

Original Research Article**ASSESSMENT OF BREAST CANCER SCREENING PRACTICES AMONG
WOMEN OF REPRODUCTIVE AGE IN BENIN CITY, EDO STATE****KEYWORDS:**

Benin City, breast, breast cancer screening, knowledge, women, reproductive age

ABSTRACT

Breast cancer is becoming very prevalent in developing countries including Nigeria which is now being bedeviled by the twin public health challenge of both communicable and non-communicable diseases.

AIMS: *This study was conducted to assess breast cancer knowledge and screening practices among women of reproductive age in Benin City, with a view to improving breast cancer screening practices and minimize late presentation and attendant consequences.*

STUDY DESIGN: *A descriptive cross sectional study design was utilized for this study.*

PLACE AND DURATION OF STUDY: *This study was carried out in Central Hospital in Benin City, Edo State between September and December, 2013.*

METHODOLOGY: *This study was health facility based involving researcher administration of semi-structured questionnaires to 235 consenting women of reproductive age (15-49years) attending immunization clinics in Benin City. The data collected were analyzed using IBM*

20 *Statistical Package for Sciences (SPSS) version 22.0 with statistical significance set at $p <$*
 21 *0.05 and 95% Confidence Interval.*

22 **RESULTS:** *The mean age and parity of respondents studied were 28.8 ± 7.4 years and 2.19*
 23 *± 1.85 children respectively. Two hundred and seventeen (92.3%) of the women studied, were*
 24 *aware of breast cancer with majority 201(92.6%) having poor knowledge of breast cancer.*
 25 *Furthermore, the practice of breast examination was 143 (65.9%) among respondents studied*
 26 *with self-breast examination accounting for 106(74.1%). In relation to breast cancer*
 27 *screening practice, primary level of education ($OR=0.323$; 95% $CI=0.141 - 0.742$) was the*
 28 *only significant predictor identified that less likely influenced the practice.*

29 **CONCLUSION:** *This study identified a high awareness with poor level of knowledge on*
 30 *breast cancer among women of reproductive age. The practice of breast examination was*
 31 *high with level of education identified as a significant predictor for breast cancer screening*
 32 *practice. There is need to create and strengthen breast cancer awareness campaign through*
 33 *all available media platforms and in schools not only for improved breast cancer screening*
 34 *practices but very importantly to improve knowledge on its presentation, risk factors and*
 35 *benefits of early detection and treatment for better health outcome.*

36 INTRODUCTION

37 Breast cancer is the most common cancer in women globally, both in the developed and less
 38 developed countries.¹ It is estimated that over 508,000 women died in 2011 as a result of
 39 breast cancer.¹ Although, breast cancer previously thought to be a disease of the developed
 40 world but with almost 50% percent of all breast cancer cases and 58% of breast cancer deaths
 41 now occurring in less developed countries, this line of thought has now changed.² Breast

42 cancer survival rates vary greatly worldwide, ranging from 80% or over in North America,
 43 Sweden and Japan to around 60% in middle income countries and below 40% in low income
 44 countries.³ This low survival rates in less developed countries is complicated mostly by late
 45 presentation, can be explained by the lack of early detection program, as well as by the lack of
 46 adequate diagnosis and treatment facilities. There is increasing evidence that early detection
 47 and treatment remains key in improving breast cancer outcome and survival which remains
 48 the corner stone of any breast cancer control program⁴⁻⁵

49 Research has revealed that breast cancer presentation occurs about 10 years earlier among
 50 Nigerian women than their western counterparts⁶⁻⁸, this has been attributed to increasing
 51 adoption of western lifestyles and diet further compounded by poor knowledge and attitude
 52 towards cancer related issues.⁹

53 The level of knowledge on breast cancer remains poor in Benin City^{8,10}, this findings has been
 54 further buttressed in other studies^{11,12} indicating poor knowledge of breast cancer and breast
 55 cancer screening services among women. In relation to the what can be done to address the
 56 rising scourge of breast cancer several studies^{4-5,13-14} have emphasized that early
 57 detection through appropriate uptake of breast cancer screening intervention remains key to its
 58 prevention and cure. But breast cancer screening practices remain poor in developing
 59 countries including Nigeria^{8,13,15-18}. Based on the aforementioned early breast cancer detection
 60 through appropriate screening services such as Breast Self-Examination(BSE), Clinical
 61 Breast Examination(CBE) and mammography remains a critical step to reducing breast cancer
 62 related morbidity and mortality. To address this growing public health challenge the
 63 American Cancer Society (ACS) recommends mammography and CSE every year for women
 64 aged 40years, while monthly BSE as an option for women aged 20-40 years.¹⁹

