RESEARCH COMMUNICATION

A Comparison of Three Educational Interventions on Breast Self-Examination Knowledge and Health Beliefs

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Abstract

Background: This study was designed to investigate the effectiveness of various training methods for breast self-examination (BSE) knowledge, practice, and health beliefs. Methods: The quasi-experimental investigation was carried out in an area where two community health care centers are located, in the city of Trabzon, Turkey. Divided randomly into three groups, 1,342 women were instructed in BSE using individual or group training or by way of pamphlets. Data were gathered in four stages: during the pretraining and one month, six months, and twelve months after training. Results: All of the training methods used in the study produced a significant increase in the participants' BSE knowledge, but individually trained women scored higher than did the others. Regardless of the training method, BSE instruction improved the women's perceived confidence and benefits, while their perceived barriers declined. The variables influencing BSE practice were found to be BSE practice at the pretraining period, perceived confidence in and benefits from BSE six months after BSE instruction, and health motivation one year after training. No significant difference was found in women's BSE performance scores one year after training. Conclusion: This study in which three training methods were used enabled us to assess the effectiveness of instruction on BSE performance and competence. In addition, it provided us with valuable information on how training methods can influence health beliefs related to BSE.

Key Words: Breast cancer - breast self examination - health beliefs - education interventions - knowledge

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Introduction

Breast cancer is the most common type of cancer around the world. In terms of incidence rate, it ranks first; among cancer-related deaths, it ranks second. According to the Turkish Ministry of Health statistics, the incidence rate of breast cancer was 35.4 per 100 000 in 2005 (Health Minister of Turkey, 2009).

Early detection and immediate treatment are the most effective ways to reduce the mortality rate in breast cancer and may also extend the patient's life span and improve her quality of life (Facione et al., 2000; Nystrom, 2000; Kilic et al, 2006). The early detection methods for breast cancer -breast self-examination (BSE), mammography, and clinical breast examination (CBE) are secondary prevention measures. In recent years, some medical professionals have advocated that BSE should not be taught, as studies have shown that it does not reduce the mortality rate but increases the benign biopsy rate (Hackshaw, 2001; Napoli, 2001; Nekhlyudov and Fletcher, 2001; Haris and Kissinger, 2002). Nevertheless, BSE increases breast cancer awareness and the likelihood of detecting any abnormality in breasts, and it encourages women to become familiar with their breasts (Tang et al., 2000; Smith et al., 2006; Nahcivan and Seçginli, 2007; ACS, 2009). Thus, BSE helps women to take responsibility for their own health (Champion, 2003; Montazeri et al., 2003; Kum et al., 2004; Norman and Brain 2005; Smith et al., 2006). That the majority of the masses in the breasts are detected accidentally by women clearly shows the value of BSE (Champion, 2003; Norman and Brain 2005; Smith et al., 2006). The American Cancer Society (ACS) describes BSE as a way for women to know how their breasts normally feel and to notice any changes. The ACS also states that BSE is optional and that the benefits and limitations of BSE should be explained to every woman over 20 according to the changing guidelines (ACS, 2009).

The roles of mammography, the key element in breast cancer, and CBE are unquestionable in early detection methods. Thus, the USA National Cancer Institute (NCI) emphasizes that BSE cannot replace regular screening mammograms and CBEs (NCI, 2009). However, particularly in countries like Turkey, where health resources are inadequate, women are not fully aware of the importance of mammography, and mammography

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facilities are not equally available for every woman. Studies have found that the rate of women having mammography is around 10.7 to 25 % in Turkey (Orhan and Çetinkaya, 2003; Dündar et al., 2006; Seçginli and Nahcivan, 2006). These low numbers emphasize the importance of BSE for women in developing countries. The Turkish Ministry of Health supports the idea that every woman over the age of 20 should be taught how to perform BSE.

