Assessment of Factors that Affect Awareness of the Preventive Measures of Breast Cancer among Women in Ivo, Lga of Ebonyi State

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ABSTRACT

This study assessed the various factors influencing awareness and knowledge of breast cancer preventive measures among women in Ivo Local Government Area of Ebonyi State, Nigeria. A total of 310 women participated in the study through a self-administered questionnaire that captured their sociodemographic data, awareness levels, knowledge, and practices regarding breast cancer. Data analysis was conducted using SPSS version 16. The mean age of participants was 32.5 years ± 8.83. Findings revealed that 46.9% of the respondents had good awareness of the signs and symptoms of breast cancer. However, a significant proportion of the women demonstrated poor awareness of breast cancer risk factors (83.9%) and an even higher percentage had poor overall knowledge of breast cancer (97.7%). Although 263 women reported having heard of Breast Self-Examination (BSE), only 151 (48.6%) actually practiced it. Furthermore, only 16.7% had good knowledge of BSE. Alarmingly, 90.4% of the respondents had poor awareness of general breast cancer screening and preventive measures, including BSE, Clinical Breast Examination (CBE), and mammography. These results highlight a major gap in breast cancer education and practice among rural women in Ivo. The study underscores the urgent need for targeted and sustained medical education and community outreach programmes to improve women's awareness and knowledge about breast cancer, especially its risk factors, early warning signs, and available screening methods. Strengthening health communication strategies in rural areas will play a critical role in enhancing early detection and reducing the burden of breast cancer in these communities.

Keywords: Breast Cancer, Awareness, Self-Examination, Women, Risk factors, Mammography, Education programmes, Rural Areas.

INTRODUCTION

Breast cancer is cancer that develops from breast tissue. Breast cancer is the most common cancer among women globally, accounting for 16% of all female cancers and posing a significant public health challenge, particularly in low- and middle-income countries (LMICs) like Nigeria [1]. In 2012, 1.67 million new breast cancer cases were diagnosed worldwide, with approximately 522,000 deaths [2]. Sub-Saharan Africa recorded one in four female cancer diagnoses as breast cancer, and one in five cancer deaths among women was due to it [3]. In Nigeria, the burden is rising, with over 102,000 new cancer cases reported in 2012 and a breast cancer incidence rate of 54.3 per 100,000—higher than GLOBOCAN's earlier projection of 38.7 per 100,000 [4]. The increasing incidence in southern Nigeria is linked to urbanization, increased life expectancy, and the adoption of Western lifestyles [5]. A major challenge is late presentation, with about 70% of Nigerian breast cancer patients seeking medical help at advanced stages. This is largely due to limited awareness, especially in rural areas, about the disease, its symptoms, and the importance of early detection and treatment [6].

Breast cancer awareness involves understanding its symptoms, risk factors, preventive measures, and available treatment options. Proper awareness enables early detection, which is key to improving survival rates [7]. Despite advancements in treatment and early detection techniques like mammography in developed countries, which have led to reduced mortality, many women in Nigeria lack access to such services due to inadequate infrastructure and poor healthcare funding [8]. Barriers to early detection and treatment in Nigeria include lack of awareness, limited screening programs, social stigma, poor healthcare infrastructure, and cultural beliefs [9].

Many women avoid screening due to fear, misinformation, and the low prioritization of women's health in patriarchal societies [7]. Education has been identified as a major determinant of awareness and healthcare behavior, as women with higher education levels tend to be more aware and likely to adopt preventive practices like Breast Self-Examination (BSE) and Clinical Breast Examination (CBE) [3][10].

Reports indicate that women in high-income countries present with less advanced stages of breast cancer due to regular screening and awareness campaigns [11]. Conversely, in LMICs like Nigeria, delayed diagnosis leads to poor prognosis and limited treatment outcomes [12]. Healthcare professionals play a critical role in influencing women's attitudes towards screening, while their own knowledge and attitudes also significantly impact the effectiveness of awareness and prevention campaigns [10].

