Original Article

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Breast Cancer Risks and Effectiveness of BSE Training among Women Living in a District of İstanbul

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ABSTRACT

Objective: The purpose of this study to determine the risks associated with breast cancer in women who live in a neighborhood in Istanbul, and to evaluate the effectiveness of breast self -examination (BSE) training.

Materials and Methods: This study was designed by using a half-experimental model, with women over the age of 18 who visited the community health center in a district of Istanbul, during March / April 2012. Sample selection was not implemented, and 169 women who voluntarily participated in the study were included. Data was collected by face-to-face interview technique with "Demographic Survey Form", "Breast Cancer Risk Assessment Form" and "BSE Training Assessment Scale". After risk assessment, women who wanted to learn BSE (n=109) were given a practical training program lasting approximately 20 minutes that was prepared together with expert consults.

Results: 32.1% of the participants regularly performed BSE. Out of those who do not use regular self-examination, 15.4% thought BSE was unnecessary, 44% was afraid to examine herself, and 40.7% did not know how to apply BSE. The mean breast cancer risk score was 135.64±61.33. There were statistically significant differences between breast cancer risk score and the educational status, marital status, and menstrual status. A statistically significant difference was found in pre- and post-training BSE Training Assessment Scale scores.

Conclusion: The breast cancer risk score was low among women included in this study. However, the vast majority of women did not perform BSE, and those who did were using either irregular or improper practice. It was detected that implementation of planned and in-person training programs were quite effective.

Key words: Breast cancer, risk, breast self-examination, education

Introduction

Breast cancer is the most common type of cancer in both developed and developing countries (1). It constitutes 23% of total cancer cases and 14% of cancer related deaths. It is estimated that nearly half of breast cancers and 60% of deaths are from developing countries (2). The average incidence in the world is 38-40 per a hundred thousand population, while this rate is 66-67 per hundred thousand in Europe, and is around 40 per a hundred thousand in our country. 43.6% of breast cancer cases in our country is stage 1 and 56.4% is stage 2-4 (3).

Early diagnosis and treatment of breast cancer increases survival rate. Mammography, clinical breast examination, breast self -examination (BSE) are methods used for screening and early diagnosis of breast cancer. The American Cancer Society and the American Cancer Institute recommends annual mammography to women without any symptoms over the age of 40, and clinical breast examination once every three years between 20-40 years of age, and once a year over the age of 40 by health personnel who are trained in this regard. In addition, it is proposed that every woman should perform Breast Self Examination (BSE) beginning from 20 years of age (4, 5).

The American Cancer Society recommends monthly BSE as an important tool in the early detection of cancer, while in recent years it suggests mammography rather than BSE for routine cancer screening (6, 7). It is advocated that mammography is important for early diagnosis despite its high cost. However, in economically developing countries, access to mammography is not easy. In these countries, the recommended early detection strategies are clinical breast examination and BSE (8). In this context, BSE is recommended as the most rational way in achieving success in early diagnosis within the current system for our country (9). The American Cancer Society advocates education of women on the benefits and limitations of regular BSE (10).

Breast self -examination is a very important method of early detection of breast cancer because it is a simple, costless, noninvasive method that can be practiced by the individual with no side effects (11). Regular BSE creates a very important opportunity for women to learn

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the normal appearance of breast tissue and detect any changes early. Monthly implementation of BSE by every woman over the age of 20, and with the right technique will contribute to early diagnosis and treatment of a possible breast cancer (10). By diagnosing breast cancer in the early stages the amount allocated to cancer treatment from the health care system will decrease, and the individual's physical, psychological and economic losses will be minimized.

According to studies conducted in our country, the frequency of women not performing regular BSE is as high as 56.7 - 80.6% (12, 13). Seçginli et al (14) have found that 27% to 39% of women made BSE, but the proportion of those who perform the exam every month was 5.5%. In other studies in the literature, reasons for not performing BSE were listed as fear of finding a mass, not knowing what to do and lack of knowledge about BSE practice steps. It is indicated that this problem can be reduced with BSE training (15, 16).