A number of studies on BSE in Turkey have shown that women in Turkey have inadequate knowledge about BSE and its practice. Thus, very few women practice BSE and, therefore, they are not making use of a very valuable tool for protecting their breasts, as well as their general health. For these reasons, studies have focused on the necessity of offering BSE information and training to women (Aydin, 2004; Gozum et al., 2004; Kum et al., 2004; Seçginli and Nahcivan, 2006; Golbasi et al., 2007; Karayurt and Dramali, 2007; Nahcivan and Seçginli, 2007).

Beliefs and attitudes about health have been shown to influence how individuals view and take care of their health. For this reason, the Health Belief Model (HBM) has been used to establish the theoretical framework for the studies exploring breast cancer screening behaviors (Champion, 1993; Fung, 1998; Al-Abadi, 2001; Mikhail and Petro-Nustas, 2001; Aydin, 2004).

This instrument was developed to show that a person's response to their own health problems is directly related to their perceptions about the actual threat to their health and about whether or not any action they take regarding such problems will be worth the effort and will benefit them (Becker, 1978). In the 1950s, Hochbaum, Leventhal, Kegeles, and Rosenstock introduced four concepts pertaining to health-related behavior: (1) "susceptibility" assesses a person's perceived personal exposure to a health condition; (2) "seriousness" measures how much a person believes their health issue will truly cause them personal harm; (3) "benefits" pertains to a person's conviction as to whether the treatment they undertake for their health problem will actually help them; and (4) "barriers" assesses the patient's perceived negative ideas or beliefs which might prevent them from seeking or following through on treatment to improve their health issue. Later, Rosenstock, Strecher, and Becker (1988) added additional concepts to identify a person's beliefs about and level of interest in general health "health motivation" and their degree of conviction that any action they take will have a positive outcome "confidence" (Rosenstock et al., 1988; Jirojwong and MacLennan, 2003; Nahcivan and Seçginli, 2003; Avcı, 2007).

Various studies have investigated the effects of different training methods on the practice of BSE in Turkey (Aydin, 2004; Kiliç et al., 2006; Disçigil, 2007; Gölbasi et al., 2007). However, these studies generally researched only one or two training methods. Our study arose because so little research had been done exploring the effects of various training methods on BSE knowledge and health belief in a single study. The purpose of the current study was to explore the effectiveness of various training methods on BSE knowledge, practice, performance, and health beliefs.

The study addressed the following research questions:

- What were women's health beliefs, and their BSE knowledge and practices both before and after training?
- How did different training methods affect the BSE knowledge, practice, and health beliefs of women?
- What are the most important variables affecting women's BSE performance?

Materials and Methods

This quasi-experimental study was implemented as the second phase of a two-phase research study. In the first phase, the results of which are not reported here, the participants breast cancer screening behaviors were analyzed.

Setting and Sample

This study was carried out in the city of Trabzon, Turkey, an area with two community health care centers; 20,132 women over the age of 18 live in this area. Sample size was calculated to be 1,344 with a 95 % confidence level. We decided to find addresses for 2,016 women (1.5 x 1,344), because we could not rely on finding women at home who met all of our inclusion criteria when we sought their participation.

To recruit women cluster sampling was used. Every health care center was accepted a cluster and every cluster comprise 48 neighborhoods. Using community health care center records, we selected 21 home addresses by starting with the first house number and skipping the next three for every neighborhood. All selected addresses were reached. During the visit, researchers made appointments for training with 1,830 women who were present at home and agreed to join the study. However, 1,342 of them eventually participated in the educational interventions. At the end of six and twelve months following BSE training, 1,105 and 771 women were reached, respectively, because some of these women changed addresses and some did not want to answer research questions at the times approached.

The study used the following inclusion criteria: older than 18 years, no personal history of breast cancer, not pregnant or breastfeeding, able to read and write Turkish. The study was ethically approved by the Trabzon Province Health Directorate. In addition, informed written consent was obtained from all of the study participants before the commencement.

Instruments

The following tools were used for data collection.

