

Knowledge, Attitude and Breast Cancer Screening Practices among Women of Reproductive Age in Ezza North Local Government Area of Ebonyi State, Nigeria

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Abstract:

Background: Breast cancer is the most commonly diagnosed cancer among women worldwide and remains one of the leading causes of cancer-related deaths. The objective of the study is to ascertain the knowledge, attitude and breast cancer preventive practices of women of reproductive age (15 – 49 years) in Ebonyi State. **Methods:** A descriptive cross-sectional study design was adopted in the study. It consists of 383 women of reproductive age in Ezza North and they were selected across the two zones of the local government area using multi-stage sampling technique. **Results:** The study revealed that several 132(34.5%) of the respondents are of ages 20-29 years, majority 265(63.2%) and 289(75.5%) of the study participants have attained secondary and tertiary level of education respectively, more number 306(79.9%) of the respondents are Christians, and several 350(83.5%) of the participants are students. More than half 216(56.4%) of the participants have good knowledge of breast cancer while a lesser fraction 167(43.6%) of the respondents have poor knowledge of women about breast cancer. Majority 256(66.8%) of the participants have positive attitude towards breast cancer preventive practices. Also, most 277(72.3%) of the participants have good preventive practices of breast cancer and none of the participant has breast cancer. The shows that there is statistically significant relationship between age ($p=0.0001$), religion ($p=0.0001$), occupation ($p=0.0001$), and preventive practices of breast cancer. **Conclusion:** The findings indicate that most respondents demonstrated adequate knowledge about the nature, causes, and prevention of breast cancer, recognizing it as a leading cause of death among women and emphasizing the importance of early detection through awareness and screening. Continuous and community-based breast cancer awareness programs should be implemented to sustain and expand women's knowledge of the disease, its risk factors, and early detection methods.

1. Introduction

Breast cancer is a malignant tumour that forms in the cells of the breast. It occurs when abnormal cells in the breast grow and multiply uncontrollably, forming a tumor that can invade surrounding body tissues

and spread to other parts of the body.¹ Breast cancer is a proliferating cell that emanates in the living cells of the duct or lobules within the glandular tissue of the breast. Breast cancer is a worldwide health challenge that affects millions of women and in some cases, men across the globe. Breast cancer remains the leading type of cancer and a major causes of death among women. By 2020 685,000 people died worldwide as a result of breast cancer with about 2.3 million new cases identified.²

Breast cancer has been a major diagnosis among women globally. It was reported that 5 years prevalence of breast cancer accounted for 7,790,717 (30.3%) cases, according to global cancer observatory for all ages among female population with 685,000 deaths in the year 2020.³ In India, breast cancer is the top fourth cancer on the cancer list during 1990s but it is presently the most prevalent of all cancer in women in the country.³ Breast cancer has the tendency to invade the nearby cell and tissue, hence if abnormal cell is detected on time. It may have a high possibility of better treatment and survival. To that end several screening approaches has been adopted such as mammography and magnetic resonance imaging (MN) to test for cancerous cell among asymptomatic populations. Meanwhile due to some factors such as insensitivity of mammography in sub-population of women, the unaffordable cost of MRI, poor access to equipped healthcare centre in low and middle-income countries has been a major challenge.³

Breast cancer is the main causes of death as a result of cancer amongst women in the world. Generally, in the world, the incidence of breast cancer has been increasing yearly by 3.1%, the cause of this increase of breast cancer is attributed to number of factors which include inactive lifestyle, urbanization, environmental changes and reproductive risk factor.⁴ Breast cancer early detection is directly dependent on the women's knowledge about breast cancer and breast cancer screening methods. Prevalence of breast cancer is higher in developed than developing countries. Breast cancer is one of the major causes of death among Iran women with record of 21.4 cases in 100000 in all ages and 17 cases in 10000 in specific age.⁵ More so, cancer has over the years remained a worldwide health challenge, accounting to high rate of disease and death across the globe. According to international Agency for Research on Cancer, there were almost 14 million new cases of cancer in 2012. Among all the cancers, breast cancer remains the major type of cancer diagnosed among women and second cause of death amongst women worldwide. The rate of breast cancer has become a thing of major health concern, especially in poor and middle-income counties where many deaths has been recorded as a result of the disease.⁶ Worldwide breast cancer prevalence rate is 2.08 million among 18.08 million of new cases (11.6%) and 626,679 among 9.55 million death as results of cancer (6.6% of all death as result of cancer) in 2018 World Health Organization (WHO). The rate of breast cancer in India has outnumbered the cancer of the cervix and oral cavity to be the major type of cancer and major cause of death as result of cancer