Furthermore, early detection and timely treatment are essential to reducing breast cancer mortality [13]. Nigeria's high late-stage presentation rate underscores the urgent need for enhanced public health education, stronger screening programs, and healthcare system improvements [14]. Combating breast cancer effectively in Nigeria will require multisectoral efforts involving healthcare professionals, government agencies, and community stakeholders to raise awareness, promote early screening, and ensure access to appropriate care [15]. Breast cancer incidence is rising globally, especially in developing nations like Nigeria [16]. In Jos, rates increased from 11.8% in 1994 to 18.6% in 2002, and between 2001–2007, it was the most diagnosed cancer among women at LUTH (38%), with 70–80% presenting at advanced stages [17]. Nigeria's breast cancer mortality rate (51%) is significantly higher than the U.S. (19%), compounded by poor cancer data quality [18]. Although PHCs promote breast self-examination (BSE), few women practice it or know how to [19][20]. This research study aims at investigating the various factors affecting or influencing awareness of breast cancer screening measures, which is the leading cancer among woman in Nigeria. This study target mostly rural women who have low resources and practically have little or no access to adequate medical care and are more likely to develop cancer and die from it.

RESEARCH METHODOLOGY

Study Area

The study was conducted in semi-urban and rural communities in Ivo Local Government area of Ebonyi state. Ebonyi State shares boundaries with several states, to its south are Abia, Anambara and Imo, to its north Enugu and East is Cross-river. It has an area of about 5,533sqkm.[a] The people are ethnically igbos though several Igbo dialects are spoken including Edda, Ehugbo, Ezza, Ikwo etc. English language and its adulteration are widely spoken in the rural and urban areas. The population of Ebonyi State is 2.18 million according to the 2006 National population census.[b] The state is made up of 13 local government areas comprising 3 urban LGA, 5 semi-urban LGA and 5 urban LGA grouped into 3 senatorial districts namely Ebonyi North, Ebonyi Central and Ebonyi South.[c]

The health service delivery in Ebonyi state is structured into three tier system with primary health care at the base supported by secondary and tertiary health care level. There are two tertiary health facilities in the state namely Federal Teaching Hospital, Abakaliki, and Ebonyi University College of Medicine. Health Sciences Abakaliki, 13 General hospitals and, 417 primary health centres. It is home to six higher institutions of learning. Ebonyi State University Abakaliki, Federal University Ndufu Alike, Ikwo; Akanu-Ibiam Federal College of Agriculture Ishiagu; Ebonyi State College of Health Sciences, Ezzamgbo. There are two cancer screening centres in Ebonyi State namelythe National Obstetric Fistula Centre and the Ebonyi State University Teaching Hospital. Unfortunately both of them are located at the state capital Abakaliki. The fistula centre has provided free breast and cervical cancer screening for over 15,000 Nigerian women in Ebonyi and neighboring states since its inception in 2012.

Study Design

The study design used is cross sectional survey.

Study Population

The target population is the women of reproductive age in Ivo Local Government Area of Ebonyi State.

According to the 2006 census, they were 59,314 females in Ivo L.GA out of which 26,425 women were reproductive [b]

Inclusion Criteria

(a) Women of reproductive age (18 years and above) who are present residents in the study area

(b) Selected women of reproductive age (18 years and above) who gave informed consent.

Exclusion

(a) Women of reproductive age (18 years and above) who do not give their consent

(b) Women who are less than 18 years of age

(c) Women that were mentally challenged.

Age was determined by the age of last birthday the women presented and my judgment of their ages.

Sample Size Determination

A convenient sample size of 310 women were recruited across the wards that make up the Local Government area. Recruitment was through various women's Organizations, churches, community centers and mostly, the primary health centers domiciled in the council area.

Sampling Technique

A random sampling technique was used to pick 6 wards out of the 11 electoral wards that made up the Local Government Area which was first selected for inclusion in the study by balloting. All the households in the selected electoral wards were then serially numbered and one in 5 was selected until the desired sample size attained which were the eligible women of the reproductive age.

Study Instruments

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 four, questions on age, marital status, educational level and employment status. Sections B, C and D included series of questions covering knowledge about breast cancer signs and symptoms and risk factors, while section E elicited questions on the awareness of the preventive and screening measures of breast cancer. Section F included questions on knowledge and practice of breast self-examination. Face validity of the instrument was determined by two experts in community health education. Based on the approval of these experts, a final copy of the questionnaire was produced and utilized for data collection.

All of the 310 copies of the questionnaire administered were returned and were subsequently used for analysis. In describing the participants breast cancer knowledge, a proportion of less than 57% correct responses was considered bad knowledge, above 57% level of knowledge. For awareness of both breast cancer symptoms and risk factors, response rate of over 50% was considered good awareness while scores below 50% was not enough awareness. For awareness of screening and preventive measures, scores below 33.3% was considered bad while scores above 33.3% was good awareness.

