





ORIGINAL RESEARCH

Outcome of Educational Program on Awareness and Knowledge of Breast Cancer Screening Among Female Teachers in Ondo State, Nigeria

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Abstract

This quasi-experimental quantitative study used a questionnaire to assess the impact of an educational program on awareness and knowledge of breast cancer, and its screening methods among female teachers in Ondo State, Nigeria. Breast cancer is a significant global health concern for women and the leading cancer affecting female reproductive health. Research indicates that educational campaigns reduce its incidence by enhancing awareness, which promotes early detection and improves treatment outcomes. Teachers must equip their audience with adequate information on different concepts and aspects of life, including healthy lifestyles. Students, in turn, show greater respect for their teachers than their significant others and reciprocate by living up to expectations or trying to apply this information as much as they can. The results revealed an average knowledge gain of 18.02 following the intervention, with significant differences in knowledge observed immediately and 4 weeks post-intervention ($p < 0.05$). Marital status emerged as the only sociodemographic factor significantly associated with knowledge levels ($p = 0.006$). While the participants showed general awareness of breast cancer and breast cancer screening methods, they displayed a lack of comprehensive knowledge. It is recommended that educational campaigns be aimed at women to mitigate the burden and mortality associated with breast cancer.

Plain Language Summary

Breast cancer is a global health challenge. Reports reveal that educational campaigns are one of the best strategies to reduce its prevalence through programs that increase awareness, leading to early detection/diagnosis, prompt treatment, and positive health outcomes. Teachers are important in contributing knowledge and application. Therefore, the authors evaluated outcomes of an educational program that focused on increasing awareness and knowledge of breast cancer screening among female teachers in Ondo State, Nigeria, using a quasi-experimental research design. The results reveal increased knowledge after the intervention, which decreased over the following 4 weeks post-intervention in the educational treatment group. Marital status was the only sociodemographic variable associated with significant respondents' knowledge. In conclusion, respondents were aware of breast cancer and its screening methods but lacked in-depth knowledge of the subject. Educational campaigns targeting women in any sphere of life are recommended to reduce breast cancer burden and mortality.

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A knowledge gap exists between breast cancer and screening methods. To address this need, teachers play a pivotal role in education and as leaders in campaigns designed to increase awareness and adequate knowledge of breast cancer and breast self-examination,

thereby reducing late presentation and eventually reducing breast cancer morbidity and mortality. The objective of this study is to carry out an educational program on awareness and knowledge of breast cancer and its screening methods among female teachers in Ondo State, Nigeria.

The burden of cancer among women in developing countries is a major public health concern.^{1,2} Breast cancer is the leading cancer among women in developing countries, both in prevalence and mortality. This is true in Africa, including Nigeria.^{1,3-7} In 2020, there were more than half a million deaths with over 2 million new cases worldwide.^{5,8}

Africa accounts for the highest breast cancer deaths globally, with about two-thirds of women diagnosed at the late stage of the disease.⁹ The breast cancer survival in sub-Saharan Africa is 5 years, with only 50% of diagnosed women treated. This compares to a 90% plus survival rate in developed countries over the same period.⁹

The prevalence of breast cancer is among the top 10 cancers in women and the most diagnosed in Nigeria, with approximately 100,000 new cases annually.^{5,10} Treatment is associated with positive outcomes. Yet, more than 75% of women are diagnosed with breast cancer at the late stage of the disease.^{1,11} Mushosho et al.¹² affirm that the burden of breast cancer in sub-Saharan Africa, of which Nigeria is a part, is rising because of limited screening and unavailable resources that lead to late presentation and poor prognosis. Factors such as low levels of awareness and education, cultural barriers, limited access to early detection, diagnosis, and treatment services, as well as misconceptions, among other factors, contribute to the high rate of late diagnosis and deaths due to breast cancer.^{8,9}

Several authors report a low level of breast cancer awareness in Africa. In one qualitative study conducted in Ethiopia, almost all the 12 key factors among those interviewed reported that their community members were not aware of breast cancer! Furthermore, they lacked adequate information about the subject.¹ In Ghana, only 35.5% of the study participants were aware of breast cancer.¹³ In North-central Nigeria, 46.5% had poor knowledge.¹⁴ Only 29.5% had good knowledge of breast cancer in Southwest Nigeria.⁵ Further, in Southwest Nigeria, Omosun et al.¹⁵ reported that cancer screening practices are very low, particularly for breast cancer, even though it is the most commonly diagnosed cancer in Lagos, Nigeria.

