ID Design Press, Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences. 2019 May 31; 7(10):1700-1705.
https://doi.org/10.3889/oamjms.2019.221
eISSN: 1857-9655
Public Health

Knowledge and Attitudes about Breast Cancer among Women: A Wake-Up Call in Nigeria

Tayo O. George, Tolulope Abiola Allo*, Emmanuel O. Amoo, Olawale Olonade

Covenant University, Ota, Nigeria

Citation: George TO, Allo TA, Amoo EO, Olonade O. Knowledge and Attitudes about Breast Cancer among Women: A Wake-Up Call in Nigeria. Open Access Maced J Med Sci. 2019 May 31; 7(10):1700-1705. https://doi.org/10.3889/oamjms.2019.221

Keywords: Knowledge; Attitudes; Breast cancer; Women; Nigeria

***Correspondence:** Tolulope Abiola Allo. Covenant University, Ota, Nigeria. E-mail: tolu.allo@covenantuniversity.edu.ng

Received: 19-Jan-2019; **Revised:** 06-May-2019; **Accepted:** 07-May-2019; **Online first:** 25-May-2019

Funding: The research received financial support from the Covenant University Centre for Research Innovation and Discovery (CUCRID)

Competing Interests: The authors have declared that no competing interests exist

Abstract

BACKGROUND: Preventable deaths resulting from the scourge of breast cancer has become alarming and worrisome in many societies in developing countries, including Nigeria. Of much concern is the fact that breast cancer has continued to claim the precious lives of young, middle-aged, old, educated and non-educated women irrespective of their religion, socio-economic background and socio-demographic characteristics.

AIM: This study attempts to ascertain the knowledge and attitudes of women to breast cancer in Ogun State, Nigeria.

METHODS: The study adopts both primary and secondary data sources to examine the level of knowledge and attitude of women towards breast cancer with the view of suggesting probable solutions and recommendations for policy.

RESULTS: The result indicates that the awareness about breast cancer is overwhelming but only few women know about mammography; women in older age are 0.193 times less likely to attend breast cancer screening (p=0.000). Older women with secondary education that are either self-employed outside the home or full-time housewives are unfavourably disposed to breast cancer screening.

CONCLUSION: The authors recommend that concerned stakeholders in the health sector and policy decision makers should intensify action on cancer programmes and campaigns that could target older women especially housewives and women in middle level education.

Introduction

Breast cancer is the most common cancer affecting 25.2% of women and is also the second leading cause of cancer-related deaths among women [1]. Almost half of breast cancer cases and 60% of breast cancer-related deaths are estimated to occur in middle-and-low-income countries [2]. Globally, the devastating effects on women diagnosed with breast cancer are appalling [3]. Global cancer statistics show increased global cases of breast cancer and the rise is occurring at a faster rate in populations of the middle-and-low-income countries which may be due to increase in population growth and ageing [1], [2].

Breast cancer is an aggressive disease affecting women, irrespective of their age category. Women are particularly vulnerable and susceptible to breast cancer and their risks increases with advanced age [4]. The origin of breast cancer has not been fully unravelled but is attributable to some inter-related factors of genetics, hormones, the environment, socio-biology and physiological factors [3], [5]. Alatise and Schrauzer, for instance, have suggested that associated widespread pollution of the soil and water supply by a substance called “lead” may be a major contributory cause.

In a report by Siegel et al., [6] it was indicated that deaths as a result of breast cancer in Nigeria reached 13,264 or 0.70% and the age adjusted Death Rate is 28.11 per 100,000 population, ranking Nigeria 4th in the world. Adebamowo and Ajayi (1999) also stated that breast cancer is the most common cancer in Nigeria. In 2005, breast cancer was found to be the most common in Nigeria [7].

In the North-West geopolitical zone of Nigeria, cancer of the breast is second to cancer of the cervix, while the cancer registry at the University College Hospital (UCH), Ibadan revealed that it is the leading malignancy among women [3], [8], [9]. Also, in the North-central, breast cancer constitutes 22.41% of new cancer cases registered in 5 years and accounts for 35.41% of all cancers in women [10].

