

The Effectiveness of Training for Breast Cancer and Breast Self-Examination in Women Aged 40 and Over

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Abstract—*Background.* Training on breast health is required to increase awareness of early detection of breast cancer, especially in countries with limited resources. *Methods.* Of the 784 invited women, 462 participated in the study (58.9%). The training included both theoretical and breast self-examination (BSE) training between preeducation and posteducation tests. Following the theoretical presentation, breast examination training was performed using a breast simulator. The competency of the participants on breast examination was assessed by an evaluation guide. *Results.* All breast cancer symptoms were stated at significantly higher rates compared to those before education ($P < .05$). The most commonly stated risk factor in both preeducation and posteducation tests was “no breast-feeding,” with ratios of 15.2% and 56.3%, respectively. Early detection modalities for breast cancer were also stated more often in the posteducation test compared to the preeducation ($P < .05$). In the preeducation test, only 4.3% to 18.7% of the participant women could state most of the BSE steps. After BSE training, 85% to 92% of the participants were competent in BSE steps. *Conclusions.* Theoretical education on breast cancer and BSE training in low-educated women, even illiterate, is highly effective. *J Cancer Educ.* 2007; 22:108-111.

Breast cancer is the most common female cancer worldwide and in Turkey.¹⁻³ A total of 1 in 4 cancers detected in women between 1994 and 2001 in Turkey were breast cancer.^{4,5} and 1.8% of deaths in women aged 40 or over in 2001 were due to breast cancer.⁶ There is no primary prevention for breast cancer, and the methods for early diagnosis are therefore important for secondary prevention.⁷ The American Cancer Society suggests starting breast self-examination (BSE) at age 20 and continuing it periodically to make women aware of the breast's normal composition.⁸

In this study, we aimed to determine the effectiveness of breast cancer education and BSE training in women aged 40 or over and living in a rural area with very low access to mammography.

MATERIALS AND METHODS

We carried out a community-based study between April 2003 and August 2003 within a rural community located 20 km from Ankara, capital of Turkey. Names, addresses, and telephone numbers of 784 women aged 40 or over living in the selected region were acquired from the records of the primary health care center. These women were invited for training by telephone. Of the 784, a total of 462 (58.9%) participated in the study. Reasons for not participating were refusal (64.5%) and not being accessible by at least 3 calls (35.5%).

The training was held at the local university. After written consent, the training included both theoretical and experiential BSE training between preeducation and posteducation tests. After the theoretical part, the women utilized breast simulators to practice breast examination using the learning guides and mentor critique.

The competency of the participants was assessed according to the steps stated in the evaluation guide. A success rate was assigned between 1 and 3, 1 meaning “needs to be developed,” 2 meaning “sufficient,” and 3 meaning “competent.” The criterion for competency was the correct application of the examination steps in their proper sequence. We developed learning and evaluation guides, considering the suggested BSE steps by the American Cancer Society.⁹ Preeducation and posteducation tests

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were applied on the same day using questionnaires and face-to-face interviews.

We performed statistical analysis using SPSS 10.0 for Windows statistical package. We used the McNemar test to compare the answers for each question in the pretests and posttests. For comparison of the full scores obtained in pretests and posttests, we utilized the paired *t* test.

RESULTS

Demographic Characteristics of the Participants

A total of 462 women were interviewed and provided theoretical and skill education. The mean age was 48.5 ± 7.9 years (median 46.0, minimum 40, maximum 80); 1 out

TABLE 1. Comparison of Preeducation and Posteducation Tests

	Preeducation (n = 462)		Posteducation (n = 462)		P*
	No.	%	No.	%	
Risk factors					
Early menarche	10	2.2	224	48.5	.001
Late menopause	6	1.3	216	46.8	.001
No parity	26	5.6	219	47.4	.001
First parity after 30 years of age	6	1.3	84	18.2	.001
No breast-feeding	70	15.2	260	56.3	.001
Oral contraceptive use	1	0.2	12	2.6	.001
Hormonal replacement therapy	8	1.7	21	4.5	.021
Family history of breast cancer	56	12.1	124	26.8	.001
Obesity	7	1.5	70	15.2	.001
Local symptoms and signs					
Swelling	309	66.9	411	88.9	.001
Ulceration	44	9.5	163	35.3	.001
Pain	184	39.8	112	24.3	.001
Orange peel appearance of the skin	10	2.2	182	39.4	.001
Nipple depression	16	3.5	110	23.8	.001
Nipple elevation	3	0.6	58	12.6	.001
bloody discharge from the nipple	57	12.3	238	51.5	.001
Auxiliary swelling	34	7.4	138	29.9	.001
Early detection modalities					
	n = 314 [†]		n = 453		
Breast self-examination (BSE)	143	45.5	398	87.9	.001
Clinical breast examination (CBE)	198	63.2	381	84.1	.001
Mammography	30	9.5	162	35.8	.001
Timing of BSE					
	n = 257 [‡]		n = 453		
Couple of days after menstruation	69	26.8	415	91.7	.001
Other	188	73.2	38	8.3	
Frequency of BSE					
	n = 257		n = 453		
Monthly	61	23.8	419	92.6	.001
Other	196	76.2	34	7.4	
Frequency of CBE					
	n = 452		n = 453		
Annually	84	18.6	314	69.3	.001
Other	368	81.4	139	30.7	
Initial age for Mammographic screening					
	n = 259 [¶]		n = 448		
Over 40 years of age	178	68.7	428	95.6	.001
Other	81	31.3	20	4.4	
Frequency of mammographic screening					
	n = 259		n = 448		
Annually	77	29.7	351	78.3	.001
Other	182	70.3	97	21.7	

*McNemar test.

