Original Article

Breast Cancer Screening Program: Findings from a Population-Based Study in South Nigeria

Christie Divine Akwaowo, Uwemedimbuk Ekanem Smart, Emem Abraham[1], Catherine Sylvester Eyo[2], Mandu Ikpe[3], Nene Andem[4], Chinonye Otuka[5], Ukeme Eshiet[3], Helen Emmah[2], Christine Essien[6], Glory Essien[7], Valerie Okon Obot[8]

Abstract:

BACKGROUND: Breast cancer is the most common cancer among women in both developed and developing countries, affecting about 2 million women and causing 6.6% of all cancer deaths each year. Although developed countries have higher rates of breast cancer, the availability of structured screening programmes enables early detection and thus prevention of morbidity and mortality.

AIMS: This article presents the findings of a 10-year population-based breast cancer screening programme by a member state of the Medical Women's Association of Nigeria (MWAN).

METHODS: A retrospective exploration of the database of MWAN Akwa Ibom state was carried out for 10 years of 2008–2017.

RESULTS: A total of 2203 women were screened for breast cancer between 2008 and 2017. Majority were 31–40 years (36.9%) and married (56.8%). Only 27% did monthly self-breast examinations. On clinical breast examination (CBE), breast lump was found in 166 (7.5%) of the respondents, with the most common location being the left outer upper quadrant. An enlarged lymph node was seen in only 1% of the population. Clients aged 20 years or less (24.5%) and those living with a partner (16.1%) formed a significantly higher proportion of those with a breast lump. Respondents who had never breast fed had a significantly higher percentage of breast lumps compared to those who had (10.1%).

CONCLUSION: This study found that breast lumps were more common in the younger population and those living with partners. Non-breastfeeding was seen to be associated with an increased risk of developing breast lumps. Routine monthly breast self-examination, regular clinical breast examination and follow-up of individuals with breast lesions are recommended to facilitate early detection of breast cancer in our resource-poor setting. We also recommend reduced age of screening for breast lumps and CBE for younger women.

Keywords:

Breast lump, cancer, screening

Department of Community Medicine, University of Uyo, Departments of [1]Opthalmology, [2]Anaesthesia, [3]Radiology and [6]Surgery, University of Uyo Teaching Hospital, [4]Hospitals Management Board, Akwa Ibom State Ministry of Health, [5]Renewed Fertility Clinic, Uyo, [7]Nigerian Prisons, Uyo, Akwa Ibom State, [8]Ministry of Power and Economic Development, Akwa Ibom State Branch, Akwa Ibom State, Nigeria

Address for correspondence:
Dr. Christie Divine Akwaowo,
Department of Community Medicine, University of Uyo Teaching Hospital, Uyo, Akwa Ibom, Nigeria.
E-mail: christie.d.akwaowo@gmail.com

Introduction

Breast cancer is the most common cancer among women in both developed and developing countries impacting about 2 million women and causing 6.6% of all cancer deaths annually.[1] Although breast cancer rates are higher among women in developed countries, increasing life expectancy, urbanisation and adoption of the so-called western lifestyle have led to increasing incidence of breast cancer in the developing world.[2] Africa currently has the highest age-standardised breast cancer mortality rate globally with Nigeria, its most populous country leading with an age-standardised mortality of 25.6/100,000.[2] This is bothersome considering that Africa has the lowest breast cancer rates when compared to other continents except Asia.[1]

Due to weak health systems and poor health-seeking behaviours in resource-constrained countries, breast cancer is usually diagnosed in very late stages, giving rise to high mortality rates.[3] Therefore, early detection to improve breast cancer outcome and survival remains the cornerstone of breast cancer control.[1,4,5]

