

Knowledge of breast cancer and practice of breast self-examination among female National Youth Service Corps members in a Northern Nigeria State

Sarafadeen A. Arisegi^{1*}, Bukar A. Grema², Sanjay Singh¹, Idris O. Ahmed¹,
Fatima A. Falaki¹, Malami M. Bello³

¹Department of Family Medicine, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

²Department of Family Medicine, Aminu Kano Teaching Hospital, Kano, Nigeria

³Department of Community Medicine, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

ABSTRACT

Background: Knowledge of breast cancer and uptake of its prevention practices (particularly, regular breast self-examination) are crucial to both the prevention of the disease, and the reduction of its high burden in the developing countries. **Aim:** This study aimed to assess the knowledge of breast cancer and practice of breast self-examination among female National Youth Service Corps (NYSC) members. **Materials and Methods:** A cross-sectional study was conducted among 225 female NYSC members (selected by systematic sampling technique) in Sokoto State, Nigeria. A semi-structured, self-administered questionnaire was used to obtain information on the research variables. Data were analyzed using IBM SPSS version 20 statistical computer software package. **Results:** Majority, 202 (89.8%) of the 225 respondents were aware of breast cancer, less than a quarter (23.6%) had good knowledge of its risk factors, less than half (48.0%) had good knowledge of its symptoms and signs, while about two-thirds (61.7%) had good knowledge of its prevention. Whereas, about two-thirds of respondents (67.6%) were aware of breast self-examination (BSE), less than half (44.4%) had attended a training on BSE, and only about half of respondents (53.8%) had practiced it. **Conclusion:** Although, awareness of breast cancer was high among the respondents in this study, they had poor knowledge of the disease, and uptake of breast self-examination was relatively low among them. Management of tertiary institutions in Nigeria and the National Youth Service Corps (NYSC) scheme should organize regular education programs on breast cancer and its prevention for their female students and NYSC members respectively.

Keywords: Breast cancer, breast self-examination, knowledge, practice, female NYSC members

INTRODUCTION

Globally, breast cancer is the second most common cancer and the fifth cause of cancer-related mortality.¹ It is second only to lung cancer as the main cause of cancer-related deaths among women and poses a global public health concern.¹⁻³ It is the commonest site-specific cancer affecting women and the most common cause of cancer mortality in women worldwide.^{1,3,4} Over one million breast cancer cases are diagnosed annually resulting in 411,000 deaths which account for 14% of female cancer deaths worldwide, while about 4.4 million women live with the disease; and it has also been estimated to affect one in eight women during their lives.³⁻⁶ There is an increased burden of breast cancer in both developed and developing countries including Nigeria.³ It was estimated that about sixty percent of

breast cancer deaths worldwide occur in the developing countries.^{6,7} In low- and middle-income countries (LMICs), it remains a significant public health challenge as incidence rates have been shown to increase yearly by as much as 5% with over 1 million projected new cases annually by 2020.^{3,4,8}

The advent of breast illness and the consequent development of cancer seems to be more belligerent in young women compared to its development in older women.⁹ The prevalence of breast cancer in women ≥ 15 years in sub-Saharan Africa was estimated at 23.5 per 100,000 women and approximately 35,427 women died from the disease (crude mortality rate of 12.8 per 100,000 women) in 2018.¹⁰ In Nigeria, it was estimated

*Corresponding Author: Dr. Sarafadeen A. Arisegi, Department of Family Medicine, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria. E-mail: arisegiadeniyi@gmail.com

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that more than 250,000 new cases of cancers are diagnosed every year, and up to 10,000 Nigerians die each year from cancer-related causes. It is believed that the high morbidity and mortality due to breast cancer can be in-part reduced if the lesion is detected early enough.⁴ In this respect, women need to be “breast aware” by being able to recognize the risk factors and symptoms of breast cancer, as well as risk reduction approaches.