Breast cancer is undoubtedly the most dreaded cancer with lots of psychological impacts and one of the most popular malignancies that affect about one in every nine women [11]. It is a disease in which the malignant cells are developing in the tissue of the breast. Breast cancer is of two types, Lobular cancer which begins in many small sacks in the breast that produce milk and ductal cancer which develops in the tubes that carry milk from the lobules to the nipple [12]. It is also the type of cancer having the highest prevalence (45.7%) among the females in Nigeria and border Countries [13]. Common signs and symptoms of breast cancer include a change in a way the breast or nipple feels, change in how the breast or nipple seems and discharge of the nipple [11].

It is interesting to know that as debilitating as breast cancer disease is, majority of Nigerian women have little or no knowledge of the disease and even in situations where they are aware of the disease, their attitudes towards seeking healthcare is negative causing their untimely or preventable death. It has been observed that certain socio-cultural, religious, genetic and economic factors are responsible for this negative attitude.

Literature Review

It has been argued that a lack of basic knowledge and quality information delivery system for breast cancer is a great impediment to the life and well-being of women [14]. Breast cancer has been a major cause of death subtly killing women – especially those with little or no education. This is compounded by the lack of timely information about breast cancer and poor diagnostics screening methods for early detection [15], [14].

As important as knowledge of breast cancer is, it is not sufficient unless socio-cultural factors are taken into consideration by the health professional providing direct health-care [16]. Insufficient information concerning breast cancer has also been observed among the rural and urban dwellers in Nigeria; it is responsible for the poor perception of the ability to cure cancer earlier detected and the efficacy of screening tests [4].

Furthermore, the lack of awareness on the issue of vulnerability and susceptibility associated with breast cancer discourage many women from seeking intervention early or associate the symptoms they are experiencing with other health conditions [14].

Level of awareness regarding how to perform simple life-saving diagnostic breast checks such as breast self-examination (BSE) further compounds the problem of late detection. Empowerment of women with information on BSE is of paramount importance, especially in countries without modern technologies for breast cancer screening [17]. Most of the Nigerian rural communities lacked the required technological resources [18], but BSE can contribute greatly if women are informed about this technique, and regular practice would reduce late presentation [14].

Mammography screening may also be done to detect breast cancer in asymptomatic women. In spite of its limitations in LMCs due to the challenge of poor infrastructure, poverty, and inadequate human resources, it has been seen as the method of choice for screening and diagnosis which can significantly reduce breast cancer morbidity and mortality [19], [20], [21].

Certain socio-cultural factors also contribute to breast cancer prevalence in Nigeria. As opined by Akhigbe and Akhigbe, 2012, health beliefs vary across culture, and the fatalistic consequence of cancer may discourage many from participating in health-promoting behaviours. This isbecause illnesses or catastrophic events in this part of the world are attributed to a higher power (such as God), or they are meant to happen and cannot be avoided; as a result, fatalism becomes part of the person's world-view.

Chronic conditions in many African societies are often associated with witchcraft and evil spirits. Cultural values and ethnic diversity have an impact on health beliefs, which may influence how rural women interact with the Western medication, especially conditions such as breast cancer. Some women delay seeking treatment because of fear or stigma concerning their daughters as it is believed that they also might be affected by breast cancer and might not be considered for a good marriage. Furthermore, it is believed that cancer is a death sentence from God [16]. All these have continued to be crucial factors that may account for breast cancer prevalence in Nigeria and other Sub-saharan African countries.

This study seeks to ascertain the knowledge and attitude of women towards breast cancer in Ogun state. It also attempts to examine the factors responsible for breast cancer prevalence, thereby suggesting probable solutions and recommendations for policy decisions.

Methods

Study Design

This study utilized the structured questionnaire to elicit useful information on behavioural risk factors for breast cancer among women.

The inclusion criteria for this study involved a focus on all women of reproductive age irrespective of their cancer experience.

Study Location

This study was located in Ogun state. Nigeria. The state was randomly selected from the South-west out of the six geo-political zones in Nigeria.

Study Population

The study population was selected through a random-route walk within the wards that were selected in a local government area in Ogun state.

The research instrument covered history of the participant's life style in terms of occupation, sexual relationship, knowledge of cancer, participation in breast screening exercises, and history of breast cancer.