There are two early detection methods including: Early diagnosis or awareness of early signs and symptoms in symptomatic populations to facilitate diagnosis and early treatment; and screening which is the systematic use of a screening test in an asymptomatic population with the aim of detecting and treating individuals with an abnormality suggestive of cancer.[5] Several methods have been evaluated as tools for breast cancer screening, including mammography, ultrasonography, Self-breast examination and clinical breast examination (CBE). Self-breast examination (SBE) involves inspection and palpation of the breast by oneself for lumps, shape, texture and contour with the aim of identifying changes in the breasts should they exist. It is an important early detection tool,[5] however, its practice has been poor in our environment.[6] Mammography is complex and resource intensive. Besides, its risk and benefits as a screening tool varies widely.[5] It has, however, been found to reduce breast cancer mortality and incidence of advanced disease in high-income regions with adequate screening programmes.[7-9] Recent evidence indicates that supplemental ultrasonography screening could detect occult breast cancers missed by mammography, and primary ultrasonography screening seems to perform comparably to primary mammography screening, especially in younger age groups.[10]

A screening method is feasible and justified when the disease burden is relatively high, an adequate health system capacity has been achieved and when the quality of the whole screening process is assured.[11] In resource-limited settings such as Nigeria, early diagnosis of breast cancer is a very appropriate and affordable strategy for early detection and can complement screening strategies where these are justifiable, available and feasible.[11] CBE is an examination of both breasts performed by a trained health professional. It can also be effectively performed by trained non-medical workers.[5] CBE is a promising approach for resource-poor settings. A study on cost-effectiveness of breast cancer control strategies in Ghana found that CBE performed twice in a year, combined with treatment was the most cost-effective intervention, and the incremental cost per disability-adjusted life years saved was about 10 times lower than the use of mammography.[12] Other studies have demonstrated that CBE in combination with awareness campaigns and training of health workers can be effective in downstaging breast cancer.[3] BSE is the third screening method which involves the monthly examination of one's breasts through inspection and palpation. Although evidence on the effectiveness of screening through BSE is limited, BSE has been seen to empower women, taking responsibility for their own health. It is, therefore, recommend for raising awareness among women at risk rather than as a screening method.[5] In sub-Saharan Africa, BSE has higher participation rates compared to mammography and CBE.[3] The WHO however recommends that BSE should not be promoted on a population-wide level.[13]

Several risk factors for breast cancer have been identified, and have been classified as non-modifiable and modifiable. However, specific risk factors are not always evident for the majority of women presenting with breast cancer. A familial history of breast cancer causes a two- to three-fold increase in the risk of breast cancer.[5] Prolonged exposure to endogenous oestrogens, such as early menarche, late menopause, late age at first childbirth are among the most important risk factors for breast cancer. Modifiable risk factors include alcohol intake, physical inactivity, overweight and obesity and exposure to exogenous hormones such as the use of oral contraceptive pills and hormone replacement therapy.[5]

Low and middle-income countries such as Nigeria that face the double burden of cervical and breast cancer, the two leading causes of cancer deaths in women in the country need to implement combined cost-effective and feasible interventions to tackle these preventable diseases. Medical Women's Association of Nigeria (MWAN) in Akwa Ibom state was established in 1992, and has been conducting breast and cervical cancer screening for women living in the state, as a pet project. Routine screening is conducted monthly on the second Tuesday of every month. However, outreach screening is carried out intermittently depending on the availability of resources and sometimes in response to the invitation by individuals to specific communities.

The aim of this study was to explore the MWAN AKS database to determine the prevalence and associated factors of breast lump in women who had attended screening over 10 years.