International Society of Nurses in Cancer Care (ISNCC) is an organization representing more than 50,000 oncology nurses in 25 countries. The impact of nurses is very important in issues such as early diagnosis, treatment, and symptom management of breast cancer (17). It is known that women in our country are at risk for breast cancer and metastatic spread due to lack of information. Therefore, it is suggested that nurses should educate women on the etiology, prevention and diagnostic issues related to breast cancer (18).

Materials and Methods

The purpose of this study to determine the risks associated with breast cancer in women who live in a neighborhood in Istanbul, and to evaluate the effectiveness of breast self -examination (BSE) training. The study was conducted during March / April 2012, in the garden of a community and family health center that was located in a neighborhood with low socio-economic status on the Anatolian side of Istanbul, 1 day per week for 10 weeks. The purpose and scope of the study were announced with leaflets and posters. The study population consisted of women over the age of eighteen who lived in this area. Sample selection was not implemented, and 169 women who voluntarily participated in the study were included. Data was collected by face-to-face interview technique with "Demographic Survey Form", "Breast Cancer Risk Assessment Form" and "BSE Training Assessment Scale". Preparation of Demographic Survey Form and BSE Training Assessment Scale were based on the National Family Planning Services Guide published by the Ministry of Health (9). Verbal consent was obtained from all participants after informing them about the purpose of the study.

Demographic Survey Form was composed of questions related to socio-demographic characteristics, information on breast cancer, health protecting and improving behaviors, BSE performance status, and reasons for not performing BSE.

Breast Cancer Risk Assessment Form was developed by the American Cancer Society and is a form proposed by the Ministry of Health in Turkey. It contains six sections and 20 items (11).

Section 1 includes five categories and the risk level for these categories. Age: "under 30 years of age (10 Points)", "30-40 years (30 points)", "41-50 years (75 Points)", "51-60 years (100 points)", and "over 60 years (125 Points)".

Section 2 includes five categories and the risk level for these categories. Family History of Breast Cancer : " No (0 points)", "an aunt or grandmother (50 points)", "mother or sister (100 points)", "mother and sister (150 Points)", "mother and two sisters (200 Points)".

Section 3 includes two categories and the risk level for these categories. Personal history of breast cancer: "breast cancer absent (0 points)" and "previous history of breast cancer (300 points)".

Section 4 has three categories of childbearing age. "The first birth before 30 years of age (0 Points)", "first birth after 30 years of age (25 points)" and "no children (50 Points)".

Section 5 includes three categories and the risk level for these categories. Menstrual history: "menstruation starting at age 15 and older (15 points)", "menstruation starting at age 12-14 (25 points)", "menstruation onset age lower than or equal to 11 (50 Points)".

Section 6 consists of three categories related to body type: "lean (15 points)", "medium (25 points)", "fat (50 points)". The body type was determined according to body mass index.

Evaluation of the form was performed as follows; 200 points and below low risk, 201-300 points moderate risk, 301-400 points high risk, and above 400 points highest risk.

Breast self-examination Training Assessment Scale has been created by the researchers based on the literature review. 13 behavioral patterns on the subject were include. Each item was assessed as does or does not.

After risk assessment, women who wanted to learn BSE (n=109) were given a practical one-on-one training program lasting approximately 20 minutes that was prepared with consultation from two experts. Pre-implementation of the training program was carried out with 10 women over the age of 18. The training session then lasted for approximately 40 minutes, it was determined that the content was appropriate but the participants' stated that the time was long. Therefore, the section where the researcher explained self-examination was removed and the training period was reduced to 25-30 minutes. The learning environment was set in the garden of community health center, with the idea of easily accessing individuals. The environment was arranged in a way that researchers and participants can sit together, and images, slogans and banners were hung to attract attention.