Sociodemographic Properties and Early Detection Methods Usage Questionnaire: This instrument was developed to collect data on women's sociodemographic properties (such as age, education, marital status, etc.). The questionnaire also contained questions examining women's use of early detection methods (BSE, CBE, and mammography) and their reasons for not using them.

BSE knowledge questionnaire: In this form, questions related to the participants' knowledge of BSE (BSE technique) were asked and scored. This instrument

included 32 questions regarding how to do BSE. The total score on the test was 56. Women received one point for each correct answer and zero points for wrong answers. We applied this before education after the education immediately. Our aim was to test the education effect on women's BSE knowledge. Croncbach alpha was 0.60 for this form.

BSE practice questionnaire: This set of questions examined women's BSE practice status and frequency. Six months after their training, a researcher phoned the women to ask them two questions. Do you practice BSE and how many times did you practice BSE. We categorized their answers as follows: more than once a month, once a month, once every two months, only one time in six months.

BSE performance questionnaire: This questionnaire was developed and scored to determine women's accuracy in performing BSE. It included 26 items, with a total score of 50. Knowing how we expected women to conduct their own BSEs after their training, we listed the stages for practicing BSE and the signs women should look for every stage. In other words, we created a checklist. Researchers applied this checklist one year after the training. At that time, we asked the women to do a BSE in front of us (dressed, not nude). They received one point for every right behavior and zero points for every wrong or absent behavior. This questionnaire's cronbach alpha was 0.64. To assess its intelligibility, the questionnaire used in the study was tested on 20 women living in the area, and necessary changes were made afterwards. The women in this pilot study were not added to the study.

Champion's Health Belief Model Scale (CHBMS): This tool was developed by Champion (1984) to measure and assess women's attitudes and beliefs towards breast cancer and BSE; it was redesigned in subsequent studies (1993, 1997, 1999). The Turkish translation, including the assessment of this tool's reliability and validity, was done by Karayurt (Karayurt, 2003). The Turkish Champion Health Belief Model (CHBM) scale consists of 43 items, and 6 themes of the Health Belief Model form the sub-titles of the scale. Three items in the perceived sensitiveness subscale (1 to 3) and seven items in the perceived seriousness subscale (4 to 10) relate to breast cancer. Regarding the performance of the BSE, there are five items (11 to 15) in perceived benefits, eleven items (16 to 26) in perceived barriers, ten items (27 to 36) in perceived confidence, and seven items (37 to 43) in the health motivation subscale.

We used a Likert-type scale, in which participants mark a rating between 1 to 5: totally disagree (1), disagree (2), neutral (3), agree (4), totally agree (5). Each subscale was evaluated separately; in this way, six scores were obtained for each participant. Cronbach's coefficient was 0.69 to 0.90 for the original scale, but 0.58 to 0.89 for the scale translated by Karayurt. In this study, Cronbach's alpha values were between 0.64 and 0.85.

Procedures

Eighty students attending the Trabzon School of Health were assigned to the training sessions. These students (all of whom were in their final year of school) were first trained on BSE early detection content, along with individual and group training techniques. The content of early detection training included information about breast cancer frequency in Turkey, risk factors, early detection methods, breast cancer symptoms, the importance of BSE and its practice, CBE, and mammography. BSE was taught according to the technique provided on the Ministry of Health web site. Students were trained in four groups of 20 students each. Then, every researcher listened to eight students when she present this education content and they gave a point this students in terms of training performance; total score was ten, finally we selected twenty students as a trainer who took high points among the students. Other students worked to collect the data. Also, the researchers prepared and issued a pamphlet covering all topics given during the BSE early detection training.

