KNOWLEDGE OF BREAST CANCER RISK FACTORS AND PRACTICE OF BREAST SELF-EXAMINATION AMONG COMMUNITY WOMEN IN THE FEDERAL CAPITAL TERRITORY, NIGERIA

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Abstract

Breast cancer, with an estimated 1.7 million cases and 521,900 deaths in 2012, remains the most common cancer among women and the leading cause of cancer-related mortality globally. The burden of breast cancer varies significantly across regions and countries, reflected in differences in incidence, mortality, and survival rates. This study aimed to assess the knowledge of breast cancer risk factors and the practice of breast self-examination (BSE) among women of reproductive age in the Federal Capital Territory (FCT), Nigeria. A cross-sectional study design was employed, involving 418 community women selected through multistage sampling. Data were collected using a structured, interviewer-administered questionnaire. The mean age of participants was 28.35 ± 7.0 years. BSE was reported by 75.5% of respondents, and 57.7% had received training in its practice. While 95% of respondents were aware of breast cancer risk factors, gaps in knowledge were evident, as 55% failed to identify physical inactivity and nulliparity/late childbearing as risk factors. The most commonly recognized risk factors included radiation exposure (67%) and family history (53.3%). Key barriers to knowledge and practice identified included fear of diagnosis, limited access to reliable information, discomfort during BSE, and challenges in understanding medical information. Despite good general awareness of breast cancer risk factors and BSE practice among community women, knowledge about specific risk factors and proper timing and frequency of BSE was insufficient. This study underscores the need for targeted interventions to address gaps in knowledge and practice, empowering women with accurate information and skills. Such efforts are essential to enhance early detection, improve outcomes, and reduce the overall burden of breast cancer in the population.

Keywords: Knowledge, Breast cancer, Risk Factors, Self-Examination, Nigeria.

Introduction

Breast cancer remains a significant public health challenge globally, with its prevalence increasing steadily over the years. In 2020 alone, approximately 2.3 million new cases of female breast cancer were diagnosed worldwide, and 685,000 women succumbed to the disease (NCBI, 2022). This accounts for 12.5% of all new annual cancer cases globally, making breast cancer the most common cancer in the world (NCBI, 2022). Since 2008, breast cancer incidence worldwide has risen by over 20%, solidifying its status as the leading cause of cancer-related deaths among women (BCRF, 2023).

In Africa, breast cancer is the most prevalent malignancy among women, with 186,598 new cases and 85,787 deaths reported in 2020 (Jedy-Agba et al., 2016). The age-standardized incidence rate in Africa is 37.9 per 100,000, ranging from 6.9 per 100,000 in Gambia to 69.6 per 100,000 in Mauritius (Galukande, 2015). Nigeria bears the heaviest burden in Africa, with 26,310 cases and 11,564 deaths, followed closely by Egypt with 23,081 cases and 9,254 deaths (Galukande, 2015). In Nigeria, breast cancer accounts for 22.7% of all new cancer cases among women (Oluwatosin, 2001), and its incidence rate currently stands at 54.3 per 100,000. Over the past two decades, this rate has risen dramatically (Oluwatosin, 2001; Adesunkanmi, 2006). Among adolescents and young adults (AYA) in Nigeria, breast cancer is particularly concerning, constituting 50% of all cancers and 51% of cancer deaths in this demographic (Okobia, 2006).

Globally, breast cancer burden varies significantly by region, with disparities in incidence, mortality, and survival rates (Adeniji, 1999). Developing countries often face rising rates of breast cancer due to limited awareness, inadequate screening programs, and late diagnoses (Ajayi, 2013). In Nigeria, age-standardized incidence rates of breast cancer range from 43.6 to 56.7 per 100,000, while age-standardized mortality rates vary between 16.7 and 20 per 100,000

(Akpor, 2009). While breast cancer predominantly affects older women, it also constitutes 14% of all malignancies in young women aged 15 to 39 years (Anyanwu, 2000). Notably, the peak age of breast cancer incidence in Nigeria is between 45 and 50 years, contrasting with the 65-75 years observed in Europe and America (Anyanwu, 2000; Downing, 2007; El Saghir et al., 2011).

Early detection plays a pivotal role in breast cancer management and prognosis (Jemal, 2011). Techniques such as mammography screening, clinical breast assessment, and breast self-examination (BSE) are essential for early diagnosis. BSE involves self-palpation and visualization to identify lumps or changes in the breast's size, shape, texture, or contour. Regular practice of BSE allows women to familiarize themselves with the normal geography of their breasts, enabling them to detect abnormalities promptly. Research has demonstrated that BSE significantly aids in early detection and improves outcomes (Khokhar, 2009). This study aims to assess the knowledge of breast cancer risk factors and the practice of BSE among community women in Nigeria's Federal Capital Territory. By identifying gaps in awareness and practice, the study seeks to inform targeted interventions to improve early detection and reduce the burden of breast cancer.