Ethical Considerations

Approval was sought from Covenant University Health Research Ethics Committee (CUHREC), and formal permission was also duly sought and obtained from head of households.

Due community reconnaissance procedure such as seeking express permission from community leaders was also done and each participant's consent was solicited. Dual consent was obtained in situations where the husband or the male partner is accessible. Each respondent was assured of confidentiality of their responses. Notwithstanding, all participants were encouraged to participate but were given the option to withdraw from the interview or refuse to answer any question they are not comfortable with.

Data analysis

A total of 764 women were interviewed in a randomly selected local government area in Ogun State. The extracted quantitative data were analysed using a three-level technique of analysis: Univariate, bivariate and multivariate techniques.

Frequency distribution was used to summarise the profile of respondents, cross tabulations were conducted simultaneously between two variables of interest and a binary logistic regression (BLR) was adopted to test the responsiveness of selected co-variates (such as age, educational attainment, working status, total life sexual partners and others) on women's participation in breast screening.

Results

Socio-demographic Profile of Respondents

A total of 764 women were sampled in Ogun state. Majority of them were between the age of 30-39 years (36.5%), with only about 0.7% aged 60 years & above. They were mostly married (64.8%), and 69.8% were Christian. Their highest educational attainment is secondary level education (44.6%), with majority claiming to be self-employed (58.6%). The most common source of income was trading (42.8%) (Table 1).

Table 1: Percentage Distribution of Respondents by Socio-Demographic Characteristics

	Freq.	%
Sample (N)	764	100.0
Age		
Less than 20	61	8.0
20-29 years	194	25.4
30-39 years	279	36.5
40-49 years	167	21.9
50-59 years	58	7.6
60 years & above	5	.7
Total	764	100
Marital Status		
Single/Never Married	190	24.9
Married/LWP	495	64.8
Separated/Divorced	46	6.0
Widowed	25	3.3
Cohabiting	8	1.0
Total	764	100
Religious Affiliation		
Christianity	533	69.8
Islam	206	27.0
Others	25	3.3
Total	764	100
Educational Attainment		
No Schooling	53	6.9
Primary Education	126	16.5
Secondary Education	341	44.6
Tertiary Education	244	31.9
Total	764	100
Working Status		
Employee	160	20.9
Self-Employed	448	58.6
Unemployed	29	3.8
Full-Time House-wife	38	5.0
Still Schooling	89	11.6
Total	764	100
Occupation		
Manufacturing	12	1.6
Trading/Distribution	327	42.8
Farming	5	.7
Education	76	9.9
Services	157	20.5
others	187	24.5
Total	764	100

Source: Computed from 2015 Breast Cancer Survey.

Respondents' Breast Cancer Knowledge

The frequency distribution of respondent's knowledge of breast cancer revealed that 92.3% have heard about breast cancer, 70.5% knew that it is preventable while only a fragment knew about

mammogram: 17.7% (Table 2).

This revelation is a pointer to the fact that, respondents in the study area have merely heard about breast cancer and probably might have also merely heard that it is preventable, but only a few knew about the procedure for its early detection.

Table 2. Percentage Distribution of Respondents by Breast Cancer Knowledge

Freq.	%
Ever Heard about Breast Cancer	
Yes	705	92.3
No	59	7.7
Total	764	100.0
Know Breast Cancer is Preventable	
Yes	539	70.5
No	219	28.7
No Response	6	.8
Total	764	100.0
Know Mammogram	
Yes	135	17.7
No	614	80.4
No Response	15	2.0
Total	764	100.0

Source: Computed from 2015 Breast Cancer Survey.

Respondents' Knowledge and Attitude towards Breast Cancer Screening

Table 3 showed the relationship between respondents' knowledge of mammography and their attitude towards breast cancer screening. It can be seen that 90.2% of respondents that are familiar with mammography are favourably disposed to breast cancer screening, while 9.8% are not. However, 86.9% of those not familiar with mammography are favourably disposed to breast cancer screening, while 13.1% are not.

This shows that many women in the study area have a favourable attitude towards breast cancer screening even though some of them claimed not to be familiar with mammography, as shown in Table 3.