65 This step remains an efficient approach to detecting breast pre-cancerous lesions at earlier
 66 stages for better prognostic outcome.^{4-5,19} This study was therefore conducted to assess breast

67 cancer knowledge and screening practices among women of reproductive age in Benin City,
68 with a view to improving breast cancer screening practices and minimize late presentation and
69 attendant consequences.

70 **MATERIALS AND METHODS**

71 A descriptive cross sectional study was conducted involving 235 consenting women of
72 reproductive age (15-49 years) attending immunization clinic at Central Hospital Benin City.
73 The hospital provides primary, secondary and specialist health care services to clients within
74 and outside Edo State. It also has a work force structure comprising doctors, nurses,
75 pharmacists, laboratory scientists, social workers, record officers, administrative Staffs etc
76 and offers residency training in some medical specialties such as Obstetrics and Gynecology
77 and Family Medicine.

78 The health facility is located along Sapele road in Oredo Local Government Area of Edo
79 State. The study was conducted between November and December 2013. The sample size was
80 calculated using Cochran's formulae for descriptive study²⁰ based on a 17.7% prevalence of
81 breast cancer screening practice in Benin City from a previous study¹⁴. Respondents were
82 recruited to participate from the daily Immunization clinic list of attendees by simple random
83 sampling technique using a table of random numbers till the required sample size was
84 reached. Researchers administered semi-structured questionnaires for the study after obtaining
85 written informed consent from respondents. Questionnaires developed by researcher were
86 utilized for data collection, following Institutional approval obtained from Department of
87 Hospital Services, Edo State Ministry of Health and informed consent from respective

88 respondents. IBM SPSS version 22.0 was utilized for data analysis with statistical tests of
89 association carried out at level of significance set at $p \leq 0.05$ and 95% confidence
90 interval. Breast cancer screening practice was assessed based on the history of utilization of
91 any of the three screening test i.e BSE, CBE and Mammography prior to the time of the
92 survey.

93 **RESULTS**

94 The mean age and parity of respondents studied was 28.8 ± 7.4 years and 2.19 ± 1.85 children
95 respectively, with Christianity 218 (92.8%) being the predominant religion, followed by Islam
96 15(6.4%) and African Traditional Religion 2(0.8%). One hundred and seventy (72.3%) of
97 respondents studied were married and 65 (27.7%) single. One hundred and three (43.8%) of
98 respondents had completed secondary level of education, 62 (26.4%) had primary completed
99 level of education, 56(23.8%) tertiary completed level of education while 14(6.0%) had no
100 formal education. Furthermore, in relation to employment status 172(83.2%) of the
101 respondents studied were employed while 63 (26.8%) unemployed. Two hundred and
102 seventeen (92.3%) of the women studied were aware of breast cancer while 18(7.7%) were
103 not aware, with news media 204(94.0%) being the predominant source of information
104 followed by health care providers 173 (79.7%), Family and friends 113(52.1%), internet
105 25(11.5%) and 11(5.1%) for school.

106 In relation to knowledge on breast cancer screening the following responses were obtained;
107 185(85.3%) to detect problem early, 121(55.8%) to help initiate treatment early, 91(41.9%) to

prevent complication. Table 1 (See appendix) highlights respondents responses on risk factors of breast cancer as follows; Family history 120 (55.3%), Genetic factors 98 (45.2%), Cigarette smoking 84(38.7%) Alcohol consumption 73(33.6%), Contraceptive usage 66(30.4%), Diet 55 (25.3%), Early onset of sexual exposure 37(17.1%), Keeping money in bra 9 (4.1%), Contact with breast cancer patients 4(1.8%) poor personal hygiene 4(1.8%), continuous wearing of bra 3 (1.4%). Also included in the table are responses on persons to carry out breast examination and include Doctor 152 (70.1%) self 150 (69.1%), Nurse 62 (28.6%), Family members 6(2.8%), No Idea 5 (2.3%). In relation to knowledge on breast cancer 201(92.6%) of respondents studied had poor knowledge while 16(7.4%) had good knowledge of breast cancer (See Figure 1).