Regarding studies of the knowledge gap and the need for educational intervention, a cross-sectional study done in Ondo State, Nigeria, among female oncology patients (18 to 72 years) in the surgical outpatient department revealed that the majority heard about breast cancer and breast self-examination, but only about half practice it.¹¹ The source of information was mostly from the hospitals, followed by the media.¹¹ Another study conducted in the Akure South local government area (LGA) of Ondo State revealed that although women of reproductive age were aware of breast cancer, they lacked adequate knowledge. The author recommended that the government and stakeholders carry out a well-coordinated awareness campaign to reduce the incidence and mortality of breast cancer

in the state.¹⁶ Female teachers are an excellent population that can benefit from the study as well as serve as a resource for schools, the community, and the public.

Screening involves employing simple tests to identify individuals with cancer before symptoms appear. Breast self-examination, clinical breast examination (CBE), and mammography are well-recognized screening programs for breast cancer. Breast self-examination does not require specialized equipment and staff. It is cost-effective, efficient, and performed by the woman after training.¹⁷ If breast self-examination is performed regularly and accurately, women can detect glands that are smaller than 1 cm. Despite the advantages of breast self-examination, few women perform it, and others do not know how to perform the exam properly.¹⁸

Early detection is imperative to diminish the morbidity and mortality associated with breast cancer, as treatment is most successful during the initial phase. This can only be achieved through awareness and understanding of breast cancer, positive perception and attitude towards breast cancer examination, and the ability to recognize the typical appearance and texture of their breast—all vital elements in early detection of breast cancer.⁸

Female teachers play an important role in communicating with young students.¹⁹ Teachers, as part of their duties, are responsible for educating their students on hygiene and health issues. Proper knowledge and awareness of breast cancer among schoolteachers are vital because they serve as public health advocates.

Ashokamala et al.²⁰ highlight the importance of implementing educational programs for schoolteachers to enhance their knowledge and awareness of risk factors for breast cancer. Although breast cancer awareness programs are being conducted throughout Ondo state, these are not primarily targeted at schoolteachers. Adequate knowledge and awareness of breast cancer among schoolteachers could lead to minimizing the incidence of breast cancer among young students as well as themselves and colleagues.²⁰

To reduce the incidence of breast cancer and its mortality, the World Health Organization (WHO) recommends educational intervention as an essential tool to increase awareness and early diagnosis and treatment.^{13,21} Conducting an educational intervention that promotes self-efficacy, where women are well-informed on performing self-examination of their breasts, increases familiarity with the normal variations in texture and color to identify any breast abnormality early enough to prevent and reduce late presentations to the hospital.

Methods

This study used a non-equivalent control group design. A two-group pre- and post-quasi-experimental research design was used to assess the awareness and knowledge

of breast cancer and its screening methods among female teachers in the intervention group and control group, respectively.

Both intervention and control groups were female-dominated public schools located in two different LGAs in the state. The intervention group was located in Akure South LGA, while the control group was located in Ondo West LGA. They are about a 60-min drive apart. The intervention group was selected because it has the highest female population compared to the control group. Neither of the groups was aware of their allocation before the intervention. The educational intervention was administered by a female nursing student with the help of four research assistants (all female) under the supervision of two registered nurses (female lecturers) using audiovisual aid (PowerPoint presentation) and flyers. The questionnaire was in English to enable participants ease of completing it.