Table 3: Relationship between Respondent's Knowledge about Mammograms and their Attitude towards Breast Cancer Screening

		Attitude towards Screening		Total
		Favourable	Not Favorable	
Know	Yes	120 (90.2%)	13 (9.8%)	133 (100.0%)
Mammogram	No	485 (86.9%)	73 (13.1%)	558 (100.0%)
Total		605 (87.6%)	86 (12.4%)	691 (100.0%)

Source: Computed from 2015 Breast Cancer Survey.

Co-variates of Women's Favourable Support for Breast Cancer Screening

Table 4 presents the Binary Logistic Regression (BLR) of the inter-relationship between selected co-variates and women's support for breast cancer screening.

The selected dependent variable is "attitude towards breast cancer screening" measured as "Yes" or "No" binary format.

Yes =1 (favourable support for Breast screening)

No = 0 (unfavourable support for Breast screening)

The selected independent variables measuring "socio-demographic characteristics" are age, residence, education, religion, marital status, total life sexual partners (TLSP) and working status.

The hypothesis estimated the log of likelihood $log\left(\frac{p}{1-P}\right)$ on the independent variable.

$$log\left(\frac{p}{1-P}\right) = \alpha + X_1\beta_1 + X_2\beta_2 + X_3\beta_3 \ldots X_n\beta_n$$

β = Coefficient, SE = Standard Error, Wald = interpreted by its magnitude, Sig. = P value/significance level, Exp (β) = Odd ratio indicating the likelihood of the occurrence of the independent variable, while RC = Reference Category.

Table 4: Binary Logistic Regression Illustrating Co-variates of Women's Favourable Support for Breast Cancer Screening

Selected variables	B	S.E.	Wald	Sig.	Exp(B)
Age group					
≤ 29 years	RC				
30-49 years	-1.643	.349	22.136	.000	.193
50 & above	-2.214	.716	9.569	.002	.109
Residence: Rural (RC)					
Urban	-.079	.283	.078	.779	.924
Education					
No Schooling	RC				
Primary Education	.133	.758	.031	.861	1.142
Secondary Education	-.031	.712	.002	.965	.970
Tertiary Education	.069	.741	.009	.926	1.071
Religious affiliation					
Christianity	RC				
Islam	-.471	.343	1.885	.170	.624
Others	.545	.632	.745	.388	1.725
Marital Status					
Single/Never Married	RC				
Married/LWP	1.452	.582	6.228	.013	4.272
Separated/Divorced	2.288	.762	9.008	.003	9.857
Widowed	2.564	.865	8.781	.003	12.987
Cohabitation	1.231	1.013	1.478	.224	3.426
TLSP: Only One (RC)					
2-3 Partners	.317	.316	1.006	.316	1.374
4 & above	.737	.499	2.182	.140	2.089
Working status: Employee	RC				
Self-Employed	-.695	.370	3.522	.061	.499
Unemployed	.600	.711	.712	.399	1.823
Full-Time Housewife	-.070	.666	.011	.917	.933
Constant	-2.315	.964	5.771	.016	.099
-2 Log likelihood = 358.190		Cox & Snell R Square = 0.078		Nagelkerke R Square = 0.149	

Source: Computed from 2015 Breast cancer Survey.

This model measured women's attitude towards breast cancer screening about their age, residence, education, religion, marital status, total life sexual partners (TLSP) and working status. As depicted in table 4, women that are older are unfavourably disposed to breast cancer screening and have a negative attitude towards it (r = -1.643 and -2.214), and they will be 0.193 and 0.109 times less likely to attend screening when compared to younger women. P-value = 0.000 and 0.002 respectively.

This analysis revealed a high statistical significance denoting some level of resistance to screening among older women about the younger ones. Additionally, the analysis also showed that women with a tertiary education together with those with primary education are favourably disposed towards breast screening (r = 0.069 and 0.133) and will be 1.071 and 1.142 times more likely to attend screening compared to women with no education while women with secondary education have a negative attitude towards screening (r = -0.031) and will be 0.970 times less likely to attend screening

when compared to women with no education. All the categories of education are however, not statistically significant, p-value > 0.05.