In relation to practice of breast cancer screening Table 2 (see appendix) shows that 143 (65.9%) of the respondents studied had previous breast examination while 74 (34.1%) had not. In relation to who carried out the examination; self 102(71.3%), Doctor 29 (20.3%), Nurse 13 (9.1%) while for place of examination 106 (74.1%) home, Health facility 34 (23.8%), Health screening center 3 (2.1%). The result of screening revealed normal breast findings in 139 (97.2%) while 4 (2.8%) had breast lumps. While of the four who had breast lumps 2 (50.0%) had it removed while the other two (50.0%) still had the lump as at time of study.

In relation to factors associated with knowledge of breast cancer among respondents Table 3 (See appendix) shows that age grouping in years ($p=0.480$), marital status ($p=0.130$), religion

($p=0.953$) and educational status ($p=0.831$), employment status ($p=0.246$) and parity ($p=0.135$) of respondents were not significant factors associated with it.

Furthermore, in relation to factors associated with breast cancer screening practices Table 4 (See appendix) shows that only educational status ($p=0.023$) was the significant factor associated with breast cancer screening among respondents studied while age grouping in years ($p=0.481$), Religion ($p=0.113$), employment status ($p=0.065$), Marital status ($p=0.084$) and parity ($p=0.051$) and knowledge on breast cancer ($p=0.058$) were not significant factors associated with breast cancer screening practices among respondents. Further multivariate analysis identified educational status (OR=0.323; 95% CI = 0.141 - 0.742; $p=0.008$) as the only significant predictor of breast cancer screening practices among respondents studied.

DISCUSSION

This study identified a high level of awareness of breast cancer among respondents studied with health care providers being their predominant source of information although in relation to actual knowledge on breast cancer in terms of presentation and risk factors, majority of respondents had poor knowledge. Similar findings on health care providers being predominant source of information on breast cancer was previously reported in Northeast Nigeria²². The level of knowledge identified is quite unusual considering the study being health facility based, with health care providers identified as the predominant source of information, this raises concerns on the content and quality of information conveyed by health care providers during health sessions and the need to reemphasize training and

148 retraining programme for health care providers to improve the content and quality of care
149 especially via health education intervention. The high level of awareness on breast cancer
150 identified among respondents may be attributed to the urban setting of the study, in addition
151 to the relatively high educational status of respondents as a good proportion had completed
152 secondary level of education. This study also highlighted the fact that awareness and
153 knowledge about health related events or intervention are not the same but can be linked. This
154 disparity between awareness and knowledge on breast cancer was equally reported among
155 women in Abakaliki in Ebonyi State²³. The secondary completed educational status of most
156 of respondents studied is similar to findings from the 2013 NDHS report.²¹ The poor
157 knowledge on breast cancer identified in this study is similar to findings reported in other
158 studies in Benin City^{8,10}, Northeast Nigeria²² and in other studies^{11,12}.

159 Furthermore, this study identified a 63.5% breast cancer screening practice among
160 respondents studied with marked gap existing between knowledge and breast cancer screening
161 practice. It is also possible that although respondents studied did not have good knowledge on
162 breast cancer screening they were still able to engage in good health practices possibly due to
163 the recommendation by health care providers, this in a way buttresses the significant influence
164 health care providers can have on clients imbibing good health practices. This good breast
165 cancer screening practices among respondents studied is in contrast to study findings on breast
166 cancer screening practices which is reported to be poor in developing countries including
167 Nigeria^{8, 13, 15-18} and also reported in Tunisia and Europe^{11,12}. This study identified that
168 educational status of respondents was the only significant predictor for breast cancer

screening among respondents studied as the practice increased with increasing educational status of respondents. Similar finding were equally reported in other studies^{10,24}. It is also important to highlight that self-breast examination was the most common breast screening practice among respondents followed by clinical-breast examination; this further buttressed the fact that even when knowledge on health intervention is poor in terms of cause and risk factors etc., good health practices can still be adopted by clients when their attention is drawn to it as identified in this study. This study equally identified positive and proactive steps taken by two of the four reported instances of breast lump who ensured the removal. This action is reassuring as early detection and treatment through breast cancer screening intervention remains key to identifying breast cancer at precancerous levels and prevent late presentation for better prognostic outcome, this benefits has been continuously reechoed in several studies^{4-5,13-14,19}

CONCLUSION

This study identified a high awareness with poor level of knowledge on breast cancer among women of reproductive age. The practice of breast examination was high with educational status identified as a significant predictor for breast cancer screening practice among women.