Initiative Program

In step 1, breast cancer risk of women has been identified with "Breast Cancer Risk Assessment Form", and the scores were recorded in follow-up cards that were prepared in advance.

In step 2, participants who wanted to learn BSE were informed on the aim of the study and the importance of the subject was emphasized (10 min). This informing session included topics such as what is breast cancer, the importance of early diagnosis, the importance, duration and timing of BSE, rules to be followed when performing BSE, and results of not performing BSE. Flap charts and images specific to the subject were prepared by the researchers to be used during these sessions.

In step 3, 12 steps to be followed during BSE were shown first by the investigator on a model, and then participants were asked to do the exam on their breast. The researcher observed each step, and recorded the finding as able or unable to do, in BSE Training Assessment Scale. The training was repeated until the participants performed all steps correctly at least once. These steps include:

Table 1. Socio-demographic properties of participants (N=169)

Socio-demographic properties		Number (n)	Percentage (%)
Education level	Illiterate	38	22.4
	Primary school	101	59.8
	High school or above	30	17.8
Marital status	Single	22	13
	Married	147	87
Body mass index (n=145)	Normal (19-25)	34	23.4
	Overweight (26-30)	54	37.2
	Obese (30 and above)	57	39.3
Do you smoke?	Yes	50	29.6
	No	119	70.4
Do you have children?	Yes	137	93.2
	No	10	6.8
Do you exercise? (at least 20 min 3 times a week)	Yes	50	29.6
	No	119	70.4
How many meals do you eat?	Two	54	32.0
	Three	115	68.0
Did you apply any diet?	Yes	30	17.8
	No	139	82.2
How many portions of fruit and vegetables do you daily consume?	One	76	45.0
	Two	41	24.3
	Three or more	52	30.8
Are you experiencing menstrual cycles?	Yes	106	62.7
	No	63	37.3
How long did you nurse your children? (n=136) (33 non-responsive)	Less than a year	56	41.2
	A year and more	80	58.8
Did you have a mammography? (under 40 years) (n=76)	Yes	7	9.2
	No	69	90.8
Did you have a mammography? (over 40 years) (n=93)	Yes	36	38.7
	No	57	61.3
Do you use self-examination?	Yes	78	46.2
	No	91	53.8
If yes, how often do you perform BSE? (n=78)	Once a month	25	32.1
	Irregular	53	67.9
What is the reason for not applying regular BSE? (n=91)	Don't think it is necessary	14	15.4
	Scared	40	44.0
	Don't know	37	40.7

BSE: Breast self -examination

- Looking at the appearance of the breast (size, symmetry, color, shape and nipple) against the mirror with arms at sides, front and up
- Looking at the appearance of the breast (size, symmetry, color, shape and nipple) with arms above and back of the head
- Checking if the armpits are bulging
- Looking at the appearance of the breast (size, symmetry, color, shape and nipple) by keeping hands over the pelvis and slightly leaning forward
- Looking at the appearance of the breast (size, symmetry, color, shape and nipple) from the front and from both sides
- Palpation while standing up; with the ends of the three middle fingers of the hand, by making small circular movements, with changing pressure from mild to strong

- To examine the breast clockwise, in circles
- To examine in lines as arrows ending at the nipple
- To examine all the breast
- To examine the armpit with the opposite hand by putting the arm behind the head
- To check for nipple discharge by squeezing
- Application of the same examinations to the other breast

Statistical Analysis

When evaluating the findings obtained in this study, statistical analysis was performed using SPSS (Statistical Package for Social Sciences) program for windows 16.0. Analysis of data was made by number, percentage, Mc Nemar and logistic regression analysis.

Study Limitation

The limitations of this study were lack of follow up participants and that research results cannot be generalized.

