Improving Self-Breast Examination Proficiency through Training Programme among Female Corps Members in Ibadan-North, Oyo State, Nigeria.

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ABSTRACT

Background: *Equipping women with relevant knowledge of breast cancer and its related issues as well as technical knowhow of self-breast examination (SBE) for early detection is the key to reducing breast cancer morbidity and mortality. About two million new cases of breast cancer were reported in 2018, accounting for about 23% of all cancers, making it the most occurring cancer among women. Due to the patients delayed presentation and the doctors' lower expectations of the disease, breast cancer is frequently associated with late diagnosis. Early detection or screening is the most effective method to reduce morbidity and mortality from breast cancer. This study aimed to improve breast cancer knowledge and self-breast examination proficiency through educational programme among female corps members in Ibadan, Nigeria.*
Methods: *The study is a pre-post quasi-experimental study that utilized multi-stage sampling technique to select 141 corps members that participated in the study. Sample size was determined using the sample size formula for a single proportion with a population > 10,000, followed by determination of sample size in each stratum of the population and selection of sample proportion from batches of each stratum of the population. The calculated participants were selected by simple random sampling. Ethical clearance for the study was obtained from Oyo State Ethics Review Committee (AD13/479/44592A). Data were collected in three phases using a semi-structured questionnaire based on knowledge of breast cancer and self-breast examination, training manual based on relevant facts from the literature and performance checklist based on techniques of self-breast examination. Data were analysed using SPSS version 25.0. Hypotheses were tested using paired sample T-test and the level of significance (PV) is < 0.05.*
Results: *The respondents had a mean age of 25 ± 2.02, with the majority (70.9%) being Christians, only 6.4% were married and 83% were Yoruba. There was an improvement in the basic knowledge of breast cancer among the respondents with the mean score rising from 2.28 (SD 0.831) at pre-intervention to 2.70(SD 0.618) at post intervention (P < 0.001). The findings also showed that there was an improved knowledge score of self-breast examination with the mean of 0.95 (SD 0.93) at pre-intervention to 2.64(SD 0.636) at post-intervention. Hypotheses result showed that there were significant differences between pre-intervention and post-intervention knowledge of participants under all sections of breast cancer and self-breast examination. Performance checklist of self-breast examination shows that 128 (91%) had good performance, 8 (5.6%) performed fairly while 5 (3.5%) performed poorly. The minimum percentage score was 22% and the maximum was 97% with a mean score 80 ± 10.75 standard deviation.*
Conclusion and recommendation: *The educational programme improved the knowledge of breast cancer and proficiency of self-breast examination among the participants. However, it is recommended that educational programme on breast cancer and self-breast examination should be incorporated into the*

NYSC orientation programme. This is essential in order to encourage and improve corps members' knowledge of breast cancer and practice of self-breast examination.

Keywords: Improving, Breast cancer, Self-breast examination, Knowledge, Proficiency.

INTRODUCTION

Equipping women with relevant knowledge of breast cancer and its related issues and the technical know-how of self-breast examination for early detection is key to reducing breast cancer morbidity and mortality. Breast cancer is a type of malignant tumour that starts in the cells of the breast and commonly occurs in women.[1] This abnormal cell could destroy healthy tissue, and then spread beyond its usual boundaries.[2] Self-breast examination is an examination carried out by each woman after the age of 20, and it is an economical, easy to apply, safe, non-invasive procedure with no unique material or tool requirements. It is also an effective breast cancer screening method and only takes five minutes to perform.[3]

Women who carry out SBE regularly are more likely to detect a lump early in its development. This often leads to early diagnosis, which has been reported to influence early treatment. It can also yield a better survival rate. However, if improperly done, SBE has the risk of giving a false result which can reduce the willingness to undergo screening.[3]

A major global health problem is breast cancer, women's most prominent cause of mortality.[4] About 2 million new instances of breast cancer were found in 2018, approximately 23% of all cancers, the most occurring cancer among women.[5] Due to the patient's delayed presentation and the doctors' lower expectations of the disease, breast cancer is frequently associated with late diagnosis.[6] In addition, studies have shown that women's poor knowledge and care-seeking attitude toward breast cancer contribute significantly to the late-stage presentation of breast cancer patients in developing countries.[7] Furthermore, studies revealed that women presented with breast cancer more frequently in an advanced stage with low socio–economic status.[8]