Data Collection Methods

Primary data was collected using semi-structured self-administered and open ended questionnaires, informant interview schedule. Advocacy visits to the leaders of the communities were paid by the principal investigator and assistants. This lasted for a week across the study area; subsequently health education and sensitization for the formats especially in the communities and also to avail them of the benefits of this study.

Data Analysis

The data collected was analyzed using SPSS, proportions and tables were used in data presentation.

Ethical Consideration

Permission to carry out the study was obtained from the Board of post graduate studies of Abia State University, Uturu and Director of Health, Ivo Local government Area. Informed consent from the respondents was obtained from adequately outlining to them the objectives of the study. The respondents were assured of confidentiality with all the information they provided in the questionnaire.

RESULTS

Table 1 shows the socio-demographic characteristics of study population. A total of 310 women participated in the survey. More than half of the respondents, 57.3% (177/310) were aged above 30 years. Majority of the respondents were employed. About 90% (279/310) have either secondary or tertiary education; while about two-third were either married or divorced.

Table 2 shows the knowledge of breast cancer. Only 7 (2.3%) of the respondents scored 4 and above which is good knowledge of breast cancer.

Table 3 show that 46.9% (146/310) of the respondents scored 2 and above i.e had good awareness of some of the signs and symptoms of breast cancer Breast lump was the most commonly identified sign/symptom of breast cancer.

In relation to the awareness of risk factors of breast cancer, more than half of the respondents 83.9% (260/310) had bad awareness of some of the risk factors of breast cancer in table 4. However, majority recognized having a family history as a risk factor of breast cancer.

Table 5 show participants response to question of awareness of breast self-examination. More than two-third 84.6% (263/310) of the respondents who have heard about BSE.

In table 6, majority of the respondents 90.4% (280/310) had poor knowledge and awareness of breast cancer preventive and screening measures. Only 9.6% of the participants scored 3 and above on questions about BSE, CBE and mammography. Awareness about CBE and mammography were not satisfactory.

In table 7, more than one-third (126/310) of the respondents reported the media (television & radio) as the sources by which they heard about breast cancer. Unfortunately, the health facilities were the third source of information on breast cancer.

Table 8 showed that more than half of the respondents 51.4% (159/310) are not practicing BSE in the past two years.

Among the respondents 83.3% (258/310) had poor knowledge of breast self-examination in table 9. The low level of knowledge of BSE might have influenced the practice of BSE.

Table 1: Socio-demographic characteristics

Category	**n (310)**	**%**
*** Age Group (years)**		
18 – 23	43	13.8
24 – 29	90	28.9
30 – 35	84	26.1
36 – 41	42	13.5

42 - 47	24	7.7
48 – 53	16	5.1
54 – 59	11	3.5
Mean SD	32.5 (8.83)	
*** Education Status**		
Primary	31	10
Secondary	87	28.1
Tertiary	192	61.9
*** Marital Status**		
Single	110	35.4
Married	177	57
Divorced	6	1.9
Widowed	17	5.5
*** Occupation**		
Students	80	25.7
Employed	143	46.3
Farmer	38	12.2
Housewife	49	15.8

Table 2: Knowledge of breast cancer

Knowledge Status	**Knowledge Score**	**N (310)**	**%**
Good	=> 57	7	2.3
Bad	< 57	303	100

Table 3: Awareness of breast cancer's signs/symptoms

Awareness Status	**Awareness Score**	**N (310)**	**%**
Good	=> 50 (2/4)	146	46.9
Bad	< 50 (2/4)	164	53.1

Table 4: Awareness of breast cancer risk factors

Awareness Status	**Awareness Score**	**N (310)**	**%**
Good	=> 50 (3/6)	50	16.1
Bad	< 50 (3/6)	260	83.9

Table 5: Awareness of Breast Self- Examination (BSE)

Awareness (Heard of BSE)	**N (310)**	**%**
Yes	263	84.6
No	47	15.4

Key: BSE (Breast Self-Examination)

Table 6: Awareness and knowledge of preventive and screening measures of breast cancer.