RECOMMENDATION

There is need to create and strengthen breast cancer awareness campaign through all available media platforms, in health facilities and in schools not only for improved breast cancer screening practices but very importantly to improve knowledge on its presentation, risk factors and benefits of early detection and treatment for better health outcome

191 **LIMITATION OF STUDY**

192 The findings of this study were based on self-report as it was not possible to validate claims
193 made by respondents in the course of questionnaire administration.

194 **REFERENCES**

- 195 1. World Health Organization. Global Health Estimates. Geneva: WHO, 2013.
- 196 2. Ferlay J,Shin H, Bray F, Forman D, Mathers C, Parkin DM . Estimate of worldwide
197 burden of Cancer in 2008. Int J Cancer 2010;127(12):2893-917.
- 198 3. Coleman MP, Quaresma M, Berrino F, et al.,. Cancer survival in five continents: a
199 worldwide population based study (CONCORD). Lancet Oncol.2008; (9):730-56.
- 200 4. Anderson BO, Yip CH, Smith RA et al. Guideline Implementation for breast
201 healthcare in low income and middle income countries: Overview of the Breast Health
202 Global Initiative Global Summit. Cancer. 2008;113(8): 2221-43.
- 203 5. Yip CH, Smith RA, Anderson BO et al. Guideline implementation for breast
204 healthcare in low and middle-income countries: early detection resource allocation.
205 Cancer. 2008;113(8):2244-56.
- 206 6. Anyanwu SN.Breast cancer in Eastern Nigeria:A Ten Year Review. West Afr J Med.
207 2000;19:120-5
- 208 7. Ihekweba FN. Breast Cancer in Nigeria Women. Br J Surg. 1992;79:771-5

- 209 8. Osime OC,Okojie O,Aigbekaen ET, Aigbekaen IJ. Knowledge attitude and Practice
210 about breast cancer among civil servants in Benin City, Nigeria. Ann Afr
211 Med.2008;7:192-7
- 212 9. Fragene A, NewmanLA. Breast cancer in sub-saharan Africa:How does it relate to
213 breast cancer in Africa-American women. Cancer;103:1540-50
- 214 10. Okobia MN,Bunker CH,Okonofua FE,Osime U.Knowledge, attitude and practice of
215 Nigeria women towards Breast cancer:A cross sectional study.World J Surg
216 Oncol.2006;4:11-5
- 217 11. El Mhamdi S, Bouanene I, Mhirsi A, Sriha A, Ben Salem K, Soltani MS. Women
218 Knowledge, attitudes, practice about breast cancer screening in the region of
219 Monastir,Tunisia. Aust J Prim Health. 2013;19(1):68-73.
- 220 12. Saludeen AG,Akande TM,Musa OI.Knowledge and Attitude to breast cancer and
221 breast self-examination among Female undergraduates. Eur J Soc Sci. 2009;7:157-65
- 222 13. Odunsanya OO,Tayo OO. Breast cancer knowledge, attitude and practice among
223 nurses in Lagos, Nigeria. Acta Oncol.2001;40:844-8
- 224 14. Azubuike SO,Okwuokei SO. Knowledge, attitude and practices of women towards
225 breast cancer in Benin City,Nigeria.Ann Med Health Sci Res.2013 Apr-Jun;3(2):155-
226 60