Methods

This study was a population-based retrospective study of the database of the MWAN Akwa Ibom State Branch. Data from all women who were screened during the routine monthly breast cancer screening were retrieved for women screened between 2008 and 2017. The study population included all women who presented at the MWAN Well Woman Clinic and outreach screening for breast and cervical cancer within the study duration. Exploration of the MWAN data and setup of the database

Table 1: Socio-demographic characteristics of women who attended Medical Women's Association of Nigeria-Association of Nigeria cancer screening programme between 2007 and 2018

Variable	Frequency (*n*=2203), *n* (%)
Age (years)	
Mean±SD	40.2 (11.7)
≤20	94 (4.3)
21-30	377 (17.1)
31-40	814 (36.9)
41-50	521 (23.6)
51-60	295 (13.4)
≥61	102 (4.6)
Marital status (*n*=2117)*	
Single	480 (21.8)
Married	1251 (56.8)
Living with partner	31 (1.4)
Separated	555 (2.5)
Divorced	35 (1.6)
Widowed	249 (11.3)
Never married	16 (0.7)
Occupation	
Housewife	140 (6.4)
Peasant	184 (8.4)
Technical	14 (0.6)
Civil/public services	570 (25.9)
Teaching	291 (13.2)
Professional	101 (4.6)
Business	511 (23.2)
CSW	9 (0.4)
Others	383 (17.4)
Tribe	
Ibibio	1288 (58.5)
Annang	418 (19.0)
Oron	60 (2.7)
Igbo	116 (5.3)
Others	321 (14.6)

*There were 86 missing values encountered. SD: Standard deviation, CSW: Commercial sex worker

commenced in June 2019, with preliminary results presented during the MWAN Biennial Conference in Asaba 2019. However, this index study was conducted between September and November 2020.

The database comprises information obtained during both routine and outreach cancer screening using a standardised structured questionnaire on socio-demographic characteristics, modifiable and non-modifiable risk factors of breast and cervical cancers, and CBE and VIA performed on the respondents. The instrument used to create the database was a two-part questionnaire, adapted from the IARC/WHO Standardised Format for reporting results of VIA/VILI.[14] This instrument has been used for cancer screening by The Medical Women's Association of Tanzania (MEWATA) in Collaboration with the Ocean Road Cancer Institute.[14,15] Section I obtained

information on socio-demographics and history of contraceptive use. This section of the questionnaire was self--administered; however, respondents who could not read and write, or those who needed assistance in completing the questionnaires, were assisted by the medical women. Section II reported on findings from the clinical breast examination and cervical screening. This section was filled by the doctors carrying out the screening, as the women presented themselves.

The CBE were performed by trained medical doctors. The women were first examined in standing positions with their arms pressed against their hips. This was done to inspect the breast looking for differences in size or shape between both breasts. The skin was also examined for changes in colour or surface. Afterwards, in a supine position with the arms placed above the head, the breasts were palpated for lumps. This was done using the pad of the hands, and systematically, examining all four quadrants of the breast and the nipples. The axilla was also examined for the presence of enlarged lymph nodes. A CBE was considered abnormal in the presence of a mass, nipple discharge, skin or nipple retraction, oedema, erythema, peau d'orange or ulcers. Any abnormal finding was noted and sent for further investigation at the University of Uyo Teaching hospital.

Information obtained was collated, validated and entered into Microsoft Excel. Data were analysed using SPSS version 22 (IBM Corp., Armonk, NY), and descriptive statistics was presented in tables and charts, and relationships were established using Chi-square to predict relationships. A *P* < 0.05 was considered statistically significant.

Ethical considerations
Ethical clearance was obtained from the Health Research Ethics Committee of the University of Uyo Teaching Hospital. Ethical approval number: UU/AD/S/96/VOL XXI/481. All data on the database was anonymised.

Results

Socio-demographic characteristics of those screened
As captured in the database, a total of 2203 women participated in the routine cancer screening exercise between 2008 and 2017. As seen in Table 1, majority of the women were aged 31–40 years (36.9%), married (56.8%), worked in the civil/public service (25.9%) and were of the Ibibio tribe (58.5%).