The women living in the same neighborhood were instructed using the same method so that they would not affect each other. For the same reason, we tried to carry out all training sessions in a single two-week period. As a last measure to prevent trained women from affecting other women in this study, we told all women that they "should not share this educational content with other women" living in their area; we assured them that, after "only one month," they could share. In this study, as three different training methods were used, the participants were also divided into three groups. The participants were instructed on BSE in groups (471, or 35.1 %), individually (465, or 34.6%), and using pamphlets (404, or 30.1 %).

a. Training in groups: By toss of a coin, we distributed women into 30 different groups of 12 to 20 participants and informed them when and where they would train. Women were trained by the students and given pamphlets afterwards. Training sessions were 35 to 40 minutes long and took place in community health care centers and participants' homes. Each training group was led by a researcher.

b. Individual training: At their own houses, these women received individual instruction from students on BSE and were then given pamphlets. Training sessions were 20 to 30 minutes.

c.Training using pamphlets: Women were given pamphlets and were asked to read them. Data collection occurred in four steps: before their training and one, six and twelve months after BSE instruction. After six months, data were collected by telephone, while the earlier data collection used personal interviews by the students and researchers.

Data Analysis

Both before and after they were trained, we evaluated the women's BSE knowledge, the frequency of their performing BSEs, and their health beliefs changes and, finally; after their instruction, we also scored how well women performed BSE according to the training methods. Data were evaluated using the statistical package for science 13.0 (SPSS). For statistical analysis, ANOVA, Student's t-test for dependent samples, Cochran's Q, and logistic regression analysis were used. The significance level was set at $p< 0.05$.

Results

The mean ages of individually trained women, women trained in groups, and women trained using pamphlets were 34.8 ± 9.2; 35.0 ± 9.1 and 34.5 ± 8.8, respectively. The percentages of primary school graduates among women who were individually trained, trained in groups, and trained using pamphlets groups were 51.6, 50.3, and 49.6, respectively; 67.1% of the women did not work, 77.2% were married, and 93.4 % had social insurance. We found that 32.9% of individually trained women, 26.0% of those trained in groups, and 25.9% of those trained using pamphlets had a family history of cancer. As for a family history of breast cancer, the percentages were 4.3, 5.9, and 3.4, respectively.

We found that 28.8% of women trained in groups, 24.3% of individually trained women, and 25.8% of the women trained using pamphlets performed BSE regularly. Fifty-two percent reported that they had knowledge of BSE through BSE media, radio/television (18.9%), doctors (11.8%) and nurses (9.7%), while 24.2% indicated they had no knowledge of how to do BSE. The percentages of women who had undergone CBE and mammography were 19.8 and 15.0 respectively.

We used paired t-tests to determine the difference before and after instruction for each group and ANOVA to determine differences before and after instruction among the three groups. The outcomes of the study showed a significant increase in BSE knowledge for all groups ($p<0.001$). The differences between pre- and posttraining BSE knowledge was higher in women trained individually than the other groups (Table 1). We found no significant difference among groups in terms of BSE knowledge during the pre-BSE instruction period ($p=0.08$) but for the posttraining period was significant ($p=0.013$). This difference was explored using the t-test and was found to have resulted from the significant difference between the individually trained groups and those trained with pamphlets ($p= 0.003$).

In all training groups, perceived benefits and perceived confidence increased, but perceived barriers decreased notably, compared with the pretraining period (Table 1). The analysis of health beliefs of the groups at the pre- and posttraining periods showed a significant difference between individually trained groups and pamphlet-trained groups in terms of perceived barriers ($p<0.001$), perceived benefits ($p=0.002$), and perceived confidence ($p<0.001$). The outcomes of the comparison between pre- and posttraining periods for group-trained women showed a significant difference only in perceived confidence ($p<0.001$) but not in other subscales ($p>0.05$). All training groups exhibited a highly significant difference between perceived barriers ($p<0.001$) and perceived confidence ($p<0.001$) after instruction.

Cochran's Q test was used to determine the difference in women's BSE practice status among pre- and posttraining periods (six and twelve months later). In all training groups,the ratio of women practicing BSE increased six months after training (Table 2). However, when comparing the results six months and one year after BSE instruction, BSE practice increased in women who had been educated using the group-training method but decreased in those who had been individually trained and was neutral for the pamphlet-trained group. A quite significant difference ($p<0.001$) was detected in BSE practice in both group- and pamphlet-trained women during pretraining and six and twelve months after training. However, the difference was insignificant in the individually trained group ($p=0.060$).