Breast cancer is also the leading cause of cancer-related deaths in low-income countries.[9] One in eight women born today will be diagnosed with breast cancer at some time in her life. Over one million breast cancer cases are diagnosed annually, resulting in 411,000 deaths, accounting for 14% of female cancer deaths worldwide, while about 4.4 million women live with the disease.[10] There is an increased burden of breast cancer in developed and developing countries, including Nigeria.[11]

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Early detection or screening is the most effective method to reduce morbidity and mortality from breast cancer. Specific methods like clinical breast examination, self-breast examination and mammography have been defined as activities facilitating the early screening and improving the health of females and suitable for early detection of breast cancer.[12] To enable early detection of breast cancer and prompt linkage to cancer screening, examination of the breast, such as self-breast examination (SBE) or clinical breast examination (CBE), are highly essential. Regular screening of the breast facilitates recognition of breast abnormalities such as lesion or lump as early as possible and link patients to various treatment options and supportive management. It has been reported that there are more treatment choices for breast cancer patients and a better chance for survival associated with early breast cancer detection. A survival rate of approximately 93% or more has been reported for women whose breast cancer is detected early.[13] For early detection of breast lesions or lumps, an examination of the breast should be done by the individual SBE or CBE by health personnel.[14]

The concept of SBE and reporting of breast abnormalities for CBE is vital. Knowledge and practice of SBE following the correct procedure has been demonstrated to be essential for self-detection of any breast abnormalities and reporting to health facilities for prompt initiation of clinical interventions such as CBE, diagnosis and treatment.[15] The advent of breast illness and the consequent development of cancer seem more belligerent in young women than in older women.[16] In this respect, women need to be "breast aware" by recognising breast cancer's risk factors, symptoms and risk reduction approaches. Knowledge of breast cancer and updates on its prevention practices (including regular physical exercise and healthy eating, periodic screening mammography and regular self-breast examination, among others) are crucial to both the prevention of the disease and the reduction of its high burden in the developing countries.[17]

The rising trend has been linked to lifestyle changes like a high-fat diet, a lack of early detection programmes, which causes many patients to arrive with late-stage disease, and insufficient facilities for diagnosis and treatment.[20] In addition, studies have shown that women's poor knowledge and care-seeking attitude toward breast cancer contribute significantly to the late-stage presentation of breast cancer patients in developing countries.[15] Hence, this study aimed to improve breast cancer knowledge and self-breast examination proficiency through an educational program among female corps members in Ibadan North Local Government, Ibadan. The female corps members are young graduates who are already of reproductive age. Additionally, they are regarded as the most educated group in society who can aid in raising awareness of breast cancer and self-breast examination among their own family, friends, and the broader community.

METHODS AND MATERIALS

Study design

This study is a pre-post quasi-experimental interventional study. It was conducted among female National Youth Service Corps members in Ibadan North Local Government, Nigeria. All female corps members who consented to participate in the study were considered eligible for enrollment.

Target population

The target population were the female National Youth Service Corps members in Ibadan North Local Local Government, Ibadan.

Sampling Technique

Multistage sampling technique was utilized for the study. Stage one employed a purposive sampling method to select one local government with the largest number of corps members; hence Ibadan North Local Government was selected. In stage two, selection of proportion of sampling frame from two strata of Ibadan North local government - Ibadan North I and II. Therefore, 104 corps members were selected from Ibadan North I, while 30 corps members were selected from Ibadan North II. Stage three was for selection of sample proportion from batches of each stratum, while Stage Four was planned for selection of calculated sampled participants among corps members in Ibadan North local government. The calculated cluster (in corps members' batches) were selected by simple random sampling in each Ibadan North Local Government stratum.

Data Collection Instruments.

A pre-tested, semi-structured questionnaire consisting of socio-demographic information and questions on knowledge of breast cancer and self-breast examination was utilized for the study. The questionnaire was developed through an extensive literature review based on the study objectives. A research expert also reviewed the questionnaire and modifications were made where necessary. Secondly, a training manual based on relevant facts from the literature on breast cancer and breast self – examination was used for the educational intervention. Lastly, checklist on techniques of breast self- examination was utilized for the assessment of proficiency of SBE among the participants after the educational intervention. These instruments were pretested using a group of forty corps members from another local government in Ibadan. The results were used to modify the research instrument before the study was carried out.