Gynaecological, family and social history of those screened
Table 2 shows that of the women screened, 30.6% had never been pregnant, whereas 30.2% had been

pregnant five times or more. Majority of those who had been pregnant had their first pregnancy before

Table 2: Gynaecological, family and social history of women who participated in Medical Women's Association of Nigeria Association of Nigeria cancer screening programme, 2007-2018

Variable	Frequency (*n*=2203), *n* (%)
Number of pregnancies	
0	675 (30.6)
1-2	338 (15.3)
3-4	524 (23.8)
≥5	666 (30.2)
Age at first pregnancy (*n*=1528)	
≤30	1330 (60.4)
>30	198 (9.0)
Have you taken contraceptive pills before?	
yes	639 (29.0)
No	1564 (71.0)
Do you have any of these symptoms?	
Breast lump	275 (12.5)
Painful breast	505 (22.9)
Bloody discharge	38 (1.7)
Nipple discharge	202 (9.2)
Nipple retraction	44 (2.0)
Do you do monthly self-breast exam?	
Yes	594 (27.0)
No	1609 (73.0)
Has any health worker ever examined your breasts?	
Yes	586 (26.6)
No	1617 (73.4)
On average, how long do you usually breastfeed you children?	
Never breastfed (years)	976 (44.3)
≤1	750 (34.0)
>1-2	473 (21.5)
>2	4 (0.4)
Do you have any blood relative that had or has breast cancer?	
Yes	143 (6.5)
No	2060 (93.5)
Which relative has/had cancer (*n*=143)	
Mother	31 (21.7)
Daughter	5 (3.5)
Sister	36 (25.2)
Cousin	30 (21.0)
Aunty	33 (23.1)
Grandmother	8 (5.1)
Have you ever smoked cigarettes?	
Yes	17 (0.8)
No	2186 (99.2)
Have you ever lived in a house or worked in an office with a regular smoker?	
Yes	298 (13.5)
No	1905 (86.5)
Do you take alcohol?	
Yes	717 (32.5)
No	1486 (67.5)

the age of 30 years (60.4%). Less than a third of the respondents (29.0%) had ever used contraceptive pills (*n* = 639). Only about a quarter of the women (27.0%) reported that they did monthly self-breast examinations, or that a health worker had ever examined their breasts. As regards breastfeeding, 44.3% of the respondents had ever breastfed, and about a third breastfed their children for an average of less than a year.

As shown in Figure 1, the most commonly used contraceptive was the male condom, natural methods, pills, injectables and IUDs were used by 10.4%, 6.8%, 5.6%, 5.6% and 4.1% of the women, respectively.

Yield of breast lump in the screened population

Table 3 shows a breast lump was found in 166 (7.5%) of the women, with the most common location being the left outer upper quadrant (25.9%) followed by the right upper outer quadrant (15.7%). Most of the lumps were seen in the left breast (60.2%). The presence of enlarged lymph nodes was found in 1% of the screened population.

Factors associated with breast lump finding in the screened population

Table 4 shows the distribution of the outcome of clinical breast examination by sociodemographic characteristics of respondents. Age, marital status, occupation and respondents' tribe had statistically significant relationships with the finding of breast lump (*P* = 0.00, 0.00, 0.00 and 0.004, respectively). Those aged 20 years and less had the highest proportion of respondents with breast lump compared to other age groups, and respondents of the Oron tribe had higher proportion of those with breast lump. In Table 5, it was shown that respondents who complained of breast lump, breast pain, nipple retraction, bloody nipple discharge and other types of nipple discharge had significantly higher proportion of those with breast lumps compared to those who did not (*P* = 0.00, 0.00, 0.00, 0.010 and 0.003, respectively). Furthermore, respondents who had
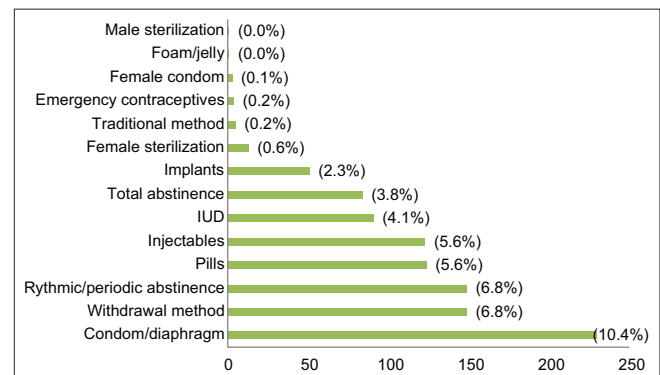