In order to determine the variables affecting women's BSE practice levels six and twelve months after training, logistic regression analysis was used (Table 3). Health beliefs and breast cancer-related variables were entered independently into the logistic regression analysis. These produced three variables six months after education with significant odds ratios (ORs). Participants were more likely to perform BSE if they had performed BSE during the pretraining period (OR= 2.018, 95 % confidence interval [CI] = 1.484- 2.743), their perceived benefit was high related to BSE (OR = 0.941, 95 % CI = 0.911-1.972), and they were confident about performing BSE (OR = 1.033, 95 % CI = 1.014-1.053). One year after training,

Table 1. Women's BSE Knowledge and Health Beliefs in Pre- and Posttraining Periods

BSE	Min-Max	Individually Trained Group			Group-Trained Group			Pamphlet-Trained Group			p^+	$p^\#$
		Pre-T	Post-T	p value*	Pre-T	Post-T	p value*	Pre-T	Post-T	p value*		
Knowledge	0-56	15.8 (12.3)	34.2 (12.4)	0.000	14.8 (10.9)	33.1 (13.0)	0.000	13.8 (12.1)	30.5 (14.2)	0.000	0.080	0.013
Susceptibility	3-15	7.4 (2.2)	7.5 (2.4)	0.390	7.8 (2.4)	7.5 (2.4)	0.129	7.5 (2.5)	7.7 (2.5)	0.230	0.108	0.407
Seriousness	6-35	21.8 (5.4)	21.6 (5.4)	0.582	21.6 (5.9)	21.3 (5.4)	0.253	21.1 (6.3)	21.2 (5.6)	0.794	0.357	0.500
Benefits	5-25	19.3 (4.8)	20.0 (3.9)	0.002	19.1 (4.8)	19.5 (4.5)	0.143	18.2 (4.6)	19.6 (4.1)	0.000	0.016	0.099
Barriers	11-55	25.9 (5.8)	24.2 (6.2)	0.000	25.9 (7.1)	25.7 (7.0)	0.485	25.9 (6.5)	24.8 (6.1)	0.012	0.866	0.001
Confidence	10-50	30.4 (7.9)	35.6 (7.4)	0.000	29.9 (7.7)	35.0 (7.5)	0.000	29.9 (7.6)	33.5 (7.5)	0.000	0.265	0.000
Motivation[$]	5-35	25.0 (4.9)	25.5 (5.2)	0.062	24.8 (5.5)	25.4 (5.3)	0.059	24.4 (6.0)	24.7 (5.2)	0.415	0.223	0.083

Pre-T, Pretraining; Post-T, Posttraining; *Differences between Pre- and Posttraining Periods; [+]Differences in the Pretraining Period; [#]Differences in the Posttraining Period; [$]Health Motivation

Table 2. Women's BSE Practice in Pre- and Posttraining Periods

	Pre-training%	Six months after training%	Twelve months after training%	Cochran's Q	df	p value
Pamphlet Training	37.4	45.1	45.1	15.436	2	p=0.000
Group Training	35.0	58.6	59.9	52.04	2	p=0.000
Individual Training	43.7	51.5	47.4	5.625	2	p=0.060

Table 3. Logistic Regression Analysis of Variables for Performing BSE after Training