By 2018, breast cancer new cases diagnosis reached 162,468 which is 27.7% of all new cancer cases in all age of India women and account for 11.1% of all cancer deaths.⁷ The incidence of breast cancer is said to increase up to 85% in 100000 women by 2021.⁸ The rate of breast cancer is now a public health concern, especially in low and middle - income countries in which it is a major cause of mortality. In Lebanon, the age at which most patients with breast cancer report are 49 years, thereby making early detection and intervention difficult.⁹

Furthermore, according to ¹⁰ Cancer is disease condition that occur as a result of uncontrolled growth of cancer cells, it involves the proliferating cells that can affect the surrounding tissues and cell of the body. Breast cancer is the leading type of cancer diagnosis among women in the kingdom of Saudi Arabia and other Middle East countries. Breast cancer imaging and therapy. In Ghana, breast cancer is the leading type of cancer and the major causes of cancer death among women. In 2020, breast cancer incidence was rated at 31.8% of all cancer cases in Ghana. Evidence indicate that cultural factors like conceptualizations of health, illness, belief and values affect breast cancer screening among women.¹¹

In another study, breast cancer was identified as a major health problem among Ghanaian women, with about 2,900 cases reported yearly with one in eight of them dying as a result of the disease. This has led the ranking of breast cancer as the major causes of cancer related death in Ghana over the decade.¹² Breast cancer is now a public health concern, especially in low and middle-income countries in which it is a major cause of mortality. Meanwhile, ¹³ in their study conducted in Ethiopia identified breast cancer as proliferated tumor that emanates from breast tissue, and contains milk-producing glands called lobules and ducts which link the lobules to the nipple. This study stated that the causes of breast cancer is not known but is seen as a disease as a result of some factors such as being a female, age, family history of breast cancer, early menarche (under 12 years) and later menopause (above 55 years), late first birth at 30 years, hormonal therapy, extensive use of oral contraceptive pills and excessive weight among others.

In Nigeria, breast cancer is the leading type of cancer diagnosed in Nigeria among women of reproductive age. According to GLOBACAN report in 2020 breast cancer was identified as the major causes of death as a result of cancer in Nigeria.¹⁴ High rate of death is believed to be as a result of inadequate knowledge about solution to breast cancer in the country, Nigeria. In the Northwestern Geopolitical zones of Nigeria, breast cancer was identified to be second after cervical cancer in contrast to southwest geopolitical zones of Nigeria, Where breast cancer is the major cancer among women.¹⁵ Breast cancer account for 22.41% of new cases of cancer registered for the period of 5 years and is responsible for 35.41% of all cancers among women in the North - Central geopolitical zone.¹⁵ In most poor and middle-income countries, there is late presentation of breast cancer for treatment. At this point, it is only chemotherapy and palliative care that can be offered to the patients and this often leads to high rate of death.¹⁵ Breast cancer is a highly prevalent type of cancer, defined by unchecked breast cell development, with incidence rate of more than two million new cases worldwide. In Nigeria, breast cancer remains the major causes of death as a result of cancer which is responsible for 23% of all diagnosis with 18% of death. The high rate of death is as a result of later diagnosis compounded by inadequate knowledge of breast cancer risk factors and how it affects the choice of lifestyle and dietary pattern of Nigerians of all ages.¹⁶

Identifying gaps and most effective interventions and ways to promote breast cancer awareness, early detection and prevention is paramount. Hence, the study aimed at assessing the current knowledge, attitude and preventive practices regarding breast cancer among women of reproductive age (14 – 49 years) in Ebonyi State.

2. Methods

Research Design

The study adopted a descriptive cross-sectional survey design to assess the knowledge, attitude, and breast cancer screening practices among women of reproductive age in Ezza North Local Government Area of Ebonyi State with 383 women drawn from the two zones of the local government area of the state.

Ethical Approval

Ethical clearance was obtained from the University of Port Harcourt, Research Management and Development, Research Ethics Committee with approval number: UPH/CEREMAD/REC/MM112/021.