- 227 15. Aderounmu AO, Egbewale BE,Ojofeitimi EO, et al., Knowledge, attitudes and
228 Practices of the educated and non-educated women to cancer of the breast in semi-
229 urban and rural ares in the south west, Nigeria. Niger Postgrad Med J 2006;13:182-88
- 230 16. Akhigbe AO,Omuemu VO. Knowledge ,attitude and practices of breast cancer
231 screening among female health workers in a Nigerian Urban City. BMC Cancer
232 2009;9:203-6
- 233 17. Ngelangel CA, Odondo ML,Lu-lim J,Fernandez RA.Knowledge, attitude and practices
234 on Breast Cancer and breast examination of Nurses and Midwives in Metro
235 Manilla.Philipp J intern Med 1997;35:15-7
- 236 18. Odunsanya OO.Breast Cancer:Knowledge attitude and practice of female school
237 teachers in Lagos Nigeria. Breast J 2001;7:171-5
- 238 19. Lee EE, Fogg L, Sadler GR. Factors of Breast Cancer screening Among Korean
239 Immigrants in the United States. J Immigr Minor Health 2006;8:223-30.
- 240 20. Cochran WG. The estimation of sample size in: Sampling Technique. 3rd Edition. New
241 York: John Wiley & Sons; 1977:72-88
- 242 21. National Population Commission and ICF Macro. Nigeria Demographic and Health
243 Survey 2013 Abuja, Nigeria.

- 244 22. Omotara B, Yahya S,Amodu M, Bimba J. Awareness ,attitude and Practice of Rural
 245 women regarding Breast Cancer in Northeast Nigeria. J Community Med Health Educ
 246 2012;2:148. doi:10.4172/2161-0711.1000148
- 247 23. Obaji NC,Elom HA,Agwu UM,Nwigwe CG,Ezeonu PO,Umeora OUJ. Awareness and
 248 Practice of Breast-Self Examination among Market women in Abakaliki, South East
 249 Nigeria. Ann Med Health Sci Res 2013;3:7-12
- 250 24. Maxwell AE,Bastani R, Warda US: Demographic predictors of cancer screening
 251 among Filipino and Korean Immigrants in the United States. Am J Prev Med 2005;35-
 252 42.

253 **Table 1: Knowledge of Risk factors on breast cancer and persons to conduct breast**
 254 **screening**

Variable	Frequency	Percent
Risk Factors of Breast Cancer		
Family history	120	55.3
Genetic factors	98	45.2
Cigarette smoking	84	38.7%
Alcohol consumption	73	33.6%
Contraceptive usage	66	30.6%

Diet	55	25.3%
Early onset of sexual exposure	37	17.1%
Keeping money in bra	9	4.1%
Contact with breast cancer patients	4	1.8%
Poor personal hygiene	4	1.8%
Continuous wearing of bra	3	1.4%
Knowledge of person to carry out Breast Examination		
Doctor	152	70.1%
Self	150	69.1%
Nurse	62	28.6%
Family members	6	2.8%
No Idea	5	2.3%