	B	SE	Wald	p value	OR	95 % CI
Six months (N = 1105) Model chi-square = 63.012 ; df = 6 ; p = 0.000						
Perceived Benefits	-0.061	0.017	13.575	0.000	0.941	0.911-1.972
Perceived Barriers	-0.011	0.010	1.244	0.265	0.989	0.970-1.008
Perceived Confidence	0.033	0.010	11.495	0.001	1.033	1.014-1.053
Health Motivation	0.026	0.013	3.815	0.051	1.026	1.000-1.053
Ever Read/Heard about BSE	0.006	0.152	0.002	0.967	1.006	0.747-1.356
Performing BSE in P[1]	0.702	0.157	20.075	0.000	2.018	1.484-2.743
Constant	-0.476	0.505	0.886	0.347	0.622	----------
Twelve months (N=771) Model chi-square = 15.774 ; df = 6 ; p = 0.015						
Perceived Benefits	-0.170	0.019	0.779	0.378	0.984	0.948-1.020
Perceived Barriers	-0.190	0.012	2.554	0.110	0.981	0.959-1.004
Perceived Confidence	0.004	0.011	0.127	0.721	1.004	0.983-1.026
Health Motivation	0.042	0.015	7.798	0.005	1.043	1.013-1.074
Ever Read/Heard about BSE	0.066	0.181	0.134	0.714	0.936	0.657-1.334
Performing BSE at P[1]	0.282	0.183	2.369	0.124	1.326	0.926-1.898
Constant	-0.458	0.563	0.661	0.416	0.632	----------

[1]Pretraining Period; CI, confidence interval; OR, odds ratio; SE: standard error

the only variable affecting BSE practice was found to be their health motivation (OR = 1.043, 95 % CI = 1.013-1.074).

One year after training, women's BSE performance scores were reported to be 27.0 ± 8.3 for group-trained women, 25.4 ± 8.6 for those trained individually, and 24.9 ± 7.3 for the pamphlet-trained group. In terms of training type, no significant difference was found among the participants' BSE performance ($p>0.05$). Another analysis in the study was carried out to assess the important variables affecting the women's BSE performance by using stepwise multiple regression analyses. The results showed that age, education level, practicing BSE at the pre- and posttraining period and the subscales of the Health Belief Model did not significantly affect BSE performance ($p>0.05$).

Discussion

The common result obtained in studies, both in Turkey and elsewhere, is that women have inadequate knowledge of breast cancer early detection methods. Only 52 % of the participants in this study had knowledge of BSE. Other studies we looked at found the rate of participant knowledge to be 37.5 % in Seçginli and Nahcivan's research, 45.6 % in the study by Ozkahraman et al., and 67 % in the study by Petro-Nustus. Mikhail's study found that 41.5 % of the sampling reported performing BSE regularly (Petro-Nustus and Mikhail 2002; Ozkahraman, 2006; Seçginli and Nahcivan, 2006). Related studies found this rate to be between 37.4 % and 59.8 % (Gözüm et al., 2004; Kum et al., 2004; Kilic et al., 2006; Karayurt and Dramali, 2007; Nahcivan and Seçginli, 2007).

To encourage women to do regular and accurate BSEs, they should be provided with adequate knowledge and information about BSE. The relevant literature emphasizes that having BSE knowledge has an undeniable effect on BSE intention, frequency, and performance (Petro-Nustus and Mikhail 2002; Fish and Wilkinson, 2003; Miedema and Tatemichi, 2003; Seçginli and Nahcivan, 2006). Regardless of the type of training, the participants' BSE knowledge level in this study doubled by the end of the training, which demonstrates the effectiveness of all training methods. Especially remarkable is the significant difference between individual and pamphlet training groups that was revealed by doing further statistical analysis.

Other studies which have tried various training methods show that training improves BSE knowledge (Ortega-Altamirano et al., 2000; Wood et al., 2002; Zhu et al., 2002). Gölbasi et al. observed an increase in women's knowledge after they were trained in groups (Gölbasi et al., 2007). In another study, women were sent essays on breast cancer early detection methods and reported that this contributed to their knowledge (Ahmad et al., 2005). Chan et al. also suggest that nearly all participants learned when and how to perform BSE in their study, in which they used a video and breast model (Chan et al., 2007).