Figure 1: Types of contraceptives currently being used by women who attended Medical Women's Association of Nigeria AKS cancer screening

Table 3: Clinical Breast Examination Findings of women who attended Medical Women's Association of Nigeria Association of Nigeria cancer screening from 2007-2018

Variable	Frequency (*n*=2203), *n* (%)
On CBE, was a lump found?	
Yes	166 (7.5)
No	2037 (92.5)
Where was the lump?	
(multiple answers) (*n*=166)	
LOUQ	43 (25.9)
LOLQ	14 (8.4)
LIUQ	23 (13.9)
LILQ	14 (8.4)
ROUQ	26 (15.7)
ROLQ	12 (7.2)
RIUQ	1 (6.0)
RILQ	9 (5.4)
Left center	6 (3.6)
Right center	18 (10.8)
Presence of lymph nodes?	
Yes	22 (1.0)
No	2181 (99.0)

LOUQ: Left outer upper quadrant, LOLQ: Left outer lower quadrant, LIUQ: Left inner upper quadrant, LILQ: Left inner lower quadrant, ROUQ: Right outer upper quadrant, ROLQ: Right outer lower quadrant, RIUQ: Right inner upper quadrant, RILQ: Right inner lower quadrant, CBE: Clinical breast exam

Table 4: Distribution of participants at Medical Women's Association of Nigeria-Association of Nigeria cancer screening programme according to outcome of clinical breast exam and their sociodemographic characteristics

Variable	Lump		Test statistics; *P*
	Present (*n*=166; 7.5%)	Absent (*n*=2037; 92.5)	
Age (years)			
≤20	23 (24.5)	71 (75.5)	χ^2=52.000; 0.000*
21-30	41 (10.9)	336 (89.1)	
31-40	50 (6.1)	764 (93.9)	
41-50	28 (5.4)	493 (94.6)	
51-60	19 (6.4)	276 (93.6)	
≥61	5 (4.9)	97 (95.1)	
Marital status (*n*=2117)			
Single	70 (14.6)	410 (85.4)	χ^2=48.690; 0.000*
Married	65 (5.2)	1186 (94.8)	
Living with partner	5 (16.1)	26 (83.9)	
Separated	6 (10.9)	49 (89.1)	
Divorced	2 (5.7)	33 (94.3)	
Widowed	14 (5.6)	235 (94.4)	
Never married	1 (6.3)	15 (93.8)	
Occupation			
Housewife	9 (6.4)	131 (93.6)	χ^2=37.248; 0.000*
Peasant	12 (6.5)	172 (93.5)	
Technical	2 (14.3)	12 (85.7)	
Civil/public services	26 (4.6)	544 (95.4)	
Teaching	13 (4.5)	278 (95.5)	
Professional	3 (3.0)	98 (97.0)	
Business	49 (9.6)	462 (90.4)	
CSW	1 (11.1)	8 (88.9)	
Others	51 (13.3)	332 (86.7)	
Tribe			
Ibibio	110 (8.5)	1178 (91.5)	χ^2=15.512; 0.004*
Annang	23 (5.5)	395 (94.5)	
Oron	10 (16.7)	50 (83.3)	
Igbo	4 (3.4)	112 (96.6)	
Others	19 (5.9)	302 (94.1)	

*Statistically significant. CSW: Commercial sex worker

never breastfed had significantly higher proportion of breast lump (10.1%) compared to those who had breastfed (*P* = 0.00).