Method

Study Setting and Design.

The study was a descriptive cross-sectional study on knowledge of breast cancer risk factors and breast self-examination practices among reproductive age women in the Federal Capital Territory.

Study Population

The study population involved women of reproductive age (15-49 years) leaving in the community in the Federal Capital Territory.

Sample Size Determination

The sample size for the study was calculated using formula below (Cochran,1963)

$$n = \frac{Z^2 * p(1-P)}{d^2}$$

Where: n is the sample size, Z is the z-score for the desired confidence level (1.96 for a 95% confidence level), p = maximum variability assumed=50%, d is the margin of error = 5%. Hence,

$n = 1.96^2 \, x \, 0.5 \, (1 - 0.5)/(0.05^2)$, n=384.16=384

Given a non-response rate of 10%, the estimated sample size= 384/ 1-0.1 = 384/0.9

Estimated sample size = 426. Multi-stage sampling technique was used to select respondents for the study.

Study Instrument

A questionnaire was adopted from previous similar studies (Begum et al., 2019). It was an interviewer administered questionnaire consisted of four sections across the objectives of the study which includes socio-demographic characteristics, knowledge of breast cancer risk, practice of BSE and factors affecting the knowledge of breast cancer risk and practice of breast self-examination. During data collection, the purpose and nature of the study was explained to the respondents and confidentiality was guaranteed and consent was sought before administering data to respondents.

Data Management and Analysis

Data collected was analyzed using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics such as mean for numerical variables, frequencies, percentages, and inferential statistics with Chi-square tests were carried out to determine the association between socio-demographic factors and knowledge of breast cancer and practice

of breast self-examination respectively and level of significance was taken at $p<0.05$. The result for knowledge of breast cancer risk factors were categorized into good and poor knowledge. A score of 1 was allocated to each correct answer while '0' was allocated to each wrong answer. The total score ranged from 0-13 and a score of 7-13 demonstrated good knowledge while a score of 0-6 indicated poor knowledge. Hence, participants who scored ≥ 50% were categorized as good knowledge while those with scores < 50% were categorized as poor knowledge. The results for practice of breast self-examination were categorized into good practice and poor practice as above.

Ethical Considerations

Ethical approval was obtained from the FCT Health Research Ethics Committee. Informed consent was also obtained from participants. The participants were provided with clear and comprehensive information about the purpose of the study, the procedures involved, the potential risks and benefits, and their right to withdraw from the study at any time. Oral consent was also obtained from the respondents before administering the questionnaire.

Results

Socio-Demographic Characteristics

Out of the 426 calculated sample size, 418 completed responses were obtained with a response rate of 98.12%. The age ranges of respondents were 15-49 years with mean age of respondents' 28.4±7.0 years. Majority of the respondents (60%) were single, 60.7% had tertiary education and 61% of respondents had no child (Table1)

Table 1a: Socio-demographic characteristics of respondents

Socio-demographic Variables	Frequency (N= 418)	Percentage
Age (years)		
15-20	52	12.4
21-25	124	29.7
26-30	117	27.9
31-35	51	12.3
36-40	41	9.8
41 years and above	33	7.9
Mean age: 28.35±7.03		
Ethnicity		
Hausa	111	26.6
Igbo	103	24.6
Yoruba	88	21.1
Others	116	27.8
Religion		
Christianity	256	61.2
Islam	145	34.7
Traditional	17	4.1
Marital Status		
Divorced	15	3.6
Married	137	32.8
Single	251	60.0
Widowed	15	3.6

Table 1b: Socio-demographic characteristics of respondents

Socio-demographic Variables	Frequency (N= 418)	Percentage
Occupational Status		
Employed	178	42.6
Self-Employed	118	28.2
Unemployed	48	11.5
Others	74	17.7
Educational Level		
Primary	16	3.8
Secondary	70	16.7
Tertiary	278	666.5
Others	54	12.9

Number of Children		
0	255	61.0
1-3	130	31.1
4 children and above	33	7.9
Mean number of children: 0.92±1.36		