St. Louis Girls' Grammar School Akure, the intervention group, is a female-dominated public secondary school located at Bye Pass Road, Akure South. It was founded on the principle of imparting knowledge, educational training, and experience to its youngsters. The focus of the school is on training in the academic and moral standards of students. During the study, there were 136 teachers in the intervention group, which included 86 female teachers and 50 male teachers. The control group, St. Louis Girls' Grammar School Ondo, is also a female-dominated government secondary school located around the Odo-sida area next to the University of Medical Science, Ondo. There were 86 teachers in the control group, which included 50 female teachers and 36 male teachers.

The instrument for data collection was a structured, self-designed questionnaire. The questionnaire was developed from reviewed literature. The questionnaire consisted of structured questions with two sections (A and B). Section A contains questions (9 items) on the socio-demographic characteristics of the respondents. Section B included questions on awareness and knowledge of breast cancer and its screening methods, which consisted of 41 items. All questions in section B had dichotomous responses (yes = 1 and no = 0), except for questions 14, 21, 22, 24, 25, 33, 35, 37, 39, 41–43, and 47, where the coding was reversed.

Teachers who scored above the mean were considered to have good knowledge, while teachers who scored below the mean were considered to have poor knowledge of breast cancer and breast cancer screening methods. The instrument was written in English, as this is the common language of the people. It was reviewed by two registered nurses with majors in adult health nursing and community health nursing. The instrument was tested for reliability by pretesting the questionnaire among 20 female teachers

at Fiwasaye Girls' Grammar School, Akure, Ondo State, Nigeria. Responses were checked and observed for any necessary corrections before going to the field. Internal consistency was achieved using Statistical Package for the Social Sciences (SPSS) version 23 and Cronbach Alpha of 0.7.

Ethical approval for the study was received from the Research Ethics Committee, University of Medical Sciences, Laje, Ondo, Ondo State with the protocol code: *NHREC/TR/UNIMED-HREC-Ondo St/22/06/21*, and was approved on October 6, 2022. Informed consent (agreeing to use the instrument) was obtained from respondents before questionnaires were administered, and the study was conducted within 8 weeks.

Data were collected in four phases. Phase I (week 1): The study sites were visited. The purpose of the study was shared with the school authorities, and permission to conduct the study was obtained. Phase II (week 2): Pre-intervention data were collected, an educational intervention was conducted, and the first post-intervention data were collected the same day. Educational intervention included the concept of breast cancer, causes and risk factors, breast self-examination, CBE, mammography, and step-by-step ways to perform breast self-examination. This was done with a PowerPoint presentation and printed materials. Phase III (week 6): Second post-intervention data were collected 4 weeks after the intervention due to time constraints (the study was carried out by an undergraduate with a timeline for project submission). Phase IV (weeks 7 and 8): Data analysis was done. Data collected were coded and analyzed using SPSS, version 23. The study tested two hypotheses. Firstly, there is no significant difference in the pre- and post-intervention knowledge of female teachers on breast cancer and its screening in the experimental group. Secondly, there is no significant association between sociodemographic and pre-intervention knowledge of breast cancer screening among teachers. Data were summarized and represented in frequency tables and charts, and hypotheses were tested at 0.05 level of significance.

Results

Results from Table 1 revealed that most of the respondents in the control group were less than 30 years of age (60%), predominantly from the Yoruba ethnic group (97.1%), single (64.7%), with no personal history of breast cancer (97.1%), no history of smoking (97.1%), and had more than 1 year of teaching experience (70.6%). In the intervention group, the majority were within the ages of 50 to 59 years (55.6%), married (95.6%), predominantly Yorubas (97.1%) with no family history of breast cancer (91.1%).

Table 1. Sociodemographic characteristics of the respondents.