In the same vein, married women together with those that are separated/divorced including widows and those involved in co-habitation all showed a favourable attitude towards breast screening (r = 1.452, 2.288, 2.564 and 1.231). They will also be 4.27, 9.85, 12.9 and 3.4 times more likely to attend screening compared to women who are single and have never been married at p-value < 0.05 except women co-habiting at p-value ≥ 0.05. Lastly, working status is not significantly related to breast screening (p-value > 0.05) with only the unemployed showing a favourable attitude towards screening compared to the employees, the self-employed and the full-time house-wives.

Overall, the Cox & Snell R Square = 0.078 and the Nagelkerke R Square = 0.149 implying that only 7.8% and 14.9% of the change in attitude to breast cancer screening could be explained by all the independent variables.

Discussion

This study examined the knowledge and attitude of women about breast cancer. It also looked at the relationship between socio-demographic characteristics and attitude of women towards breast cancer screening.

The study found that almost all respondents in the study area have heard about breast cancer, and more than half knew that it is preventable with just only a fraction knowing of mammography. Even with the majority of the women not knowing what mammography is, an appreciable number of them have a favourable attitude towards it. The multivariate analysis was done to see the relationship between respondents' socio-demographic characteristics and their attitude towards breast screening. This was aimed at examining whether factors such as age, education, marital status and working status had a significant influence on women's attitude towards breast screening.

The binary logistic regression (BLR) showed that older women, with secondary education, with outside employment, self-employment, or full-time house-wives, have an unfavourable attitude towards breast screening. Women with primary education, tertiary education, married, divorced, widowed, co-habiting, and unemployed showed a favourable attitude towards breast cancer screening.

The relationship between breast screening and socio-demographic characteristics have been investigated in various studies across the world [25], [26].

Donato *et al.* for example compared attendees of breast cancer screening programs with non-attenders concerning demographic and socio-economic factors and found that response was higher amongst less educated, married, or widowed women than amongst the more educated, single, divorced, and immigrant women. Reasons for non-participation among others include lack of interest, fear and anxiety about breast cancer. In another study aimed at examining breast cancer awareness, attitude and screening practices in the six geopolitical zones in Nigeria [27], it was found that there was an unfavourable attitude towards breast screening even among those who were aware of the screening methods [28]. In other similar studies, no association was found between breast screening, age, educational attainment, profession and marital status [29], [30], [31].

Going by the findings from this study, it can be concluded that the majority of women in the study area have heard about breast cancer. They are, however, not familiar with mammography screening as one of the breast cancer screening method. Additionally, women that are older in age, women with secondary education, and women that are either employees, self-employed or full-time house-wives are unfavourably disposed to breast screening, while those with primary and tertiary education, that are either married, divorced, widowed, co-habiting, and unemployed showed a favourable attitude towards breast screening.

It is recommended that older women may be targeted for education on breast screening, and breast screening centres should be welcoming to older women. There is also a need for intensified campaigns and enlightenment programs to encourage all women irrespective of their educational background to participate in breast cancer screening. Finally, awareness campaigns and programs about breast screening should be taken to offices, market places, households and other places where we have women to encourage women who are busy with their employment or house chores to participate in breast screening activities.

Acknowledgements

The authors acknowledge the Covenant University Centre for Research Innovation and Discovery (CUCRID) for providing the grant to carry out this study, and the research cluster on breast and cervical cancer for granting the permission to utilize the data from their field work. The authors are responsible for all errors or omission in this paper.

References

1. Phaswana-Mafuya N, Peltzer K. Breast and cervical cancer screening prevalence and associated factors among women in the South African general population. Asian Pacific Journal of Cancer Prevention. 2018; 19(6):1465-1470.