Knowledge of Breast Cancer Risk

A good number of the respondents, 92% reported to be aware of breast cancer risk factors, 88% of respondents know that early diagnosis of breast cancer could enhance treatment outcomes and 53.3% of the respondents know that positive family history of breast cancer and increase in age increases the risk of breast cancer. There was statistically significant association between knowledge of breast cancer and educational level ($p<0.001$). The more educated among the respondents know the breast cancer risk factors than the less educated among the respondents (Table 2a/b)

Table 2a: Respondents Knowledge of Breast Cancer Risk

Variables	**Frequency N = 418**	**Percentage (%)**
Ever heard of breast cancer		
Yes	385	92.1
No	33	7.9
Source of information		
Friends/Family	77	18.4
Health Campaigns	79	18.9
Health Care Providers	109	26.1
Social Media	113	27.0
Others	40	9.0
Early diagnosis improves the outcome of treatment		
Yes	369	88.3

No	49	11.7
Risk of developing breast cancer increases with age		
Yes No	314 104	75.1 24.9
Any close relatives who have been diagnosed with breast cancer		
Yes No	97 321	23.2 76.8
Likely to develop breast cancer if someone in your family has it		
Yes No	223 195	53.3 46.7
Late childbearing increases the risk of breast cancer		
Yes No	196 222	46.9 53.1

Table 2b: Respondents Knowledge of Breast Cancer Risk

Variables	**Frequency N = 418**	**Percentage (%)**
High alcohol consumption increases the risk of breast cancer		
Yes No	217 201	51.9 48.1
Exposure to radiation increase risk of breast cancer		
Yes No	280 138	67.0 33.0
Oral contraceptive a risk factor for breast cancer		
Yes No	177 241	42.3 57.7
Breastfeeding reduces risk of breast cancer		
Yes No	253 165	60.5 39.5
Obesity a risk factor of breast cancer		
Yes No	257 161	61.5 38.5
Lack of physical activity increase the risk of breast cancer		
Yes	188	45.0

No	230	55.0
Knowledge of breast cancer risk		
Good Knowledge Poor Knowledge	400 18	95.69 4.31

Key: Good knowledge≥50%; Poor Knowledge < 50%

Practice of breast self-examination

About 87.32% of the respondents perform self-breast examination but less than a quarter of the respondent do self-breast examination once a month but more than half of the respondents (55.3%) do not know appropriate time and position to perform self-breast examination (Table 3)

Table 3: Respondents Practice of breast self-examination.

Variables	**Frequency N = 418**	**Percentage (%)**
Know about breast self-examination		
Yes No	332 86	79.4 20.6
Perform breast self-examination		
Yes No	314 104	75.1 24.9
If yes, How often?		
Once a month Every 3 months Every 4 months Every 6 months Less than once a year	87 89 1 59 81	20.8 21.3 0.2 14.1 19.4
Best time to perform breast self-examination		
During your menstrual period One week after your menstrual period One week before your menstrual period I don't know	47 86 53 231	11.2 20.6 12.7 55.3
Ever been trained to conduct breast self-examination?		
Yes No	239 179	57.2 42.8
If yes, by whom?		

School	8	1.9
Church crusaders	1	0.2
Health worker	108	25.8
Media	71	17.0
Mother	11	2.6
Self	1	0.2
None	2	0.5
Peer	36	8.6
Others	16	3.8
Confident in your ability to detect lump or abnormality during breast self-examination		
Yes	280	57.4
No	178	42.6
Practice of breast self-examination		
Good Practice	365	87.32
Poor Practice	53	12.68

Associations between Socio demographic characteristics and Practice of breast self-examination among the community women in FCT

There was statistically significant association between the age of respondents (p=0.001), ethnicity (p=0.001), religion (p=0.001), educational level (p<0.001) and the practice of self-breast examination. The younger and more educated the more likelihood of practicing self-breast among the respondents. There was no statistically significant association between number of children (p=0.708), marital status (p=0.376) and practice of breast self-examination (Table 4)

Table 4: Associations between Socio demographic characteristics and Practice of breast self-examination among women in FCT

Socio-demographic Characteristics	**Practice**		**Total N= 418**	**Chi-square**	**p-value**
	Poor practice	**Good practice**			
Age (Years)				**26.2324**	**<0.001**
15-20	18 (34.62)	34 (65.38)	52		
21-25	12 (9.68)	112 (90.32)	124		
26-30	12 (10.26)	105 (89.74)	117		
31-35	5 (9.80)	46 (90.20)	51		
36-40	4 (9.76)	37 (90.24)	41		
41 and above	2 (6.06(	31 (93.94)	33		
Ethnicity				**16.3414**	**0.001**
Hausa	26 (23.42)	85 (76.58)	111		
Igbo	7 (6.80)	96 (93.20)	103		
Yoruba	9 (10.23)	79 (89.77)	88		
Others	11 (9.48)	105 (90.52)	116		