The finding of breast lump was not significantly associated with a history of breast cancer in a blood relative. Furthermore, smoking, living or working with a regular smoker and alcohol consumption were not significantly associated with the finding of breast lump among the screened population [Table 6].

Discussion

This article presents the findings from a population-based screening programme which assessed for the presence of breast lumps and other suspicious breast lesions among screened women, as well as the modifiable and non-modifiable risk factors of breast cancer. Clinical breast examination has been documented to be an important screening and early detection tool for breast cancer in our environment.[3] About 12% of the respondents reported that they had a breast lump, however, on CBE, only 7.5% of women screened had a breast lump. This finding is lower than what was reported in a study in Ibadan (17.9%), however, the study in Ibadan was done among pregnant women which could explain the high yield.[16]

The variation in the occurrence of the lumps among the different tribes is also worthy of note. The tribe with the highest prevalence of lumps among screened women

was Oron at 16.7%, while the Ibibios, Annangs and Igbos were 9.3%, 5.8% and 3.5%, respectively. Although studies report a high yield of breast lumps during screening, over 80% of breast lumps have been said to be benign breast lesions such[17] as fibroadenomas or cysts.[18] A study in Zaria indicated that about 1 in 4 (28.5%) of breast lumps were malignant.[19] Although women with suspicious breast lesions are sent for further screening which includes ultrasonography, mammography and lumpectomy for further histological diagnosis, this study does not report on these findings from further A study in Ibadan found that 69.9% of breast lesion detected on screening were detected by CBE, while the rest were detected on ultrasound scan.[16] However, some studies have reported a high rate of malignancy among screened breast lumps.

Table 5: Distribution of participants at Medical Women's Association of Nigeria-Association of Nigeria cancer screening programme according to outcome of clinical breast exam and their obstetrics and gynaecological history

Variable	Lump		Test statistic; *P*
	Present (*n*=166; 7.5%), *n* (%)	**Absent (*n*=2037; 92.5), *n* (%)**	
Number of pregnancies			
0	79 (11.7)	596 (88.3)	χ^2=30.618; 0.000*
1-2	30 (8.9)	308 (91.1)	
3-4	26 (5.0)	498 (95.0)	
≥5	31 (4.7)	635 (95.3)	
Age at first pregnancy (*n*=1528)			
≤30	73 (5.5)	1257 (94.5)	χ^2=0.865; 0.943
>30	11 (5.6)	187 (94.4)	
Have you taken contraceptive pills before?			
Yes	48 (7.5)	591 (92.5)	χ^2=0.001; 1.000
No	118 (7.5)	1446 (92.5)	
Do you use contraceptive pills currently?			
Yes	10 (8.1)	114 (91.9)	χ^2=0.053; 0.818
No	156 (7.5)	1923 (92.5)	
Do you use injectable contraceptives?			
Yes	10 (8.1)	113 (91.9)	χ^2=0.066; 0.797
No	156 (7.5)	1924 (92.5)	
Are you currently using contraceptive implants?			
Yes	1 (2.0)	50 (98.0)	χ^2=2.328; 0.127
No	165 (7.7)	1987 (92.3)	
Are you currently using an IUD?			
Yes	4 (4.4)	87 (95.6)	χ2=1.343; 0.247
No	162 (7.7)	1950 (92.3)	
Do you have a lump in your breast?			
Yes	123 (44.7)	152 (55.3)	χ^2=623.837; 0.000*
No	43 (2.2)	1885 (97.8)	
Do you currently have pain in your breast?			
Yes	59 (11.7)	446 (88.3)	χ^2=16.180; 0.000*
No	107 (6.3)	1591 (93.7)	
Do you have bloody nipple discharge?			
Yes	7 (18.4)	31 (81.6)	χ^2=6.577; 0.010*
No	159 (7.3)	2006 (92.7)	
Do you have any other type of nipple discharge?			
Yes	26 (12.9)	176 (87.1)	χ^2=9.089; 0.003*
No	140 (7.0)	1861 (93.0)	
Do you have nipple retraction?			
Yes	12 (27.3)	32 (72.7)	χ^2=25.103; 0.000*
No	154 (7.1)	2005 (92.9)	
On average, how long do you usually breastfeed your children? (years)			
Never breastfed	99 (10.1)	877 (89.9)	χ^2=19.012; 0.000*
≤1	47 (6.3)	703 (93.7)	
>1-2	20 (4.2)	453 (95.8)	
>2	0	4 (100.0)	