2. Jemal A, Bray F, Forman D, O'brien M, Ferlay J, Center M, Parkin DM. Cancer burden in Africa and opportunities for prevention. Cancer. 2012; 118(18):4372-84. https://doi.org/10.1002/cncr.27410 PMid:22252462

3. Ogunsiji OO, Kwok C, Fan LC. Breast cancer screening practices of African migrant women in Australia: a descriptive cross-sectional study. BMC Women's Health, 2017. https://doi.org/10.1186/s12905-017-0384-0 PMid:28412942 PMCid:PMC5392914

4. Omotara B, Yahya S, Amodu M, Bimba J. Awareness, attitude andpractice of rural women regarding breast cancer in Northeast Nigeria. Journal of Community Medicine & Health Education. 2012; 2(5):1-4 pages. https://doi.org/10.4172/2161-0711.1000148

5. American Cancer Society Cancer facts and figures, 2009.

6. Siegel R, Ma J, Zou Z, Jemal A. Cancer statistics. A Cancer Journal for Clinicians. 2014; 64(1). https://doi.org/10.3322/caac.21208 PMid:24399786

7. World Health Organization Fight against breast cancer: strategies that prevent, cure and care. International Agency for Research on Cancer. 2009.

8. Ogunbiyi JO, Fabowale AO, Ladipo AA. In Cancer incidence and top ten cancers in eleven local government areas in Ibadan, Nigeria and its environs, 2004-2008. Alofe Ibadan M (Nig.) enterprises. 2010:11-7.

9. Afolayan EAO. Cancer in North Western region of Nigeria - an update analysis of Zaria cancer registry data. Western Nig. Jour. of Med. Sci. 2008; 1:37-43

10. Afolayan EAO, Ibrahim OOK, Ayilara G, T. Cancer patterns in Ilorin: an analysis Of Ilorin cancer registry statistics. Trop. J. Health Sci. 2012; 19(1).

11. Etikan I, Alkassin R, Abubakar S. Statistical analysis on the reported cases of breast cancer. Biometrics & Biostatistics International Journal. 2016; 4(1). https://doi.org/10.15406/bbij.2016.04.00086

12. Dollinger M, Rosenbaum EH, Cable G. Everyone's guide to cancer therapy Kansas City, Mo.: Andrews and McMeel, 2012.

13. Isa A, Evren BH. Cancer incidence in Nigeria and border countries. Malays j med. 2016.

14. Ramathuba D, Ratshirumbi C, Mashamba TM. Knowledge, attitudes and practices toward breast cancer screening in a rural South African community. Curationis. 2015; 38(1):1172. https://doi.org/10.4102/curationis.v38i1.1172 PMid:26017152 PMCid:PMC6091642

15. Shepherd JH, Mclnerney PA. Knowledge of breast cancer in women in Sierra Leone. Curationis. 2006; 29(3):70-77. https://doi.org/10.4102/curationis.v29i3.1105 PMid:17131611

16. Dow MK, Yarbro CH. Cultural perspectives of international breast health and breast cancer education. Journal of Nursing Scholarship. 2007; 39(2):105-112. https://doi.org/10.1111/j.1547-5069.2007.00154.x PMid:17535309

17. Shepherd JH, Mclnerney PA. Knowledge of breast-self-examination in women in Sierra Leone. Curationis. 2007; 30(4):38-44. https://doi.org/10.4102/curationis.v30i4.1115 PMid:18402419

18. Ajayi LA, Soyinka-Airewele P. Narratives of domestic violence survivors in Ghana and the United states. Proceedings of the 4th International Conference on Advances in Education and Social Sciences. Istanbul, Turkey, 15-17 October 2018.

19. Olasehinde O, Boutin-Foster C, Alatise OI, Adisa AO, Lawal OO, Akinkuolie AA, Adesunkanmi AR, Arije OO, Kingham TP. Developing a breast cancer screening program in Nigeria: evaluating current practices, perceptions, and possible barriers. Journal of global oncology. 2017; 3(5):490-6. https://doi.org/10.1200/JGO.2016.007641 PMid:29094087 PMCid:PMC5646896

20. Akhigbe A, Akhigbe K. Effects of health belief and cancer fatalism on the practice of breast cancer screening among Nigerian women. InMammography-Recent Advances, 2012. https://doi.org/10.5772/31176

21. Amoo EO, Olawole-Isaac A, Okorie N, Ajayi MP, Adekola PO, Amana TR, Olu-Owolabi, F. Spousal desertion and coping strategies among women with cervical cancer in Nigeria: a schematic framework for wellbeing. African Population Studies. 2018; 32(1). http://aps.journals.ac.za/pub/article/view/1172

22. Amoo EO, Ajayi MP, Samuel GW, Adekeye OA, Odewale BJ. Sexual behaviour in Nigerian context, vulnerability to cervical cancer and health promotion. In Proceedings of SOCIOINT, 2017. 4th International Conference on Education, Social Sciences and Humanities Dubai, UAE, 2017.