Religion				**13.0490**	**0.001**
Christianity	21 (8.20)	235 (91.80)	256		
Islam	30 (20.69)	115 (79.31)	145		
Traditional	2 (11.76)	15 (88.24)	17		
Marital Status				**3.1024**	**0.376**
Divorced	1 (6.67)	14 (93.33)	15		
Married	13 (9.49)	124 (90.51)	137		
Single	36 (14.34)	215 (85.66)	251		
Widowed	3 (20.0)	12 (80.00)	15		
Employment Status				**10.8498**	**0.028**
Employed	14 (4.05)	164 (95.95)	174		
Self-Employed	16 (13.56)	102 (86.44)	118		
Unemployed	11 (22.92)	37 (77.08)	48		
Others	12 (16.22)	62 (83.78)	74		
Educational Level				**37.9979**	**<0.001**
Primary	8 (50.00)	8 (50.00)	16		
Secondary	17 (24.29)	53 (75.71)	70		
Tertiary	19 (6.83)	259 (93.17)	278		
Others	9 (16.67)	45 (83.33)	54		
Number of Children				**0.6897**	**0.708**
0	35 (13.73)	220 (86.27)	255		
1-3	14 (10.77)	116 (89.23)	130		
4 children and above	4 (12.12)	29 (87.88)	33		

Discussion

The study aimed to assess the knowledge of breast cancer risk factors and the practice of breast self-examination (BSE) among community women in the Federal Capital Territory (FCT), Abuja. Findings revealed that the majority of respondents (92%) demonstrated good knowledge of breast cancer risk factors. This aligns with a similar study conducted in Nigeria, where 97.2% of participants exhibited a high level of awareness about breast cancer risk factors (Salaudeen, 2009). The heightened awareness can be attributed to increased public health campaigns and media coverage in recent years. Additionally, the respondents, predominantly young adult women with tertiary education, demonstrated a robust understanding of the importance of early diagnosis and treatment, with 88.3% acknowledging that early intervention

leads to better outcomes. This aligns with findings from a study in Lagos, Nigeria, where 78.4% of respondents recognized breast cancer as curable if detected and treated early (Hamad, 2018).

Despite high overall knowledge, gaps in recognizing specific risk factors persisted. Most respondents identified age and family history as risk factors, consistent with prior studies (Odusanya, 2001; Adebanjo, 2018). However, less than half recognized nulliparity and late childbearing as risk factors. Similarly, while many acknowledged high alcohol consumption and radiation exposure as contributing risks, a smaller proportion understood the roles of obesity and physical inactivity. Notably, 60.5% correctly identified breastfeeding as protective against breast cancer, underscoring the need for targeted education to address misconceptions and expand awareness.

A disparity emerged between knowledge and the practice of BSE. While 87.3% of respondents reported performing BSE, only 20.8% were aware of the recommended monthly frequency. This finding slightly exceeds prior studies in Nigeria, where 19% reported monthly BSE practice (Adebamo, 2005; Gwarzo, 2010). The gap in knowledge about the appropriate timing and frequency of BSE highlights the need for more accessible information and educational initiatives. Furthermore, a significant number of respondents reported finding lumps or abnormalities during BSE, emphasizing the importance of regular practice for early detection. However, the absence of abnormalities in most cases may lead to complacency, necessitating continuous education on the significance of consistent BSE.

Confidence in detecting breast abnormalities was high among respondents, but less than half lacked confidence, potentially due to anxiety over discovering abnormalities. Educational attainment showed a significant association with breast cancer risk knowledge ($p<0.001$), indicating that higher education levels correlate with better awareness. Similarly, younger

women demonstrated improved BSE practices, with a statistically significant association between age and BSE practice (p=0.001). These findings suggest that targeted interventions should focus on improving the timing and frequency of BSE practice among younger women. The study's strength lays in its assessment of breast cancer risk factor knowledge and BSE practices among community women in the FCT. However, limitations include potential misreporting and recall bias due to self-reported data, and the cross-sectional nature of the study, which limits causal inference.

Conclusion

The study demonstrated high awareness of breast cancer risk factors and substantial BSE practice among community women in Abuja. However, knowledge gaps about specific risk factors and appropriate BSE timing and frequency remain. Addressing these gaps through targeted interventions is essential to empower women with actionable knowledge, enhance early detection, and ultimately reduce the burden of breast cancer in the population.

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