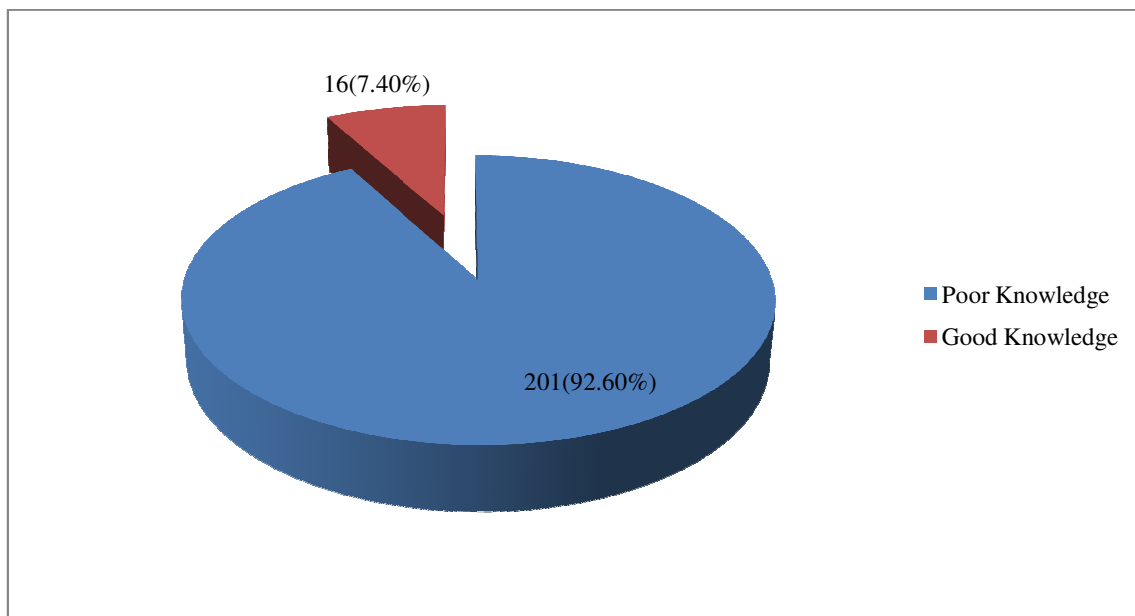


Figure 1: Knowledge of Breast cancer among Respondents

Table 2 Breast Cancer screening practices by respondents with place of breast

Examination and taken following Examination findings.

Variable	Frequency	Percent
Previous history of breast		
Examination		
Yes	143	65.9
No	74	34.1
Category of Breast		
Examiner		

Self	102	71.3
Doctor	29	20.3
Nurse	13	9.4
Place of Breast Examination		
Home	106	74.1
Health Facility	34	23.8
Screening Centre	3	2.1
Results of breast screening		
Normal breast findings	139	97.2
Presence of breast lump	4	2.8
Action taken by respondent		
Nothing done	2	50.0
Breast lump removed	2	50.0

259

260

261

262 **Table 3 Factors Associated with Knowledge of breast cancer among respondents**

Variable	Knowledge of	Breast cancer	Test Statistic	<i>P</i>
	Poor	Good		
Educational			F=0.854	0.831
Status				
None	8(88.9)	1(11.1)		
Primary	48(94.1)	3(5.9)		
Completed				
Secondary	93(92.1)	8(7.9)		
Completed				
Tertiary	52(92.9)	4(7.1)		
Completed				
Employment			$\chi^2=2.083$	0.246
status				
Employed	142(91.0)	14(9.0)		
Unemployed	59(96.7)	2(3.3)		
Marital Status			$\chi^2=2.291$	0.130

Single	61(96.8)	2(3.2)		
Married	140(90.9)	14(9.1)		
Age			$\chi^2=2.688$	0.488
Group(Years)				
15-24	91(94.8)	5(5.2)		
25-34	100(90.1)	11(9.9)		
35-44	1(100.0)	0(0.0)		
45-54	9(100.0)	0(0.0)		
Parity			F=3.671	0.135
Nulliparous	54(98.2)	1(1.8)		
Multipara	129(90.2)	14(9.8)		
Grand multipara	18(94.7)	1(5.3)		
Religion			$\chi^2=0.096$	0.053
Christianity	189(92.6)	15(7.4)		
Islam	11(91.7)	1(8.3)		
ATR	1(100.0)	0(0.0)		

264 **Table 4 Factors Associated with breast cancer screening practices of respondents**

Variable	Breast screening		Test statistic	<i>p</i>	OR	95% CI
	Practice					
	No	Yes				
Educational Status			$\chi^2=9.533$	0.023		
None	4(44.4)	5(55.6)			0.264	0.055-1.268
1 ⁰	26(51.0)	25(49.0)			0.323	0.141-0.742
2 ⁰	29(28.7)	72(71.3)			0.833	0.390-1.777
3 ⁰	15(26.8)	41(73.2)			1	
Employment Status			$\chi^2=3.416$	0.065		
Employed	59(37.8)	97(62.2)				
Unemployed	15(24.6)	46(75.4)				
Marital status			$\chi^2=2.993$	0.084		
Single	16(25.4)	47(74.6)				
Married	58(37.7)	96(62.3)				
Age group			$\chi^2=2.467$	0.481		

15-24	30(31.2)	66(68.8)
25-34	40(36.0)	71(64.0)
35-44	1(100.0)	0(0.0)
45-54	3(33.3)	6(66.7)
Parity		$\chi^2=5.946$ 0.051
Nulliparous	15(27.3)	40(72.7)
Multipara	48(33.6)	95(66.4)
Grand multipara	11(57.9)	8(42.1)
Religion		F=3.668 0.113
Christianity	67(32.8)	137(67.2)
Islam	7(58.3)	5(41.7)
ATR	0(0.0)	1(100.0)
Level of Knowledge		$\chi^2=3.587$ 0.058
Poor	72(35.8)	129(64.2)
Good	2(12.5)	14(87.5)