23. Donato F, Bollani A, Spiazzi R, Soldo M, Pasquale L, Monarca S, Lucini L, Nardi G. Factors associated with non-participation of women in a breast cancer screening program in atown in northern Italy. Journal of Epidemiology and Community Health. 1991; 45:59-64. https://doi.org/10.1136/jech.45.1.59 PMid:2045747 PMCid:PMC1060703

24. Ahmed NU, Smith GL, Haber G, Belcon MC. Are women with functional limitations at high risk of under-utilization of mammography screening? Women's Health Issues. 2009; 19(1):79-87. https://doi.org/10.1016/j.whi.2008.09.001 PMid:19111790

25. Ojewusi A, Obembe T, Arulogun S, Olugbayela T. Breast cancer awareness, attitude and screening practices in Nigeria: A systematic review. Academic Journal of Clinical Opinions and Reviews. 2016; 7(2):11-25. https://doi.org/10.5897/CRO16.0101

26. Aniebue PN, Aniebue UU. Awareness of breast cancer and breast self-examination among female secondary school teachers in Enugu metropolis, south-eastern Nigeria. International Journal of Medical Research & Health Sciences. 2008; 13(2):105-110.

27. Nasiru AI, Olumuyiwa OO. Knowledge of risk factors, beliefs and practices of female healthcare professionals towards breast cancer in a tertiary institution in Lagos, Nigeria. BMC Cancer. 2009; 9:76. https://doi.org/10.1186/1471-2407-9-76 PMid:19261179 PMCid:PMC2656542

28. Olajide TO, Ugburo AO, Habeebu MO, Lawal AO, Afolayan MO, Mofikoya MO. Awareness and practice of breast screening and its impact on early detection and presentation among breast cancer patients attending a clinic in Lagos, Nigeria. Nigerian Journal of Clinical Practice. 2014; 17(6):802-7. https://doi.org/10.4103/1119-3077.144404 PMid:25385923

29. Adebamowo CA, Ajayi OO. Breast cancer in Nigeria. West Afr. J.Med. 1999; 19(3):179-191.

30. Allo TA, Edewor PA, Imhonopi, DA. Assessment of Perceived Risks of Breast Cancer and Breast Cancer Screening among Women in Five Selected Local Governments in Ogun State. SAGE Open. 2019. 9(2). https://doi.org/10.1177/2158244019841924

31. Lawal O, Murphy FJ, Hogg P, Irurhe N, Nightingale J. Mammography screening in Nigeria - A critical comparison to other countries. Radiography. 2015; 21(4):348-351. https://doi.org/10.1016/j.radi.2015.03.015

32. Olowokere AE, Onibokun AC, Oluwatosin A.O. Breast cancer knowledge and screening practices among women in selected ruralcommunities of Nigeria. Journal of Public Health and Epidemiology. 2012; 4(9):238-245. https://doi.org/10.5897/JPHE12.058

33. Allo TA, Edewor PA,. Imhonopi D. Knowledge, attitude and behavioural disposition of Nigerian women towards breast cancer. Presented at ADVED 2018, 4th International Conference on Advances in Education and Social Sciences.Istanbul, Turkey, 15-17 October, 2018.

34. Omidiji OA, Campbell, PC, Irurhe NK, Atalabi OM, Toyobo OO. Breast cancer screening in a resource poor country: ultrasound versus mammography. Ghana Med J. 2017; 51(1):6-12. https://doi.org/10.4314/gmj.v51i1.2 PMid:28959066 PMCid:PMC5611948

35. Alatise OI, Schrauzer GN. Lead Exposure: A contributing cause of the current breast cancer epidemic in Nigerian women. Biol Trace Elem Res 2010; 136:127. https://doi.org/10.1007/s12011-010-8608-2 PMid:20195925 PMCid:PMC2883097