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Statistical Analysis

The data collected were entered and analysed using IBM SPSS (Statistical Package for Social Sciences) version 25.0 software application. A compare means (Paired-Sample T Test) approach was used in testing the hypotheses and the level of significance (pv) being < 0.05. Other crucial values such as 'mean', 'mean difference' 'confidential interval' and 'degree of freedom' (df) were also noted and remark was well stated.

Ethical Consideration

Ethical Approval for the study was obtained from the Oyo state Ministry of Health Research, Ethical Review Committee (AD13/479/44592A). A letter of introduction from Faculty of Nursing Science, Ladoke Akintola University of Technology, Ogbomoso was presented to the NYSC Coordinators at Ibadan North L.G.A. Permission to collect data and conduct training among the female corps members was obtained from the NYSC coordinators.

Participants were informed about the study's purpose, objectives, the duration of the study and their voluntariness to participate. A written informed consent was obtained from each participant who consented to participate in the study. All information given by the participants were kept confidential.

STUDY FINDINGS

Characteristics of the Study Population

Findings show that ages of the participants ranged from 22 (minimum) through 30 (maximum) years amongst which 60 (42.6%) were between 22 to 24 years and 81 (57.4%) were between 25 to 30 years. The mean age ± standard deviation was 25 ± 2.02. Also, participants who practiced Christianity constituted 100 (70.9%) of the entire population. A total of 9 (6.4%) of the participants were married Furthermore, participants from the Yoruba tribe were 117(83%) in number while 8 (5.7%) participants were from Igbo tribe.

Table 1: Socio-demographic Characteristics of Participants (N = 141)

Socio-demographic Characteristics	Frequency	Percent
Age range		
22 - 24 Years	60	42.6
25 - 30 Years	81	57.4
Religion		
Christianity	100	70.9
Islam	41	29.1
Marital status		
Single	132	93.6
Married	9	6.4
Tribe		
Yoruba	117	83
Igbo	8	5.7
Hausa	1	0.7
Edo	5	3.5
Kwale	1	0.7
Igala	2	1.4
Nupe	1	0.7
Ishan	1	0.7
Urhobo	4	2.8
Ijaw	1	0.7

Age Range = 22 - 30; ***Mean Age ± SD*** = 25 ± 2.02

Participants' knowledge of SBE

Participants' knowledge of SBE is presented on Table 2 below. Findings show that age pre-intervention, 37 (26.2%) were able to identify the correct age of SBE commencement while at post-intervention, it increased to 122 (86.5%), 44 (31.2%) knew how often to perform SBE before intervention while after intervention the number increased to 115 (81.6%). Regarding time when SBE should be performed, 32 (22.7%) got it correctly at pre-intervention which increased to 117 (83%) at post-intervention.

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Table 2: Participants' Knowledge of SBE (N = 141)

Knowledge of SBE	Pre-intervention				Post-intervention			
	Incorrect		Correct		Incorrect		Correct	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Age of SBE commencement	104	73.8	37	26.2	19	13.5	122	86.5
Frequency of performing SBE	97	68.8	44	31.2	26	18.4	115	81.6
Self-breast examination should be performed	109	77.3	32	22.7	24	17	117	83
Proper time of commencement of SBE after menopause	120	85.1	21	14.9	64	45.4	77	54.6

Result of findings as shown on figure 1 shows that at pre-intervention, 39% of the participants had no knowledge of SBE, 34% had inadequate knowledge and 7.1% had adequate knowledge while at post-intervention, 72.3% had adequate knowledge, 8.5% had inadequate knowledge and none (0%) lacked knowledge of SBE