Sample Size determination

The sample size was determined by using the Cochran formula to calculate the sample size. Thus:

$$n = \frac{z^2 pq}{d^2}$$

Where:

N=sample size

Z=Z-score corresponding to the desired confidence level (e.g., 1.96 for 95% confidence)

P=estimated proportion of the population (e.g.,0.5 for a rough estimate)

E=desired margin of error (e.g., 0.05 for a 5% margin of error)

Assuming a 95% confidence level, a margin of error of 5%, and an estimated proportion of 0.5, we can calculate the sample size as follows:

Substituting the above values we have,

$$\text{Sample size (n)} = \frac{1.96^2(0.5(1-0.5))}{0.05^2}$$

$$n = \frac{3.8416(0.5(0.5))}{0.0025}$$

$$n = \frac{3.8416(0.25)}{0.0025}$$

$$n = \frac{0.9604}{0.0025}$$

$$n = 383$$

A total of 383 women of reproductive age in Ezza North were selected for this study.

Population of the Study

The total of 383 women of reproductive age in Ezza North were selected across the two zones of the local government for the study.

Sampling Techniques

Multi-stage sample technique was adopted for the study and were conducted as thus;

In the first stage, it involved stratified sampling method which was used to group the Local Government Area into two (2) zones which are Izzo and Imoha.

The second stage, involved use of simple random sampling to select three (3) communities from each zone making it the total of six (6) communities to be studied.

The third stage, involved the use of systematic sampling method to select five (5) settlements at the interval of six settlements from the register of the communities in each of the six (6) communities in the local government area.

Instrument for Data Collection

The research tool that was used in the study is a self-structured questionnaire prepared by the researcher and validated by three experts in the field of study. Thereafter, the researcher and the researcher's supervisor considered all the inputs, comments and correction of the validators and come up with the final research instrument that was used for the study. The questionnaire comprised three sections. Section A is consist of demographic data, the section B is the medical and social characteristics of the participants, while section C is the attitude and knowledge of the participants.

3. Data Analysis

Data collected was entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics such as frequency and percentages was used to summarize the data. Inferential statistics including Chi-square test and Odd ratio was used to determine the association between socio demographic variables and knowledge and attitude. Statistical significance was set at $p < 0.05$.

4. Results

Table 4.1: Socio-Economic Characteristics of Respondents

Variables	Frequency (n = 383)	Percentage (%)
Age (years)		
14-19	83	21.7
20-29	132	34.5
30-39	103	26.9
40-49	65	17.0
Level of Education		
Primary education	31	8.1
Secondary education	63	16.4
Tertiary education	289	75.5
Religion		
Christain	306	79.9
Pagan	70	18.3
Islam	7	1.8
Occupation		
Trading	35	9.1
Farming	32	8.4
Civil servant	137	35.8
Student	179	46.7

Table 4.2: Knowledge of Women in Ezza North about Breast Cancer

Variables	True n (%)	False n (%)
Breast cancer is an abnormal tumor that forms in the cells of the breast	383(100.0)	-
Breast cancer is one of the main causes of death among women in the world	375(97.9)	8(2.1)
Early detection of breast cancer is directly dependent on the women's knowledge about the breast cancer and breast cancer screening methods	285(74.4)	98(25.6)
Breast cancer remains the leading type of cancer among women	283(73.9)	100(26.1)
Breast cancer can be inherited from the parent	180(47.0)	203(53.0)
Breast cancer is more common in women than men	281(73.4)	102(26.6)
Breast cancer can be transferred from one person to another	69(18.0)	314(82.0)
Adequate health education and regular medical check-up is important in early detection and treatment of breast cancer	352(91.9)	31(8.1)
Breast cancer can affect all ages	218(56.9)	165(43.1)
Breast cancer is treatable if detected early	361(94.3)	22(5.7)

Table 4.3: Assessment of Knowledge of Women about Breast Cancer

Variables	Frequency (n=383)	Percentage (%)
Good	216	56.4
Poor	167	43.6
Total	383	100.0

Table 4.4: Association between Socio-Demographics and Preventive Practices of Breast Cancer

Variables	Preventive Practices of Breast Cancer X ²			Odd ratio (OR)		
	Good (n)(%)	Poor (n)(%)	Total	df	(p-value)	95% (CI)
Age (years)						
≤29yrs	179(83.3)	36(16.7)	215(100.0)	1	9.265	3.552
≥yrs	98(58.3)	70(70)	168(100.0)		0.0001)*	(2.217-5.691)
Total	277(72.3)	106(27.7)	383(100%)			
Education						
Primary	24(77.4)	7(22.6)	31(100.0)	2	.773	-
Secondary	49(77.8)	14(22.2)	63(100.0)		0.412)	
Tertiary	204(70.6)	85(29.4)	289(100.0)			
Total	277(72.3)	106(27.7)	383(100%)			