Awareness Status	**Awareness score**	**N (310)**	**%**
Good	=> 33.3 (3/9)	30	9.6
Bad	< 33.3 (3/9)	280	90.4

Table 7: Source of Information on breast cancer

Source of Information	**N (310)**	**%**
Hospital	53	
Radio	32	
Family and friends	67	
Television	94	
News	12	
Others	52	

Table 8: Practice of BSE

Practice of BSE	**N (310)**	**%**
Yes	151	48.6
No	159	51.4

Key: BSE (Breast Self-Examination)

Table 9: Knowledge of Breast Self-Examination

Awareness Status	**Awareness Score**	**N (310)**	**%**
Good	=> 50 (2/4)	52	16.7
Bad	< 50 (2/4)	258	83.3

DISCUSSION

Studies have been done on awareness, knowledge, attitude and practice of breast cancer screening in Nigeria [13, 6, 10]. A majority of the respondents in this study belong to the young population. Eighty two percent are below the age of 41 years with total age means of 32.50 $\pm$ 8.83 years (Table 1). This is well within the reproductive age of women. This is higher than the mean age of 29.10 $\pm$ 10.5 years and the mean age of 27 $\pm$ 5.9 years and 29.1 $\pm$ 10.5 years in similar studies [13, 10]. Higher number completed their tertiary education 192 (61.9%) and also a majority of the women 194 (62.5%) being, married or widowed. There seems to be a paradigm shift from the ancient traditional culture where women are seen as unfulfilled, if she is, yet to settle the issue of marriage as at when due irrespective of her education attainment.

From the findings, the percentage of women that had good knowledge of breast cancer was very small (2.3%). This is made worse having recorded that majority of the women are enlightened. Report suggested that people with higher education tend to have better knowledge and practices towards breast cancer prevention. The results of this study suggest that most rural community – dwelling women in Nigeria have rather poor knowledge of breast cancer. This may partly explain the late presentation seen in over 70% of women with the disease [10].

The low level of knowledge found in this study is in keeping with reports of other investigators [6, 13]. In a

survey of breast cancer knowledge, Okobia et al. [6] noted that only 21.4% of the respondents knew that a breast lump was a warning sign for breast cancer and far less proportion of the women that breast cancer can be cured if discovered early. However, studies from [10, 21] showed that most of the respondents have good knowledge of breast cancer with less number however correctly stating that it is the commonest cancer among women. Similar study in Iran [22], also reported high level of knowledge of breast cancer. The poor knowledge of breast cancer from this study might be due to the little or no breast cancer sensitization campaign across most rural settings in Nigeria in the past few years, or possibly due to the fact that the women despite their appreciable level of education, do little to get information about the disease.

It is known that grounds for high breast cancer mortality comprise poor or suboptimal information about the disease warning signs, risk factors, diagnosis and treatment. An increase in awareness about risk factors and symptoms and risk-reducing strategies are important for the primary prevention of breast cancer and awareness based early detection as an intervention for improving breast cancer survival as well. This study indicated that the level of awareness of breast cancer signs/symptoms is poor among the women. While most of the women were aware that a painless lump might be an early sign of breast cancer, only 46.7% had good awareness of it Table 3. A similar study done in the eastern part of China reported that only 18.6% of women showed good awareness of breast cancer signs [23]. Similar study by [10] showed that 43.8% by the women are aware of breast cancer signs / symptoms.

The report of this study is contrary to the finding of a study among teachers [24]. Also, a study carried out in Ebonyi State Nigeria reported that younger women below the age of 40 displayed better awareness (59.32%) of breast cancer signs/symptoms.

The most common presentation, which is painless lump as an early sign of breast cancer was the most answered correctly, it is still not encouraging that about 53.1% of the respondents are unaware of other signs of the disease. Pain in the breast region identified as a leading sign has appeared together with painless lump as a leading signs/symptoms in a study in Malaysia [25]. However it was only recognized by a few in several other studies [21, 26, 27]. The awareness of breast cancer signs/symptoms in this study is poor. This might be due to the assertion, that Urban dwelling women are more aware of breast cancer signs/symptoms than the community dwelling women.

Table 4 indicates that only 16.1% (50/310) of the respondents had good awareness and knowledge of breast cancer risk factors i.e being able to identify up to 3, breast cancer risk factors. This findings was lower compared to findings of Okobia et al [6]; Salaudeen et al. [28]; and Azubuike and Okwuokei [10]. (21.4%, 36.7% and 49.7% respectively). They also reported that more than 50% of female subjects did not know about risk factors of breast cancer. Similar studies conducted in India and Eastern part of China, also showed poor awareness of breast cancer risk factors [23, 29]. However, good and fair awareness (35% and 40% respectively) were reported in Pakistan [30] but the respondents were nurses.

Several factors affect an individual's risk of developing breast cancer some of which are modifiable and largely related to lifestyle, social, economic and environmental factors. It is therefore essential for woman to know about. These factors early in life so they can make the right lifestyle choices concerning these risk factors, since an increase in women's awareness can change their risk perceptions and behaviours.