Demography	Characteristics	Control		Intervention	
		F (n = 34)	(%)	F (n = 45)	(%)
Age (years)	20–29	18	60.0	–	–
	30–39	7	23.3	4	8.9
	40–49	5	3.3	16	35.6
	50–59	4	13.3	25	55.6
Mean age ± SD		31 ± 11.29		48 ± 6.71	
Ethnicity	Hausa	0	0	1	2.2
	Yoruba	33	97.1	42	93.3
	Igbo	1	2.9	2	4.4
Marital status	Married	12	35.3	43	95.6
	Single	22	64.7	1	2.2
	Separated	0		1	2.2
Children (n)	0	19	55.9	1	2.2
	1 child	5	14.7	2	4.4
	>1 child	10	29.4	42	93.3
Family history of breast cancer	Yes	0		4	8.9
	No	34	100	41	91.1
Personal history of breast cancer	Yes	1	2.9		
	No	33	97.1	45	100
Smoking status	Currently	0	0		
	Past	1	2.9		
	Never	33	97.1	45	100
Years of teaching experience	<1 year	10	29.4		
	>1 year	24	70.6	45	100

F: F statistic; SD: standard deviation; n: number.

Appendix 1 reveals the pre-intervention knowledge among respondents regarding symptoms, risk factors, and breast cancer screening methods. About half of the respondents (control: 58.8% vs. pre-intervention: 53.3%) reported that breast cancer is associated with a painful lump, and there is swelling of all or part of the breast (55.8% vs. 46.7%). Skin irritation or breast dimpling (23.5% vs. 46.7%), nipple retraction and discharge (38.2% vs. 51.1%), and changes in the shape and size of the breast (47.1% vs. 51.1%) are signs and symptoms of breast cancer.

Results on risk factors between the two groups before intervention revealed that obesity (control: 20.6% vs. pre-intervention: 24.4%), alcohol intake and smoking (26.5% vs. 28.9%), physical exercise (11.8% vs. 4.4%), larger breast size (11.8% vs. 13.3%), late menopause (11.8% vs. 15.6%), and use of hormonal contraceptives (32.4% vs. 26.7%) are risk factors for breast cancer.

In addition, respondents in control and intervention groups correctly identified that CBE cannot lead to death of an individual (control: 91.2% vs. pre-intervention: 88.9%), CBE should not be performed by the individual in

question (76.5% vs. 80.0%), should not be done monthly (55.9% vs. 71.1%), and CBE should start at the age of 25 years (73.5% vs. 68.9%).

Regarding mammogram screening, before intervention, participants correctly identified that mammograms are associated with mortality from breast cancer (control: 52.9% vs. pre-intervention: 46.7%), that women should undergo regular screening with mammography starting at age 55 years (61.8% vs. 73.3%), that women aged 45 years should screen annually (58.8% vs. 40%), and that mammograms use low radiation to visualize the breast tissue (47.1% vs. 22.2%).

The knowledge scores for control and intervention groups before the intervention revealed that about half of the respondents had both good and poor knowledge, with 50.0% in the control group having both good and poor knowledge, while 51.1 and 48.9% had poor and good knowledge, respectively, in the intervention group (Table 2). The level of knowledge in both groups before intervention was similar, with a little higher minimum knowledge score in the control group. However, there was an 18.02 knowledge gain in the experimental

Table 2. Overall knowledge of breast cancer and its screening methods among respondents.

Knowledge of female teachers on breast cancer and its screening methods	Control (n = 34)		Intervention (n = 45)					
			Pre-intervention		Post-intervention 1		Post-intervention 2	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Poor knowledge	17 (<80)	50	23 (<80)	51.1	2 (<98)	4.4	3 (<98)	6.7
Good knowledge	17 (>80)	50	22 (>80)	48.9	43 (>98)	95.6	42 (>98)	93.3
Total	34	100	45	100	45	100		
Mean \pm SD	79.82 \pm 13.83		80.16 \pm 16.67		98.18 \pm 8.42		97.87 \pm 14.20	
Mean gain					18.02			
Minimum gain	56		48		56		44	
Maximum gain	123		121		105		137	

N: number; SD: standard deviation.

group with a significant increase in the mean score from 80.16 ± 16.67 pre-intervention to 98.18 ± 8.42 post-intervention. In addition, the standard deviation (SD) revealed the reduction in the sparse difference in knowledge post-intervention.