Religion						
Christianity	270(88.2)	36(11.8)	306(100.0)	2	92.833	-
Pagan	7(10.0)	63(90.0)	70(100.0)		0.0001)*	
Islam	0(0.0)	7(100.0)	7(100.0)			
Total	277(72.3)	106(27.7)	383(100%)			
Occupation						
Trading	0(0.0)	35(100.0)	35(100.0)	3	31.767	-
Farming	32(100.0)	0(0.0)	32(100.0)		0.0001)*	
Civil Servat	87(63.5)	50(36.5)	137(100.0)			
Student	158(88.3)	21(11.7)	179(100.0)			
Total	277(72.3)	106(27.7)	383(100%)			

$P \leq 0.05$ (statistically significant),

5. Discussion

The current study revealed that all of the women knew that breast cancer is an abnormal tumor that forms in the cells of the breast, while majority recognized it as one of the major causes of death among women. Furthermore, a significant proportion believed that early detection of breast cancer depends largely on women's knowledge of the disease and available screening methods. Similarly, identified breast cancer as the leading type of cancer among women. More than half did not believe that breast cancer can be inherited from parents, while recognized that it is more common in women than in men. A large majority understood that breast cancer is not contagious, and agreed that adequate health education and regular medical checkups are vital for early detection and treatment. Additionally, of the participants demonstrated good overall knowledge about breast cancer, while had poor knowledge. These findings demonstrate a relatively higher level of awareness and knowledge compared to several previous studies.

In a study conducted by ¹⁷ in Yazd City, Iran, only 13.2% of participants demonstrated good knowledge of breast cancer screening methods, while 86.8% had moderate to poor knowledge. This contrasts sharply with the present study, where over half of the respondents had good knowledge. The disparity may reflect increased public sensitization, better access to health information, or improved educational programs over time. Similarly, ⁹ in Qatar found that although 69% of women were aware of breast cancer warning signs, many could not accurately identify specific symptoms or appropriate screening ages. Only 45.5% of participants regularly checked their breasts for abnormalities. Compared to the present study, the women in Qatar displayed less practical awareness, indicating that knowledge does not always translate into practice.

A study by ¹⁸ in Saudi Arabia found that while undergraduate students were knowledgeable about general risk factors (e.g., age, family history, smoking), they showed poor understanding of certain risk factors, including hormone therapy and postmenopausal changes, as well as limited knowledge of symptoms. This aligns partly with the current study, where some misconceptions persisted such as 53% not believing in the hereditary nature of breast cancer indicating that specific knowledge gaps remain even among otherwise informed groups.¹⁹ studying Libyan women, reported that 59.5% had inadequate knowledge about breast cancer, with only a few recognizing hormonal therapy or contraceptive use as risk factors. Compared to the Libyan sample, the Nigerian women in this study demonstrated greater overall

awareness, suggesting regional differences in health education exposure and awareness campaigns. Findings from ²⁰ indicated that women aged 15–45 years showed proficient knowledge of breast cancer, which aligns with the current study's finding that 56.4% had good knowledge, reinforcing evidence of growing awareness among women of reproductive and Middle Ages. In contrast, ²¹ found that before an intervention, 71.8% of female workers had poor knowledge of breast cancer and self-examination, which improved markedly after an educational program. This underscores the positive impact of health education echoing the present study's finding that 91.9% of participants agreed on the importance of health education for early detection.

Similarly, ²² in Southwestern Nigeria found high awareness of breast cancer (94.8%) but lower practice of breast self-examination (65.1%), consistent with the current findings that awareness is generally high though not always matched by comprehensive understanding of risk factors. Finally, ²³ reported that although 46.9% of women had good awareness of symptoms, a striking 83.9% had poor knowledge of risk factors and 97.7% had poor overall knowledge of breast cancer and screening methods. Compared to that, the current study reflects a significant improvement in both knowledge level and perception, possibly due to increased outreach, media influence, and health education programs in recent years. Overall, while earlier studies from 2021 to 2025 consistently identified knowledge gaps and misconceptions about breast cancer, the current findings indicate a progressive improvement in knowledge and awareness among women. However, persistent misconceptions such as denial of hereditary transmission suggest the need for targeted educational interventions emphasizing genetic and lifestyle risk factors alongside continuous community health education.