*Statistically significant. IUD: Intrauterine Device

An interesting finding from this study was the presence of breast lumps in the left side of the breast, seen in 60.2% of the women. There is documented evidence of left-sided laterality in the incidence of breast cancers.[20-23] Our findings were congruent with similar population-based studies in Sweden and America.[22-24] Although there is yet no clear cause elucidated as to why this occurs, however, it is noted that right-sided cancers tended to be more aggressive, more extensive and occurring in younger women.[21,22,25]

Apart from the presence of a breast lump, several other symptoms can be suggestive of breast cancer including skin dimpling, skin changes, nipple retraction, nipple discharge other than breast milk, including blood, and

Table 6: Distribution of participants at Medical Women's Association of Nigeria-Association of Nigeria cancer screening programme according to outcome of clinical breast examination and their family and social history

Variable	Lump		Test statistic; *P*
	Present (*n*=166; 7.5%), *n* (%)	Absent (*n*=2037; 92.5), *n* (%)	
Any blood relative with breast cancer?			
Yes	12 (8.4)	131 (91.6)	χ^2=0.161; 0.688
No	154 (7.5)	1906 (92.5)	
Which relative has/had cancer? (*n*=143)			
Mother	6 (19.4)	25 (80.6)	χ^2=11.001; 0.050
Daughter	0	5 (100.0)	
Sister	1 (2.8)	35 (97.2)	
Cousin	2 (6.7)	28 (93.3)	
Aunty	1 (3.0)	32 (97.0)	
Grandmother	2 (25.0)	6 (75.0)	
Have you ever smoked cigarettes?			
Yes	1 (5.9)	16 (94.1)	χ^2=0.067; 1.000
No	165 (7.5)	2021 (92.5)	
Have you ever lived in a house or worked in an office with a regular smoker?			
Yes	15 (5.0)	283 (95.0)	χ^2=3.095; 0.079
No	151 (7.9)	1754 (92.1)	
Do you take alcohol?			
Yes	53 (7.4)	664 (92.6)	χ^2=0.031; P=0.860
No	113 (7.6)	1373 (92.4)	

less commonly pain in the breast.[26] In our study, painful breasts, nipple discharge other than blood, bloody nipple discharge and nipple retraction were reported by 22.9%, 9.2%, 1.7% and 2.0%, respectively, of women screened. These symptoms were significantly higher among those who had breast lumps on CBE, compared to those who did not. The presence of palpable axillary lymph nodes may also point to a malignancy.[26] One per cent of the screened population had a palpable axillary lymph node. SBE involves inspection and palpation of the breast by oneself for lumps, shape, texture and contour with the aim of identifying changes in the breasts should they exist. It is an important early detection tool,[5] however its practice has been poor in our environment.[6] This was also seen in the present study as a little above 25% of the women practiced SBE. This is in contrast to findings among nursing students in Nigeria, where 84.5% of them self-reported practicing SBE.[17]

In this study, respondents of younger age groups had higher proportions of breast lump compared to older respondents. Another study reported that those who had breast lesions on screening had a mean age of 28.5 ± 5.3 years, however, this study was among pregnant women.[16] Most breast lumps in the young have been found to be benign with fibroadenoma being the most common breast tumour encountered in young women.[27] However, breast cancer can occur at any age. Taking into consideration age at first childbirth, several studies have demonstrated that the risk of breast cancer increases if a woman was nulliparous or experienced her first live birth at or after the age of 30.[28,29] This protective effect of early

childbirth and breastfeeding has been demonstrated in several studies as documented in a systematic review and meta-analysis.[30]