Results

The mean age of women who participated in the study was 43.17±12.70 (min: 18, max: 74). 22.5% of women were illiterate, 59.8% were primary school graduates, 87% were married, and 93.2% had children. According to body mass index, 37.2% were overweight, 39.3% obese, 29.6% were smoking, 70.4% were not exercising regularly, 68% were fed three meals a day. Women 62.7% were still experiencing menstrual cycle, 41.2% had nursed for less than a year. 61.8% of women over the age of forty did not have mammography. 46.2% of women were performing BSE, of which 32.1% was regularly applying it once a month. 44% of women did not perform BSE because they were afraid, and 40.7% because they did not know how to do BSE. 84.4% of the participants were aware that early detection of breast cancer is possible with BSE, and 45.9% of women thought that breast cancer only occurred in women (Table 1).

The mean score of Women's Breast Cancer Risk was 135.64±61.33. 94.1% of the participants had lower, 4.1% moderate, 1.2% higher and 0.6% very high risk (Table 2).

The qualitative data was obtained from the personal information form for multiple regression analysis, and it was examined if education level, age, marital and menstrual status could predict the behavior on breast self-examination. Age, education level, marital and menstrual status variables combined had a low level and significant correlation with BSE performance status of women (R=0.25, R^2=0.06, p<0.05). These variables combined, explain 6% of the total variance in BSE performance situation. According to the standardized regression coefficient (β), the predictor variables in the order of importance on BSE performance are education level, marital status, age, and menstruation status. Analyzing the results of t-test for the significance of regression coefficients, only educational level and marital status variables were significant predictors of BSE performance (p<0.05). The other variables did not have a significant effect (Table 3).

Assessment of proficiency in each step of BSE in the pre- and post-training applications, there were statistically significant differences between pre- training and post- training qualifications (p<0.01). Accordingly, the proficiency rates in each step of BSE practice increased after training (Table 4).

Discussion and Conclusions

The mean breast cancer risk score of women who participated in the study were determined as 135.64±61.33 (min: 35 max: 425). According to this, 1.8% had high and very high risk, and 4.1% had moderate risk. Etiaslan et al (19) have reported that 1.5% of women had medium- high risk, Yılmaz et al (20) 2.2% had high and very high risk and Eroğlu et al (21) found this rate as 0.7%. The results of this study are parallel to the results from similar studies. The small number of high- and very high-risk individuals in this study may be due to the study design that addressed a healthy population. In this study, BSE was taught to all participants regardless of their breast cancer risk score, due to the requirement of educating all women over the age of 20.

32.1% of the participants were regularly performing BSE. This rate varies between 4.3-39.4% in national studies (22-26). In international studies, this rate varies between 22.7% and 36.7% (27-33). 44% of women did not perform BSE because they were afraid, and 40.7% because they did not know how to do BSE. 47% of the women in the study by Hajian et al (28), and 31.7% in the study by Yoo et al (34) did not perform regular BSE because they did not know how to apply the examination.

Table 2. Breast cancer risk score distribution (n=169)

Risk Score	n	%
200 and less (Low risk)	159	94.1
201- 300 (Moderate Risk)	7	4.1
301- 400 (High Risk)	2	1.2
400 and more (Highest risk)	1	0.6
Total	169	100

Table 3. Variables predicting BSE status

Predictors	B	St. error	Beta	t	p
(Constant)	2.517	.328		7.664	0.00
Education level	-.240	.113	-.162	-2.120	0.03
Marrital status	-.151	.067	-.192	-2.268	0.02
Age	-.148	.106	-.148	-1.402	0.16
Menstrual status	-.003	.116	-.003	-.026	0.97