Breast cancer has been linked with many risk factors such as being a woman, getting old (≥ 50 years), genetic changes (BRCA 1 and BRCA 2 genes), having dense breast, personal history of breast cancer or certain non-cancerous breast disease, history of breast cancer in a first degree relative (mother, sister or daughter), previous radiation therapy, and use of certain drugs (including diethylstilbestrol, hormone replacement therapy, and some oral contraceptives). The other risk factors of the disease include physical inactivity, consumption of fatty foods, overweight and obesity, never having a full-term pregnancy or having the first pregnancy after the age of 30 years, not breastfeeding, alcohol consumption and smoking.¹¹ Also, the common signs and symptoms that are seen in breast cancer include painless breast lump, change in size or shape of the breast, and discharge from the nipple among others; and these signs and symptoms are often ignored out of ignorance, whence majority of breast cancer cases in the developing countries present at advanced stages of the disease when only palliative care is feasible.¹¹ Knowledge of breast cancer and uptake of its prevention practices (including regular physical exercise and healthy eating, periodic screening mammography and regular breast self-examination among others), are crucial to both the prevention of the disease, and the reduction of its high burden in the developing countries.¹¹

A breast self-exam (BSE) is a personal check-up carried out by a woman to look for changes or problems in the breast tissue, and premenopausal women are expected to perform it monthly. It is believed that the contributory factors to the high breast cancer mortality rates in the developing countries include genetic factors, poverty, lack of access to prompt quality treatment, and inadequate knowledge of breast cancer (which has been documented as an important factor in preventing women from visiting screening facilities, and engaging in BSE, thus resulting in delayed treatment, and poor prognosis).^{5,12-14} Despite the fact that regular breast self-examination facilitates early detection of breast cancer, and it is also known to play an important role in reducing the morbidity and mortality from the disease in

the developed countries, earlier reports indicate that although awareness of BSE is high among women in Nigeria, its uptake is low among them, and majority of those who practice it among them do not know how to do it correctly; and this has brought about the recommendation that more research should be conducted on the knowledge and practice of breast cancer and its prevention among different populations of women across Nigeria.^{5,12} This study was conducted to assess the knowledge of breast cancer and the practice of breast self-examination among female National Youth Service Corps (NYSC) members in a northern Nigerian state.

MATERIALS AND METHODS

Study Design, Population and Area, Sample Size Estimation and Sampling Technique

A cross-sectional study was conducted among female National Youth Service Corps members in Sokoto State, Nigeria, in October and November 2018. All female members of NYSC Batch C Stream 1 who consented to participate were considered eligible for enrollment into the study. The sample size was statistically estimated at 224 (and adjusted to 236 in anticipation of a 95% response rate) and the eligible participants were selected by systematic sampling technique using the sorted list of the females in the batch to constitute the sampling frame.

Data Collection and Analysis

A semi-structured, self-administered questionnaire was used to obtain information on the respondents' socio-demographic characteristics, knowledge of risk factors, symptoms and signs, and prevention of breast cancer; and also awareness and practice of breast self-examination. It was reviewed by senior researchers in the Department of Community Health, Usmanu Danfodiyo University, Sokoto, Nigeria, to ascertain content validity. The questionnaire was pretested on 15 final year students of Usmanu Danfodio University, Sokoto, Nigeria. The necessary corrections were made based on the observations made during the pretesting. Three resident doctors assisted in questionnaire administration after being trained on the conduct of survey research, the objectives of the study, and the administration of survey instruments. Data were analyzed using the IBM SPSS version 20 computer statistical software package. Respondents' knowledge of the risk factors, the symptoms and signs, and prevention of breast cancer were scored and graded on a 21-point, 12-point, and 10-point scales respectively. One point was awarded for a correct response, while a wrong response or a non-

response received no points. Those that scored $\geq 50\%$ of the maximum scores in the respective scales were graded as having good knowledge, while those that scored $< 50\%$ of the maximum scores in the respective scales were graded as having poor knowledge. Quantitative variables were summarized using mean and standard deviation, while categorical variables were summarized using frequencies and percentages.