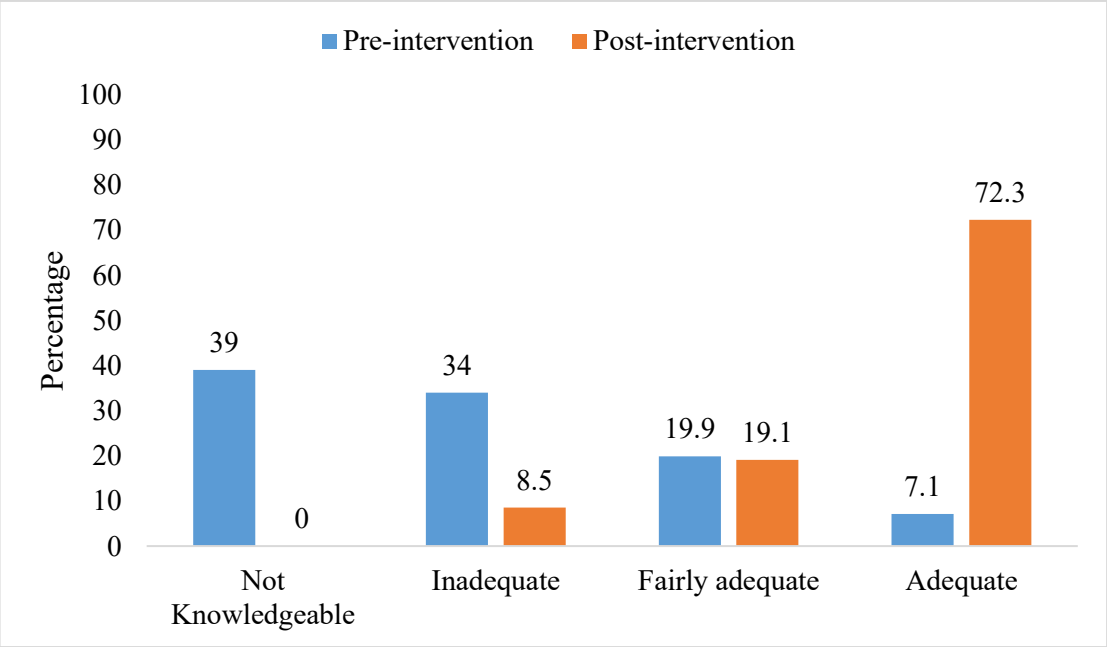

Figure 1: Knowledge of SBE

Knowledge of practice of SBE.

Table 3 shows participants knowledge of practice of SBE. Findings show that before intervention, 41 (29.1%) of the participants knew the most appropriate manual technique of SBE, and 99 (70.2%) knew the purpose of SBE while after intervention, 117 (83.0%) knew the appropriate manual technique of SBE and 128 (90.8%) knew the purpose of SBE.

Table 3: Participants' Knowledge of Practice of SBE (N = 141)

Knowledge of Practice of SBE	Pre-intervention				Post-intervention			
	Incorrect		Correct		Incorrect		Correct	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Most appropriate manual technique of SBE	100	70.9	41	29.1	24	17.0	117	83.0
The length of time allocated to each breast when performing SBE	86	61.0	55	39.0	76	53.9	65	46.1
Purpose of SBE	42	29.8	99	70.2	13	9.2	128	90.8

The summary on figure 2 shows that before intervention, 16.3% participants weren't knowledgeable, 36.2% had fairly adequate knowledge and 9.2% had adequate knowledge while after the intervention, 2.1% remained not knowledgeable, 46.8% were fairly knowledgeable and 37.6% were adequately knowledgeable.