The current study revealed that a large proportion of respondents demonstrated strong positive attitudes and good knowledge toward breast cancer preventive practices. Specifically, 72.1% strongly agreed that self-breast examination (SBE) is essential for early detection, 56.1% agreed that avoiding excessive smoking and alcohol reduces risk, and most emphasized the importance of health education and awareness in reducing breast cancer incidence. Similarly, majority strongly agreed that maintaining a healthy lifestyle through diet and exercise can help prevent breast cancer. Overall, more of the participants had a positive attitude, while one-third exhibited a negative attitude toward breast cancer prevention.

These findings indicate a high level of awareness and positive attitude, which align with several previous studies globally and regionally. For example, ¹⁷ in Yazd City, Iran, found that most of women had a moderate attitude toward breast cancer screening slightly lower than the present study, which reported a majority with strongly positive attitudes. Similarly, ¹⁸ in Saudi Arabia found a positive attitude among female undergraduates toward breast cancer screening and self-examination, consistent with the current findings. In contrast, ²⁴ reported that only few of women in Northern Iran had high knowledge about breast cancer risk factors and a few practiced regular SBE. This contrasts sharply with the current study, where a majority recognized SBE as an essential preventive tool, suggesting possible improvements in health education and awareness campaigns in recent years.

Furthermore, ²⁰ observed that although women demonstrated a strong positive attitude toward breast cancer prevention, their practice levels were poor, indicating a gap between awareness and action. The current findings support the attitudinal aspect of Kumar's results but suggest slightly better awareness and potential practice levels due to the high proportion of respondents acknowledging preventive measures. Findings by ²⁵ in Lebanon also contrast with this study, as they reported inadequate attitudes toward health

check-ups and insufficient breast cancer screening knowledge half. The better outcomes in the current study may be due to increased access to health information via community programs and media exposure. However, ²⁶ in Indonesia reported that women with higher education had worse attitudes toward breast cancer awareness, differing from the present findings where higher educational attainment likely contributed to positive attitudes and knowledge. This variation might be attributed to sociocultural and contextual factors influencing women's perceptions of health and preventive behavior. The current findings are in strong agreement with ²⁷ in Egypt, where most of women had a positive attitude toward breast cancer prevention and self-examination closely matching the two-third positive attitude rate in this study. Similarly, ²² in Southwestern Nigeria found that awareness levels of breast cancer and SBE were high, with education playing a crucial role in shaping knowledge and attitude findings consistent with this study, where education also appears to influence preventive attitudes.

Additionally, the report by ²⁸ emphasized the role of education in early detection, showing that women with lower educational levels were more likely to be diagnosed at later stages. This reinforces the current finding that educational level is a major determinant of positive health attitudes and early preventive practices. In summary, while the present study shows a high level of awareness and positive attitude toward breast cancer prevention, some previous studies reported moderate or low levels of knowledge and practice. However, the consistent pattern across most studies is that education significantly enhances awareness, attitude, and preventive behavior. This implies that targeted health education interventions especially among less educated women remain crucial for improving breast cancer prevention and early detection globally.

6. Conclusion

The study assessed women's knowledge and attitude on breast cancer and revealed a generally high level of awareness and understanding among participants. Most respondents demonstrated adequate knowledge about the nature, causes, and prevention of breast cancer, recognizing it as a leading cause of death among women and emphasizing the importance of early detection through awareness and screening. The findings also indicate that the majority of women exhibited positive attitudes toward breast cancer prevention, strongly supporting the role of self-breast examination, healthy lifestyle choices, and continuous health education in reducing the disease's occurrence. Preventive practices were generally good, as many participants engaged in or supported screening measures such as mammography, clinical breast examination, and self-breast examination.

Overall, the study concludes that while women's awareness and attitudes toward breast cancer are commendable, continued public health education and targeted community-based interventions are essential to sustain and further improve preventive practices, particularly among groups with lower knowledge or engagement levels.

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Author's Contribution

Chukwuemeka Odaa contributed to the study conception and manuscript drafting, Chibueze Okereke was responsible for data acquisition and statistical analysis, Peter Nwede supervised the research process, Monday Eze provided critical revisions, and Stella Chukwu approved the final version of the manuscript. All authors read and approved the final version of the manuscript.

Ethical Approval

Ethical clearance was obtained from the Ethics Committee and Research Management and Development with the approved number: UPH/CEREMAD/MM111/09

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Availability of data statement. Data will be made available by the corresponding author upon request

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