Hypothesis Testing

Results from Table 3 show a significant difference in the knowledge score in the experimental group as revealed by the mean score of 80.16 ± 16.67 and 98.18 ± 8.42 pre- and post-intervention, respectively. The *p*-value (0.000) also revealed a significant difference in the knowledge scores in the group.

Results from Table 4 reveal that marital status was the only sociodemographic variable that had a significant association with the pre-intervention knowledge of the participants in the experimental group.

Discussion

Findings of this study reveal that the majority of the respondents in the control group and experimental group were predominantly Yorubas, with no family history of breast cancer, no personal history of breast cancer, no history of smoking, and more than 1 year of teaching experience. In the control group most participants were younger than 30 years and single, while in the experimental group majority were between the ages of 50 and 59 years, married, and with more than one child.

Results presented in Appendix 1 show that findings in this study align with the reporting from previous studies. Alsareii et al., agreed that although most female students and faculty members in Najran University, Najran, Saudi Arabia, had good general knowledge of breast cancer, they had poor knowledge of the predictors of breast cancer.²² Even though they were university students, they lacked adequate knowledge of breast cancer risk factors. Similar to this study, even though the respondents were secondary school teachers, they lacked comprehensive

knowledge of risk factors for breast cancer. Perhaps they (teachers in Ondo State, Nigeria) were left out of the breast cancer campaigns conducted in the state. Miskeen and Al-Shahrani, stated that about half of medical students at the University of Bisha, Saudi Arabia, had good knowledge of breast cancer.²³ Furthermore, Gore et al. reported that less than half of the women attending a rural gynecological clinic in India were aware that obesity, genetics, advancement in age, and inadequate breastfeeding were risk factors for breast cancer.²⁴ Mojisola also reported that although reproductive-age women in Akure South LGA, Ondo State, Nigeria, were aware of breast cancer, they were not adequately informed.¹⁶ This buttresses the fact that several awareness programs and campaigns have been carried out in Ondo State, but this has not been reflected in their knowledge of breast cancer. Perhaps this is the reason for the high awareness rate and poor knowledge of breast cancer among the female teachers in this study.

It can be deduced that adequate knowledge of breast cancer is average among women irrespective of class and age group, just as it has been revealed from other reports. However, in contrast to this finding, Ashokamala and Weerakoon, reported that the majority of the participants (female teachers in selected public schools in Sri Lanka) could correctly identify the signs of breast cancer.²⁰ Maybe this group of teachers had opportunities and privileges of information compared to our study groups.

However, there was knowledge gain and an increase post-intervention, as the majority of the respondents correctly identified the symptoms, signs, and risk factors for breast cancer. This is in tandem with the report from Noman et al. which stated that educational programs showed favorable outcomes in terms of breast cancer screening knowledge, beliefs, and uptake among women.²⁵

Furthermore, findings from Table 2 revealed that the majority of the respondents in the control group and about half in the experimental group before intervention knew that breast self-examination was a tool used for detecting

Table 3. T-test comparing pre- and post-intervention knowledge by female teachers.

	Intervention	n	Mean	SD	SEM	t	df	p
Knowledge of breast cancer screening	Pre	45	80.16	16.67	2.49	6.270	44	0.000
	Post	45	98.18	8.42	1.26			

N: number; df: degrees of freedom; p: probability; SD: standard deviation; SEM: standard error of the mean.

Table 4. Linear regression for sociodemographic association and pre-intervention knowledge.

Variable	Unstandardized coefficient		Standardized coefficient	T	Sig
	β	SE	β		
Constant	117.311	34.066		3.444	
Age	-0.702	0.361	-0.282	-1.942	0.059
Denomination	-13.474	7.373	-0.278	-1.828	0.075
Marital status	15.733	5.375	0.442	2.927	0.006*
Number of children	3.038	6.976	0.065	0.436	0.666
Family history of breast cancer	-2.036	8.529	-0.035	-0.239	0.813

*: marital status is significant; β : beta; SE: standard error; T: t-statistic; SE: standard error; Sig: significance.