[†]Number of women who stated that it is possible to diagnose breast cancer early.

[‡]Number of women who had heard of BSE.

[¶]Number of women who had heard of mammography.

of 4 women was illiterate (25.3%), and 90.7% of the literate had completed only primary school (5 years). Of the women, 89% were married, 96.1% were housewives, 34.4% were without social security, 17.3% were smokers, and 51.9% had at least 1 chronic disease.

Comparison of the Answers for Knowledge Assessment and Total Scores Before and After Education (Table 1)

Before education, 36.8% of the participants believed that the risk of breast cancer increases over age 40, and 68.0% believed that early diagnosis is possible. After education, these rates increased to 81.8% and 98.0%, respectively ($P < .05$).

After education, all positive symptoms were stated at significantly higher rates compared to the program ($P < .05$), whereas pain, the only nonrelated symptom, was stated at a significantly lower rate ($P < .05$). The most commonly stated risk factor in both pretests and posttests was "no breast-feeding": 15.2% in the pretests and 56.3% in the posttests. Early detection modalities for breast cancer were also stated more often in the posttest compared to the pretest ($P < .05$). The posteducation test score was also higher than the preeducation score (48.6 ± 14.3 vs 23.6 ± 9.7 , $P < .05$).

BSE Training

Before education, 55.6% of the participants stated that they had heard of BSE. Within this group, 65.4% had this information from television, 28.4% from friends, 22.6% from health providers at secondary or tertiary health facilities,

7% from the health providers at primary health facilities, and 3.5% from the newspaper. Among the participants who had heard of BSE, 7 (2.7%) were trained on performing it. Most the participants could not state the steps in BSE and did not know the sequence.

Results of BSE training are presented in Table 2. Of the participants, 85% to 92% were competent in 9 steps; 65% to 84% were competent in 4 steps, and 53% to 62% were competent in the remaining 4 steps of the breast examination.

DISCUSSION

The Turkish Ministry of Health has initiated a "Breast Cancer Control Program" in 30 provinces in 2001. The aims of this program have been designated as to increase the community's awareness of breast cancer, to increase the rate of early diagnosis, and to decrease deaths due to breast cancer. To reach these targets, 1 physician and 1 nurse midwife from each province have been trained in BSE, and this training team has trained all the midwives in their province. The trained midwives have, in turn, educated the community by providing 2 training sessions each year to all women between 15 and 49 years.¹⁰ However, there has been no assessment of this training program yet.

Importantly, this study is community based, independent of the Turkish Ministry of Health program, and performed in a district not included in that program. Participants in this study have not been introduced to a specifically designed breast cancer education previously. In spite of a very low education level (25% illiterate and 90.7% completed only 5 years of education) and very low information

TABLE 2. Competency Rates for BSE Steps After Skill Education*

BSE Steps	Competency	
	No.	%
Getting in front of the mirror	406	87.9
Having the upper body completely naked	385	83.3
Putting the hands on the waist	423	91.5
Inspecting whether there is any deformity of the breasts	395	85.5
Lifting the arms up	392	84.8
Bending forward from the waist	406	87.9
Inspecting whether there is any retraction or deformity of the breasts	393	85.1
Putting a pillow or towel under the right/left shoulder while examining the right/left breast during examination in the supine position	399	86.4
Putting the right/left hand behind the head while examining the right/left breast	339	73.4
Carrying out the examination with the hand parallel to the breast	246	53.2
Carrying out vertical/circular/segmental examination using 3 or 4 fingers	305	66.0
Carrying out the examination without taking the fingers off the breast	249	53.9
Carrying out the examination with the finger pads	256	55.4
Examining all the breast area	273	59.1
Checking for any deformity of the nipple	388	84.0
Compressing the nipple and checking for discharge	425	92.0
Examining the auxiliary area	411	89.0

*n = 462. BSE indicates breast self-examination.

about BSE (55.6% had heard of BSE and 2.7% had some training for BSE), our training dramatically changed the participants' knowledge about risk factors, signs and symptoms, and the methods of early diagnosis. At least half of the participants became competent in all BSE steps. These results are similar to ones achieved in various studies in the United States performed in similar age groups but in more highly educated women.¹¹⁻¹³

It was interesting to find out that in spite of presence of a sufficiently equipped primary health care facility within the particular area, only 7% of the participants had been informed about BSE at that facility. This finding may suggest that primary health care providers do not emphasize BSE or may have a lack of knowledge about its role in early detection.

Although some studies have stated that BSE causes unjustified anxiety in women and leads to unnecessary biopsies,^{14,15} training in breast health and BSE is required to increase awareness on early detection, especially in countries with limited resources.¹⁶ This method is called "early detection without screening" and is suggested to be of primary importance to other methods such as "opportunistic screening" and "organized screening."¹⁶

These findings suggest that such an education program can be highly effective in all communities, including the primary health care providers, and help emphasize the appropriateness of Turkish Ministry of Health initiation of their Breast Cancer Control Program.

In conclusion, theoretical and skill training in breast cancer is highly effective. Primary health care institutions should be guided in providing such education and ensuring its continuity to accomplish the goal of better control of breast cancer.

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