Ethical Consideration

Ethical approval was obtained from the Health Research and Ethics Committee, Sokoto State Ministry of Health, Sokoto, Nigeria. Permission to conduct the study was obtained from the management of the Sokoto State NYSC camp, and informed written consent was also obtained from the participants before commencing questionnaire administration.

RESULTS

Socio-demographic characteristics of respondents

Two hundred and twenty-five out of the 236 questionnaires administered were adequately completed and found suitable for analysis, giving a response rate of 95.3%. The mean age of the respondents was 24.6 ± 2.6 years, majority of them (50.2%) were aged 20-24 years, and most of the respondents (93.3%) were single. A larger proportion of respondents (47.6%) were of Yoruba ethnic group, most of them (80.4%) were Christians, and majority of respondents (66.7%) graduated from the university (Table 1).

Awareness of breast cancer and knowledge of its risk factors among respondents

Most, 202 (89.8%) of the 225 respondents had heard of breast cancer, and the most common sources of information were radio/television (74.2%), health workers (70.2%), and newspaper/magazines (63.6%). Less than a quarter of respondents (23.6%) had good knowledge of its risk factors. Whereas, about two-thirds (62.2%) of respondents knew exposure to radiation as a risk factor of breast cancer, only about half of respondents and below knew the other risk factors of the disease with the most commonly known risk factors being family history of breast cancer in a first-degree relative (53.3%), smoking (52.9%), and personal history of breast cancer (52.0%). Only 36.4, 16.9 and 12.4% of respondents knew that breast cancer is not caused by blunt injury to the breast, witchcraft and close contact with a person with breast cancer respectively (Table 2).

Table 1: Socio-demographic characteristics of respondents

Variables	Frequency (%) n = 225
Age group (years)	
20-24	113 (50.2)
25-30	112 (49.8)
Religion	
Christianity	181 (80.4)
Islam	44 (19.6)
Marital status	
Single	210 (93.3)
Married	13 (5.8)
Separated	2 (0.9)
Ethnic group	
Hausa	10 (4.4)
Fulani	12 (5.3)
Yoruba	107 (47.6)
Igbo	51 (22.7)
Others	45 (20.0)
Education level	
University certificate	150 (66.7)
HND certificate	75 (33.3)

Respondents' knowledge of the symptoms and signs of breast cancer

Less than half 108 (48.0%) of the 225 respondents had good knowledge of the symptoms and signs of breast cancer with the most commonly known signs and symptoms being a lump in the breast (88.0%), pain or soreness in the breast (81.3%), and discharge from the breast (80.9%). About two-thirds of respondents knew swelling/enlargement of the breast (66.7%), discoloration or dimpling of the breast (63.6%), and change in the size of the breast (58.2%) as symptoms and signs of breast cancer, while about a third to half of respondents knew the other symptoms and signs of breast cancer (Table 3).

Respondents' knowledge of prevention of breast cancer

Majority, 139 (61.7%) of the 225 respondents had good knowledge of breast cancer prevention with the most commonly known methods being physical exercise and healthy eating habits (81.7%), periodic examination of the breast by a healthcare professional (76.9%), regular breast self-examination (73.7%), and periodic screening mammography (64.8%). Only about half of respondents and below knew the other methods of preventing breast cancer, while about half of respondents and below knew that use of loose bra, vaccination, avoiding breast feeding, and avoiding contact with a patient with breast cancer are not measures for preventing breast cancer (Table 4).

Awareness and practice of breast self-examination among respondents

Majority, 152 (67.6%) of the 225 respondents had heard of breast self-examination (BSE), less than half of them (44.4%) had attended a training on BSE, and only about half of respondents (53.8%) had performed BSE (Table 5).