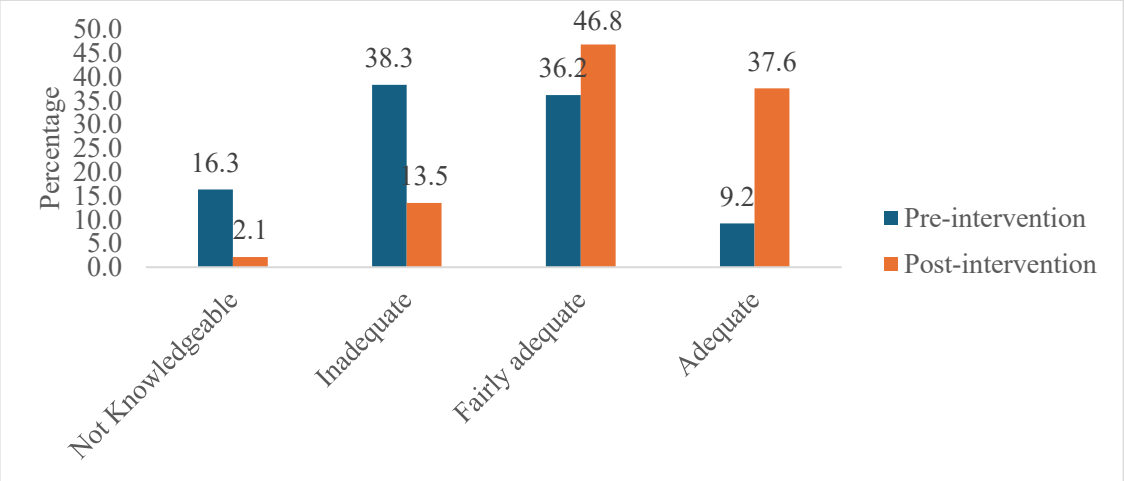

Figure 2: Summary of knowledge of practice

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Table 4 shows that before intervention, 13 (9.2%) of the respondents claimed to have discovered breast cancer in their breast amongst which 10 (7.1%) consulted a doctor while after intervention, 9 (6.4%) claimed to have noticed breast cancer among which 8 (5.7%) consulted a doctor.

Table 4: Participants' History of SBE (N = 141)

History of SBE	Pre-intervention		Post-intervention	
	Freq.	%	Freq.	%
Discovery of lump(s) on SBE				
Discovered lump(s)	13	9.2	9	6.4
Never discovered lump(s)	128	90.8	132	93.6
Immediate action on lump discovery				
Consult a doctor	10	7.1	8	5.7
Use traditional medicine	1	0.7	1	0.7
Go to a prayer house	2	1.4	-	-
Never discovered lump(s)	128	90.8	132	93.6

Performance checklist of self-breast examination

Table 5: Significant differences between pre- and post-interventional knowledge of SBE

Items	Paired Samples	N	Mean	Mean diff	CI	SD	Df	Pv	R
Breast Cancer Knowledge									
Basic knowledge	Pre-intervention	141	2.28	0.418	0.56 - 0.27	0.831	140	0.001	S
	Post-intervention	141	2.7			0.618			
Signs & Symptoms	Pre-intervention	141	2.45	0.532	0.65 - 0.42	0.702	140	0.001	S
	Post-intervention	141	2.99			0.119			
Risk Factor	Pre-intervention	141	1.43	1.234	1.36 - 1.11	0.539	140	0.001	S
	Post-intervention	141	2.67			0.569			
Prevention	Pre-intervention	141	2.71	0.248	0.34 - 1.16	0.58	140	0.001	S
	Post-intervention	141	2.96			0.235			
SBE Knowledge	Pre-intervention	141	0.95	1.688	1.86 - 1.51	0.936	140	0.001	S
	Post-intervention	141	2.64			0.636			
Knowledge of Practice	Pre-intervention	141	1.38	0.816	0.98 - 0.65	0.87	140	0.001	S
	Post-intervention	141	2.20			0.75			

DISCUSSION

Socio-Demographic Characteristics of Respondents

A total of 141 corps members participated in the study, with ages ranging from 20 to 30 years. The majority were aged between 25 and 30 years (54.4%), while 42.6% were between 22 and 24 years. The mean age was 25 ± 2.02 years. Most participants (93.6%)

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were single. Regarding ethnicity, a large proportion (83%) were of the Yoruba ethnic group, and the majority (70.9%) were Christians.

These socio-demographic characteristics are similar to those reported in a study among female National Youth Service Corps (NYSC) members in a northern Nigerian state. A previous study found that most respondents (93.3%) were single, a large proportion (47.6%) were Yoruba, and most (80.4%) were Christian, with a mean age of 24.6 ± 2.6 years.[18] The findings also align with a study on awareness of self-breast examination among female corps members in Lagos State, which reported a mean age of 24.7 years.[19] Additionally, the maximum age of 30 years in this study corresponds with the stipulated maximum age for NYSC members in Nigeria.