breast cancer early and how it should be performed. However, most of them were not knowledgeable about CBE and mammograms in both groups. Similarly, Saulawa et al. reported that less than half of the pharmacy students in Zaria, Nigeria, had good knowledge and awareness of breast cancer and its screening methods, with only 7.0% having good knowledge of CBE and 25.4% having good knowledge of mammograms.²⁶ Furthermore, Simo et al., in Cameroon, reported similar findings, as almost all the participants (medical and general populace) were aware of breast cancer, but only 34.9% were aware of CBE and 21.2% were aware of mammograms.²⁷ A study from Damascus, Syria, reported that only 27.4% of its participants had good knowledge of breast self-examination.²⁸ In India, Gore et al. reported that the majority of the women were aware of breast cancer, but about half of the respondents were aware of breast self-examination (BSE).²⁴ Javid reported that 84.9% of the women in another district in India knew that breast self-examination is a useful tool for early detection of breast cancer.²⁹

Results from Table 3 reveal that there was knowledge gain immediately post-intervention and 4 weeks post-intervention. This result corresponds with the report from Iran, which stated that there was no significant difference between the experimental and control groups' mean scores of knowledge, attitude, and practice before the educational intervention, but a significant difference was observed after the intervention, with the experimental group obtaining significantly higher mean scores of knowledge, attitude, and practice.³⁰ This correlates with the systematic review of the effectiveness of educational interventions on breast cancer screening uptake, knowledge, and beliefs among women. It revealed that before

the intervention only 3.95% of the participants had good knowledge, but there was an increase in knowledge after the intervention.²⁵

Results in Table 4 revealed that there was a significant difference in knowledge among the experimental group pre- and post-interventions, and that marital status was the only sociodemographic factor associated with knowledge among the participants in the experimental group. This finding is consistent with the results of a similar study conducted in Iran where the mean score on knowledge before the intervention was 53.51 ± 6.85 , which increased post-intervention level to 83.48 ± 4.47 .³⁰ This is consistent with the report from Bangladesh among 400 female university students, where the knowledge of breast cancer symptoms increased from 2.99 ± 1.05 at the pre-intervention stage to 6.35 ± 1.15 at post-intervention stage, and knowledge of breast cancer risk factors increased from 3.35 ± 1.32 to 7.14 ± 1.03 . Likewise, knowledge of breast cancer screening increased from 1.82 ± 0.55 to 3.98 ± 0.71 .³¹ In a study conducted by Masso-Calderón et al., it was reported that the knowledge of the Colombian female scholars was poor for most of the breast cancer risk factors and showed significant improvements after the educational intervention.³²

Conclusion

Most female teachers are aware of breast cancer but lack in-depth knowledge of its risk factors, signs, and symptoms. The majority also are not aware of the available screening methods, which most likely is also responsible for late presentation in the general populace. Reasons for these findings could perhaps be attributed to the fact that breast cancer campaigns in the state do not target literate people, particularly those in the teaching/education

sector. In addition, it is likely that the efforts of the past governments on breast cancer and its screening methods have been attributed to political campaigns and not seen or reflected upon by the women in Ondo State, as efforts put in place to reduce the incidence of breast cancer and its associated burden. Government and social groups should consider expanding the campaign beyond awareness to an educational program on breast cancer and its screening methods among the varied women groups, irrespective of ethnicity and their educational status.

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Conflicts of Interest

No conflict of interest were reported. All authors participated and contributed to the writing of this manuscript. All information supplied was unanimously agreed upon.

Contributors

Oluwatosin Ogunmuyiwa: conceptualization, methodology, formal analysis, review and editing, supervision, and project administration. Esther Suleiman: formal analysis, writing original draft preparation, and project administration. Olapeju Ajibade: review and editing, supervision, and project administration, Ibironke Ojo: review and editing, and project administration.

Data Availability Statement (DAS), Data Sharing, Reproducibility, and Data Repositories

Data cannot be reproduced without copyright permission from the authors.

Application of AI-Generated Text or Related Technology

None.