Table 2: Awareness of breast cancer and knowledge of its risk factors among respondents

Variables	Frequency (%) n = 225
Ever heard of breast cancer	
Yes	202 (89.8)
No	23 (10.2)
*Source of information (n = 202)	
Radio/television	167 (74.2)
Newspaper/magazine	143 (63.6)
Health workers	158 (70.2)
Family members/friends	124 (55.1)
Internet	120 (53.3)
Mosque/church	63 (28.0)
Knew the following as risk factors of breast cancer:	
Being a woman	97 (43.1)
Getting old	84 (37.3)
Positive family history	120 (53.3)
High fat diet	84 (37.3)
Smoking	119 (52.9)
Race/ethnicity	47 (20.9)
Exposure to radiation	140 (62.2)
Alcohol consumption	107 (47.6)
Not having a full-term pregnancy	37 (16.4)
Having the first child at a late age	50 (22.2)
Early age at first menstruation	41 (20.9)
Late menopause	47 (20.9)
Physical inactivity	69 (30.7)
Overweight / obesity	75 (33.3)
Hormone replacement therapy	102 (45.3)
Personal history of breast cancer	117 (52.0)
Not breastfeeding	37 (16.4)
Knew that breast cancer is not caused by the following:	
Wearing tight brassiere	122 (54.2)
Close contact with a person with breast cancer	28 (12.4)
Blunt injury to the breast	82 (36.4)
Witchcraft	38 (16.9)
Knowledge grading	
Good	53 (23.6)
Poor	172 (76.4)

*Multiple responses allowed

DISCUSSION

This study assessed the knowledge of breast cancer and practice of breast self-examination among female National Youth Service Corps (NYSC) members in a northern Nigeria state. Although, awareness of breast cancer was high (89.8%) among the respondents in this study, and it is comparable to the findings done among female university students in other places including Cameroon (88.1%),¹⁵ and Pakistan (82.9%),¹⁶ it is substantially lower than the 97.3% awareness reported in a study among female medical students in the University of Lagos, Nigeria.¹⁷ Also, higher levels of awareness of breast cancer were obtained in community based studies conducted in other places including a study conducted among women in Morogoro Rural District of Tanzania

Table 3: Respondents' knowledge of the symptoms and signs of breast cancer

Variables	Frequency (%) n = 225
Knew the following as symptoms and signs of breast cancer:	
Lump in the breast	198 (88.0)
Discharge from the breast	161 (80.9)
Pain or soreness in the breast	183 (81.3)
Change in the size of the breast	131 (58.2)
Discoloration or dimpling of the breast	143 (63.6)
Ulceration of the breast	107 (47.6)
Weight loss	71 (31.6)
Change in the shape of the breast	121 (53.8)
Inversion/pulling of the nipple	98 (43.6)
Swelling/enlargement of the breast	150 (66.7)
Lump under the armpit	101 (44.9)
Scaling/dry skin in the nipple region	97 (43.1)
Knowledge grading	
Good	108 (48.0)
Poor	117 (52.0)

Table 4: Respondents' knowledge of prevention of breast cancer

Variables	Frequency (%) n = 225
Knew the following as methods of preventing breast cancer:	
Physical exercise and healthy eating habits	184 (81.7)
Avoid or quit smoking	169 (56.0)
Regular breast self-examination	152 (67.6)
Periodic examination of the breast by a healthcare professional	174 (76.9)
Period x-ray examination of the breast (screening mammography)	146 (64.8)
Avoid use of oral contraceptives	118 (52.4)
Knew that the following are not methods of preventing breast cancer	
Use of loose bra or not at all	126 (55.6)
Avoid contact with a person with breast cancer	42 (18.6)
Avoid breastfeeding	46 (20.4)
Vaccination	98 (43.5)
Knowledge grading	
Good	139 (61.7)
Poor	86 (38.2)