While our study showed a significant relationship between nulliparity and the presence of breast lump (*P* = 0.000) in agreement with previous findings, the relationship between age at first pregnancy and the presence of breast lump was not statistically significant. In our study, about a third of the screened respondents breastfed their children for an average of 1 year, and slightly more than a fifth did so for 1–2 years. Majority of the respondents had never breastfed as at the time of the screening. Breastfeeding has been established to be protective against breast cancer.[30,31] In agreement with these documented findings, respondents who had never breastfed had the highest proportion of breast lumps. On the other hand, none of those who had breastfed for more than 2 years had breast lumps. This suggests a protective effect of breastfeeding on the occurrence of breast lumps.

Having a first-degree family history of breast cancer has also been significantly related to the development of breast cancer.[32] A family history of breast cancer was present in 143 (6.5%) of the respondents, however, there was no significant relationship between having a breast lump and having a family history of breast cancer in the present study. History of smoking cigarettes, living or working with a regular smoker and alcohol intake were not significantly associated with the presence of breast lump on CBE in the present study. In a large collaborative study reanalysing the risk factors for breast cancer in

developed countries, it was found that the relative risk of breast cancer increased with increasing intake of alcohol (an increase of 7.1% in relative risk for each additional 10 g/day alcohol), while active or passive smoking was not associated with breast cancer.[33] Our study, however, found a negligible effect of alcohol intake on the occurrence of breast lump. Although alcohol intake was not quantified in our study, alcohol intake in developing countries which was found to average 0.4 g daily in a survey.[33]

Over one-fourth (29%) of the screened population had used contraceptive pills before, and at the time of the screening, 5.6% used contraceptive pills and IUD, whereas 2.3% used implants. The most commonly used contraceptive was the male condom and diaphragm. Contrary to previous literature,[34,35] the use of hormonal contraceptives was not associated with breast lump in the present study.

A limitation of this study is the absence of histologic diagnosis of the breast lumps. This would have shown the exact yield of breast cancer among the study population. The challenge is the absence of mammogram and ultrasound scan machines within the clinic for immediate confirmatory screening. This may have led to missing some breast lumps not yet palpable, besides the missed opportunity of screening some women who cannot afford further screening. However, all suspicious lumps whether self-reported or seen during the CBE by the doctors are sent for ultrasound scan and mammogram. Although all women with suspicious lesions lumps are eventually referred to the Breast clinic for lumpectomy and further histological diagnosis, the database does not include these further findings.

Conclusion

This artile presents the findings from a population-based breast cancer screening programme in Nigeria by female professional organisation, MWAN. The aim of the screening was to detect the presence of breast lumps and other suspicious breast lesions among screened women, as well as the modifiable and non-modifiable risk factors of breast cancer. The study showed that CBE is a useful screening tool in our environment as it is not resource-intensive, and suspicious breast lesions can be sent for further histologic diagnostic investigation.

Clinical breast examination revealed breast lumps in 7.5% of the respondents, with the most common location being the left outer upper quadrant. Characteristics that were significantly associated with the presence of a breast lump included: Clients aged 20 years or less, nulliparity, history of breast pain, nipple discharge and nipple retraction. Also noteworthy was that women who had never breastfed had higher proportions of breast lump.

We recommend that breast screening with CBE be done regularly as it is a good screening tool in resource-poor settings like ours. We further recommend the setup of ultrasonograms and mammogram within the clinic to aid complete diagnosis of breast lumps found and the reduction of missed opportunities for early diagnosis of breast cancers. Finally, the study suggests the occurrence of lump in the younger age group of women in the population. We, therefore, recommend the introduction of breast cancer screening to the younger age group to ensure early detection which can save lives.

Conflicts of interest
There are no conflicts of interest.

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