In this study, women's perceived benefits and confidence increased significantly, whereas perceived barriers decreased in individually and pamphlet-trained groups. For women trained in groups, only perceived confidence was found to have increased significantly. There have been studies indicating that educational approaches to breast cancer and BSE play a substantial role in health beliefs (Leight et al., 2000; Thomas et al., 2002; Zhu et al., 2002; Aydin, 2004). In Lu's research, training improved perceived benefits and confidence, decreasing perceived barriers by similar amounts (Lu, 2001). Other studies also suggest that BSE training improves women's confidence in performing BSE and reduces perceived barriers (Youssef and Kawar, 2003; Norman and Brain, 2005).

Six months after training, the number of women performing BSE increased significantly in group- and pamphlet-trained groups. Nevertheless, one year after training, this ratio did not changed for the pamphlet-trained group, while it continued to increase for women trained with the group-training method. As for individually trained women, the number of women performing BSE did not increase significantly after training. In the study by Gölbasi et al. which used group-training methods, 4.3 % of the women performed BSE in the pretraining period,

compared to 51.6 % in the posttraining period (Gölbasi et al., 2007). Similarly, Janda et al. reported that the number of women performing BSE increased significantly one year after training as a result of their study, in which they used a video to provide BSE instruction (Janda et al., 2002). Lu's study also indicated an increase in women's BSE frequency and performance after educational intervention (Lu, 2001).

In our study, to determine the variables affecting women's BSE practice, a logistic regression analysis was used. This analysis indicates that perceived confidence, perceived benefits, and pretraining BSE practice are important variables six months after training. Some studies indicate that women who have high perceived benefits are more likely to perform BSE (Champion, 1990; Hoeman et al., 1996; Ajayi et al., 1999; Stamler et al., 2000; Al-Abadi, 2001; Jarvandi et al., 2002; Bazargan et al., 2004). Other studies also reported that perceived confidence was a significant variable in performing BSE (Champion, 1985; Champion, 1989; Erblich et al., 2000; Lee et al., 2006; Nystrom, 2000; Smiley et al., 2000). Perceived barriers were also reported to be a definite factor in performing BSE (Fung, 1998; Tang et al., 2000;). However, in our study, this was not found to be a significant variable. One year after training, we found health motivation to be an important variable in performing BSEs. Likewise, in Lu's study health motivation was also stated to have an important impact on BSE intentions, as well as BSE frequency and accuracy (Lu, 2001).

One year after the instruction, no difference was found among the groups in terms of BSE performance scores. Although not meaningful, the highest BSE performance scores were obtained by the participants in the group training method. Women who were single and over 41 scored higher in BSE performance.

In the study by Özkahraman et al, 63.6 % of the women were reported to be successful in performing BSEs two weeks after training that relied on pamphlets, models, and posters (Özkahraman et al., 2006). In some other studies, using various training methods, the common finding was that training contributed to BSE performance (Lu, 2001; Zhu et al., 2002).

Regarding limitations, all participants in our study were literate and were living in a designated region, so the results only apply to educated women living in this region. Our study excluded women who had breast cancer or who were living with another woman with breast cancer during the study. The study could be duplicated in various regions divided according to the sociocultural structure of our country.

In conclusion, increasing and improving the rate of utilization of breast cancer early detection methods depends largely on educating and creating awareness in women. The existing literature contains many studies that explore the effectiveness of training on BSE knowledge and practice. The common result of these studies is that, although training methods differed, all types of training promoted increased BSE performance, knowledge, and frequency (Clarke and Savage, 1985; Solomon et al., 1998; Janda et al., 2002; Fish and Wilkinson, 2003; Chan et al., 2007; Oleske et al., 2007).

Education in a subject is a process that should result in increasing knowledge about the topic. Consistent with earlier findings in previous studies, our study, in which three training methods were used, also enabled us to see the effectiveness of instruction on BSE performance and performance. In addition, it provided us with valuable information on how training methods can influence health beliefs related to BSE. For the future, it is hoped that the findings of this study will contribute to the development of additional training activities and materials about breast cancer and early detection methods, so that women can participate more fully in their own breast and general health care.

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