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Appendix 1. The pre-intervention knowledge among respondents regarding symptoms, risk factors, and breast cancer screening methods.

Question	Response	Control: n = 34 (%)	Pre-intervention: n = 45 (%)
Does breast cancer come with a painful lump?	Yes	20 (58.8)	24 (53.3)
	No	14 (41.2)	21 (46.7)
Is swelling of all or part of the breast a symptom of breast cancer?	Yes	19 (55.8)	21 (46.7)
	No	15 (44.2)	24 (53.3)
Is skin irritation or dimpling a symptom of breast cancer?	Yes	8 (23.5)	21 (46.7)
	No	26 (76.5)	24 (53.3)
Is nipple retraction and nipple discharge a symptom of breast cancer?	Yes	13 (38.2)	23 (51.1)
	No	24 (61.7)	22 (48.9)
Does the size and shape of breast change with breast cancer?	Yes	16 (47.1)	23 (51.1)
	No	18 (52.9)	22 (48.9)
Can obesity predispose someone to breast cancer?	Yes	7 (20.6)	11 (24.4)
	No	27 (79.4)	34 (75.6)
Can smoking and alcohol intake predispose a person to breast cancer?	Yes	9 (26.5)	13 (28.9)
	No	25 (73.5)	32 (71.1)
Can adequate physical exercise be a risk factor for breast cancer?	Yes	4 (11.8)	2 (4.4)
	No	30 (88.2)	43 (95.6)
Can larger breast size predispose a person to breast cancer?	Yes	4 (11.8)	6 (13.3)
	No	30 (88.2)	39 (86.7)
Can late menopause predispose a person to breast cancer?	Yes	4 (11.8)	7 (15.6)
	No	30 (88.2)	38 (84.4)
Can hormonal contraceptive methods be a risk factor for breast cancer?	Yes	11 (32.4)	12 (26.7)
	No	23 (67.6)	33 (73.3)
BSE is a useful tool for early detection of breast cancer?	Yes	29 (85.3)	36 (80)
	No	7 (14.7)	9 (20)
BSE should start from age 20?	Yes	26 (76.5)	23 (51.1)
	No	8 (23.5)	22 (48.9)
BSE should be done monthly?	Yes	27 (79.4)	28 (62.2)
	No	7 (14.7)	17 (37.8)
A postmenopausal woman should pick a day of the month for BSE?	Yes	22 (64.7)	27 (60)
	No	12 (35.3)	18 (40)
BSE should be performed by an individual?	Yes	20 (58.8)	28 (62.2)
	No	14 (41.2)	17 (37.8)
The best time to do BSE is during menstruation?	Yes	8 (23.5)	8 (17.8)
	No	26 (76.5)	37 (82.2)
BSE is done by inspection, palpation and squeezing?	Yes	16 (47.1)	23 (51.1)
	No	18 (52.9)	22 (48.9)
CBE can cause death?	Yes	3 (8.8)	5 (11.1)
	No	31 (91.2)	40 (88.9)
CBE should be done by individual?	Yes	8 (23.5)	9 (20)
	No	26 (76.5)	36 (80)
CBE should be done monthly?	Yes	15 (44.1)	13 (28.9)
	No	19 (55.9)	32 (71.1)
CBE should start at the age of 25.	Yes	9 (26.5)	14 (31.1)
	No	25 (73.5)	31 (68.9)
Screening with mammography reduces mortality from breast cancer.	Yes	18 (52.9)	21 (46.7)
	No	16 (47.1)	24 (53.3)
Woman should undergo regular screening with mammography starting at age 55 years.	Yes	13 (38.2)	12 (26.7)
	No	21 (61.8)	33 (73.3)
Women from age 45 should be screened annually with mammography.	Yes	20 (58.8)	18 (40)
	No	14 (41.2)	27 (60)
Mammography uses low radiation of X-rays to produce images of the breast?	Yes	16 (47.1)	10 (22.2)
	No	18 (52.9)	35 (77.8)

BSE: breast self-examination; CBE: clinical breast examination.