Participants' Knowledge of Self-Breast Examination

The study revealed notable improvements in knowledge following intervention. The proportion of participants who could identify the correct age to commence self-breast examination (SBE) increased from 26.2% pre-intervention to 86.5% post-intervention. Those who knew the recommended frequency of SBE rose from 31.2% to 81.6%, and knowledge of the proper time to perform SBE increased from 32% to 83%. Regarding the proper time to perform SBE after menopause, knowledge improved from 14.9% pre-intervention to 54.6% post-intervention. After the intervention, 72.3% of participants had adequate knowledge, 8.5% had inadequate knowledge, and none (0%) lacked knowledge of SBE.

The poor pre-intervention knowledge of SBE observed in this study is consistent with findings from a previous study, where sufficient knowledge of SBE was found in only 66.3% and 22.8% of participants, respectively.[20]

Participants' Knowledge of the Practice of Breast Cancer

Before the intervention, 41 participants (29.1%) knew the most appropriate manual technique for SBE, 55 (39.0%) knew the length of time to allocate to each breast, and 99 (70.2%) understood the purpose of SBE. After the intervention, these figures increased to 117 (83.0%), 65 (46.1%), and 128 (90.8%), respectively. Importantly, prior to the intervention, 16.3% of participants had no knowledge of SBE practice, 38.3% had inadequate knowledge, and 46.8% had fairly adequate knowledge. After the intervention, the proportion with adequate knowledge rose to 37.6%.

These findings are similar to those of Akpo et al. (2010) and Al-Azmy et al. (2013), who assessed women's knowledge and practice of SBE and found that a large proportion of women did not know the correct steps, with most baseline responses to SBE technique

questions being incorrect. Similarly, consistent findings were reported in three other previous studies, where participants had poor pre-intervention knowledge of SBE, which significantly improved following educational intervention.[20-22]

Participants' History of Self-breast examination

Prior to intervention, 13 (19.2%) of the participants claimed to have discovered breast lump in their breast. 10 (7.1%) consulted a doctor, 1 (0.75) used traditional medicine while 2 (1.4%) went to a prayer house. After the intervention, 9 (6.4%) claimed to have discovered lump in their breast while 8 (5.7%) consulted a doctor while 1(0.7%) went to a prayer house.

Participants' Performance Checklist on Self-breast examination

After the educational training on breast cancer and self-breast examination, techniques of self-breast examination were demonstrated to the participants. After which, they were divided into six groups and a repeat of the self-breast examination technique was demonstrated to each of the groups with the help of the trained research assistance.
Each of the participants demonstrated the self-breast examination techniques using mannequin while their performances were graded using the checklist. 128 (91.0%) of the participants had good performance, 8 (5.6%) had fair performance while 5 (3.5%) performance was poor.

Research Hypotheses

The hypotheses were tested using paired T test. Result reveals that there is a significant difference in each of the hypothesis tested between pre-intervention and post intervention. Therefore, the hypotheses were rejected (PV = 0.001).

CONCLUSION AND RECOMMENDATION

This study aimed at improving breast cancer knowledge and self-breast examination proficiency through educational programme among corps members in Ibadan-North L.G.A, Nigeria.

Overall, there were limited knowledge of breast cancer and self-breast examination among respondents prior to the educational training. However, educational intervention was found to be effective in improving the knowledge of the respondents about breast cancer and self-breast examination. Although some myths and misconception about breast cancer still persisted among few of the respondents despite the educational training.

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Generally, this study created awareness and improved knowledge of breast cancer and self-breast examination among the participants. The effectiveness of the educational training was evident in the post training feedback and performance checklist of self-breast examination. The study revealed the importance of educational intervention in promoting knowledge of breast cancer and proficiency of self-breast examination which can further promote practices of self-breast examination.

Hence, educational intervention on breast cancer and self-breast examination is key to early detection of breast cancer thereby preventing the poor outcome that result from late presentation.

1. National Youth Service Corps (NYSC) directors should incorporate health education programme on breast cancer and self-breast examination as part of the orientation programme for NYSC members.
2. There should be policy formulation and implementation on free breast examination and screening procedures for female corps members in Nigeria.
3. Government and non-governmental organizations should make significant contributions by sponsoring health programs, workshops, and seminar on breast cancer prevention especially among the female corps members in Nigeria.
4. A state policy should be formulated on incorporating educational programs on breast cancer and self-breast examination as part of urban and rural community-based health intervention programs.

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