Table 4. BSE ability of women before and after training

BSE Application Steps	Sufficiency	Pre-training n	Pre-training %	Post-training n	Post-training %	İst. (X^2=Mc Nemar) X^2	İst. (X^2=Mc Nemar) p
1. Looking at the appearance of the breast (size, symmetry, color, shape and nipple) against the mirror with arms at sides, front and up	Sufficient	38	34.9	109	100	68.01	0.00
	Insufficient	71	65.1	0	0		
2. Looking at the appearance of the breast (size, symmetry, color, shape and nipple) with arms above and back of the head	Sufficient	30	27.5	108	99.9	76.01	0.00
	Insufficient	79	72.5	1	0.9		
3. Checking if the armpits are bulging	Sufficient	36	33	103	94.5	61.35	0.00
	Insufficient	73	67	6	5.5		
4. Looking at the appearance of the breast (size, symmetry, color, shape and nipple) by keeping hands over the pelvis and slightly leaning forward	Sufficient	36	33	107	98.2	69.01	0.00
	Insufficient	73	67	2	1.8		
5. Looking at the appearance of the breast (size, symmetry, color, shape and nipple) from the front and from both sides	Sufficient	32	29.4	108	99.1	74.01	0.00
	Insufficient	77	70.6	1	0.9		
6 Palpation while standing up; with the ends of the three middle fingers of the hand, by making small circular movements, with changing pressure from mild to strong	Sufficient	25	22.9	109	100	82.01	0.00
	Insufficient	84	77.1	0	0		
7. To examine the breast clockwise, in circles	Sufficient	27	24.8	108	99.1	79.01	0.00
	Insufficient	82	75.2	1	0.9		
8. To examine in lines as arrows ending at the nipple	Sufficient	31	28.4	107	98.2	74.01	0.00
	Insufficient	78	71.6	2	1.8		
9. To examine all the breast	Sufficient	36	16.2	106	47.7	66.12	0.00
	Insufficient	73	32.9	3	1.4		
10. Application of the same examinations to the other breast	Sufficient	42	18.9	107	48.2	63.01	0.00
	Insufficient	67	30.2	2	9.0		
11. To examine the armpit with the opposite hand by putting the arm behind the head	Sufficient	29	26.6	108	99.9	76.01	0.00
	Insufficient	80	73.4	1	0.9		
12. To check for nipple discharge by squeezing	Sufficient	29	26.6	108	99.9	77.01	0.00
	Insufficient	80	73.4	1	0.9		
13. Application of the same examinations to the other breast	Sufficient	42	38.5	107	98.2	70.01	0.00
	Insufficient	67	61.5	2	1.8		

The mean age of the women who participated in the study was 43.17±12.70 (min: 18, max: 74). It is reported in the literature that breast cancer increases with age (21, 35). In Turkey, the average life expectancy in 2013 is estimated to be 79.2 years for women and 74.7 years for men, and it is predicted to increase steadily over years (36). These results suggest that the risk of breast cancer will increase in Turkey.

According to the results of regression analysis, training is an effective variable on BSE performance. In other studies, it is noted that women with high level of education applied BSE more (21, 37). According to the results of regression analysis, marital status is also an effective variable on BSE performance. The results related to the marital status parameter show variations in the literature. Some studies report no differences in terms of marital status (26, 38), whereas in some studies the frequency of BSE performance were reported to be higher in single or married women (22, 37).

In our country, according to the national screening standards set by the Ministry of Health, women over the age of forty should receive mammography once in every two years (3). In this study, 37.7% of women over age 40 had mammography. This rate varies between 25-49.1% in national studies (24, 39, 40). In international studies, this rate varies between 44.3 and 70% (33, 41, 42). Results of this study showed that the frequency of mammography in our country is lower than other countries.

In this study, statistically significant differences were found between pre-training and post-training BSE skills. In addition, given that 53.8% of the participants had never done BSE so far, and that 67.9% applied BSE irregularly, practical training on BSE can be accepted to be effective. Although only short-term feedback was received, it has been identified that the participants gained skills on this issue. This program practiced by nurses encouraged women to participate in this style of health promotion programs.

According to this survey, the number of women engaged in regular self-examination was low. Nearly half of women did not perform BSE either because they were scared or because they did not know how to perform BSE. Several women did not believe in the necessity of BSE. There have been positive changes in the information and practice of women on early diagnosis of breast cancer, with BSE training that was conducted as part of the study. Based on these results, it is recommended that planned interactive training programs should be implemented in larger groups.

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