Table 5: Awareness and practice of breast self-examination among respondents

Variables	Frequency (%) n = 225
Ever heard of breast self-examination (BSE)	
Yes	152 (67.6)
No	73 (32.4)
Ever attended a training on BSE	
Yes	100 (44.4)
No	125 (55.6)
Ever performed BSE	
Yes	121 (53.8)
No	104 (46.2)

that reported 100% awareness,¹⁸ and another study among women seeking care at District Hospitals in Dar es Salam, Tanzania, that reported 98.2% awareness.¹⁹ While the higher level of awareness obtained in the study conducted among female medical students could be due to their discipline which involves training on different diseases including breast cancer, the higher level of awareness obtained in the community based studies could be due to adequate sensitization of the populace about the disease, as most of the respondents in the latter studies cited radio / television as their main source of information about the disease. The finding in this study and the relatively low levels of awareness of breast cancer in studies conducted among students and female staff of tertiary institutions in Nigeria and other places including Southwest Nigeria (67.9%),²⁰ and Iraq (69.1%),²¹ suggest inadequate sensitization of students and female staff in the tertiary institutions in Nigeria and other developing countries about breast cancer.

The poor knowledge of breast cancer among the respondents in this study in which less than a quarter of them (23.6%) had good knowledge of the risk factors of the disease, and less than half (48.0%) had good knowledge of its symptoms and signs is surprising in view of the high awareness of the disease by them. This finding is in consonance with the generally poor knowledge of breast cancer that was reported in studies conducted among students in tertiary institutions in Nigeria and other places including Cameroon,¹⁵ Pakistan,²² Egypt,²³ and India.²⁴ Considering the fact that female NYSC members represent the population of young women with tertiary education in Nigeria (being fresh graduates from the tertiary institutions across the country), adequate knowledge of breast cancer by them is not only important in preventing the disease among them, but also among the women in the communities where they live and work, as they are expected to pass the knowledge they have acquired regarding the disease to their relatives, friends and colleagues at work. The poor knowledge of breast cancer among the students and staff of the tertiary institutions in Nigeria and other developing countries could therefore be related to the poor knowledge of breast cancer obtained among women in community based studies conducted in Nigeria and other countries despite high levels of awareness of the disease through radio/television.^{19,25,26} These findings underscore the need for the management of the tertiary institutions in Nigeria and other developing countries to organize periodic sensitization programs on breast cancer prevention for their female staff and students.

While it is reassuring that majority of the respondents in this study (61.7%) had good knowledge of the methods of preventing breast cancer, particularly breast self-examination (67.6%), it is disheartening to see that little has been done by the management of the respective institutions from which they graduated from to promote the practice among them, as less than half of respondents (44.4%) had attended a training on breast self-examination (BSE); and this could be responsible for the relatively low uptake (53.8%) of BSE by them. Similar to the progressive decrease and wide gaps in the proportion of respondents that were aware of breast cancer and BSE (89.8 and 67.6% respectively), and those that had practiced BSE (53.8%) among the respondents in this study, studies conducted among undergraduate female students and women in different cities in Nigeria and other developing countries also reported relatively high levels of awareness of breast cancer, but low levels of awareness of BSE and uptake of BSE.^{15,17,19,20} In a study among female undergraduate students in a higher teachers training college in Cameroon,¹⁵ whereas, 88.1% of respondents had heard about breast cancer, less than half of those who had heard of breast cancer were aware of BSE, and only 38.5% of those who were aware of BSE had practiced it. Similarly, a study among women seeking care at District Hospitals in Dar es Salam, Tanzania,¹⁹ found that whereas, almost all the respondents (98.2%) were aware of breast cancer, less than two-thirds of them (56.0%) were aware of BSE, and only 40% of the respondents that were aware of BSE had practiced it. The findings in this study and the latter studies underscore the need for the management of the tertiary institutions in Nigeria and other developing countries to organize regular education programs on breast cancer and its prevention for their female students in order to facilitate uptake of BSE and other breast cancer prevention practices by them. In addition, the management of the National Youth Service Corps (NYSC) program should make education of female NYSC members on breast cancer and its prevention an essential component of their orientation camp program.

CONCLUSION

Although, awareness of breast cancer was high among the respondents in this study, they had poor knowledge of the disease, and uptake of breast self-examination was relatively low among them. Management of tertiary institutions in Nigeria and the National Youth Service Corps (NYSC) scheme should organize regular education programs on breast cancer and its prevention for their female students and NYSC members respectively.

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Conflict of interest

None declared.

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