to health care and mammography.

Conclusion

Mammography screening has in no small measure aided early detection of breast cancer and institution of early treatment for those detected to have the cancer with many lives saved. This notwithstanding, it is worrisome that limited number of women presents themselves for this test. There is need for more education of the women on the need for early detection of breast cancer. Also, high educational attainment may increase the women's mammography uptake. These call for nurses, the policy makers, professional associations and Nigeria Ministry of Health to play a role in achieving the goal of ensuring that most women become subjected to this screening through policy proclamation.

Implication of the Study

Drawing inference from the findings, the researchers feel that the few number of women that present themselves for mammography is source of worry as the most efficient screening test for early detection of breast cancer is poorly undertaken by women indicating that majority of women with breast cancer may be detected at later stage of the disease when little or nothing may be done to achieve better result. This can continuously increase the maternal morbidity and mortality rate of the nation.

More also, the predictive factors identified for mammography screening among the women are such that there is need for every health care provider to be involved in educating women whenever and wherever the opportunity arises to expand their knowledge on the screening and its benefits remain indispensable.

Recommendations

Based on the findings of the study the following recommendations were made:

1. The Federal Government should develop a national breast cancer screening programme based on screening mammograms and provision of facilities to confirm and treat as urgent any abnormal lesion detected.

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2. A well packaged health education programme through the mass media, online lectures and formal classroom lectures for women on risk factors and early dedication of breast cancer and mammography that detect breast cancer early

3. More public enlightenment campaign and health education to women on breast cancer and importance of routine screening methods using community facilities through the town hall meetings, annual women general meetings, age grade and religious associations. This could be done by public/community health nurses through giving health talks and symposia.

4. Periodic community mobilization and sensitization campaign should be carried out by health educators at the grassroots on risk factors and early indications of breast cancer and screening methods (mammography).

5. Women need reinforcement or reminder to encourage them perform breast screening (mammography) regularly.

Limitations of the Study

This study used descriptive design therefore the findings cannot be conveniently generalized to the population.

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