The low level of awareness of risk factors of breast cancer among the respondents despite their higher education level raises concerns about the availability of requisite information of breast cancer risk factors to a vast majority of Nigerian women. More disturbing is the fact that reports from similar studies among female healthcare providers [31] showed an unsatisfactory level of awareness about breast cancer risk factor.

This study also observed the disparity between the awareness of breast cancer risk factors and its signs/symptoms (16.1% and 46 9% respectively). Similar reports was also expressed among women in Abakaliki, Ebonyi State [32] perhaps, it might be concluded that most of the respondents are ignorant of most of the health promoting activities that have been proven to reduce the risks of breast cancer.

Table 5 showed that majority of the women 263(84.6%) were aware of BSE, Same cannot be said for both CBE

and mammography. The proportion of the respondents who had heard of BSE was higher in BSE than in CBE; Awareness of mammography was the least. This findings is similar to that of other indigenous and foreign studies [33, 34].

The use of screening methods was poor among the respondents; only 48.6% practiced BSE monthly irrespective of whether it was done correctly or not; timely or not was likely to be an indication that the women lack detailed information about BSE. Similar low practice of BSE was recorded among Korean women [25] and also in Benin City, Nigeria [10]. However, Odusanya and Tayo [35] reported an 89% practice rate of BSE monthly among nurses. A study by Ibrahim and Odusanya [18] also among female healthcare professionals reported 95% compliance to BSE monthly. Community- based studies in developing nations often report low rates of regular BSE among women [36][6]. In contrast, higher rates are commonly found among women from developed countries where breast cancer awareness is believed to be better.

In relation to the general awareness and knowledge of the preventive strategies of breast cancer- BSE, CBE and mammography, Table 6 shows that overwhelming majority of the respondents 90.4% (280/310) had poor or bad awareness knowledge. Similar low level of awareness of preventive measures was reported in Tanzania. Aluko et al. [13] also reported low level of awareness of breast cancer screening measures among female postgraduate students. Azubuike and Okwuokei [10] opined that, the better the awareness and knowledge of breast cancer screening and preventive measures, the more likely the women are likely to carry out BSE for the purpose of early detection. This agrees with a study done in turkey [33]. However, study by Ibrahim and Odusanya [18] among health professional reported a good awareness of both CBE and mammography. It could be inferred that most of the women who participated in this study did not know more than the contextual meaning of the preventive and screening measures of breast cancer, It implies that though most of the women actually are aware of the screening practices especially BSE, It appears that the respondents had not received adequate training on the practice of breast cancer screening Thus, the information they claimed to have was not sufficient and therefore had not translated to into regular, correct and appropriate practices of the preventive measures for early detection of breast cancer.

Table 7 showed that, the source of information of the respondents about BSE and other preventive measures of breast cancer was majorly from the electronic media. Similarly, study in Lagos also reported electronic media as the chief source of information about breast cancer preventive measures [37]. However, Aluko et al. [13] reported health workers to be the major source of information on breast cancer screening measures. Other methods of communicating health information and education should be explored to improve breast cancer screening practice among rural women mostly.

From the findings of this study, the respondents that had good knowledge of BSE was not encouraging 16.7% (52/510).This was the same repost in Cameroun, that the women had misconception about BSE and breast cancer generally, for so many it was an attitudinal challenge of touching one's body. Aluko et al, [13] also reported 11% knowledge of BSE among female post-graduate students. Similar studies by Okobia et al [6] reported poor knowledge of BSE. A substantial number of women remain ignorant of breast cancer issue. This study highlighted the fact that the level of knowledge of breast concern which was significantly bad (97.7%) might have influenced the knowledge and practice of BSE, CBE and mammography. Thus, the better the level of knowledge, the more likely the women are likely to carry out breast cancer preventive measures for the purpose of early detection. This agrees with the study of done among rural women in Imo state [38].

CONCLUSION

This study revealed a low level of knowledge and only moderately high awareness of breast cancer signs and symptoms among women in Ivo Local Government Area, Ebonyi State. Despite many respondents having at least secondary education, myths about breast cancer persist. Health care facilities and professionals were not the main sources of information, which may contribute to misinformation. Additionally, the study found that awareness did not necessarily translate into the practice of breast cancer screening procedures such as BSE, CBE, or mammography. These findings highlight the need for targeted health education and improved engagement by healthcare providers in rural communities.

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