

Educational Study to Increase Breast Cancer Knowledge Level and Scanning Participation among Women Working at a University

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ABSTRACT

Objective: The aim of the study is to increase the participation level of women in screening programs by increasing the level of knowledge about early diagnosis and screening methods for breast cancer (BC).

Materials and Methods: This was a pretest-posttest one group design study held in Eskişehir Osmangazi University, Turkey. The sample consisted of 405 women in all departments of the University. Data were collected using socio-demographic forms and questionnaires. Training about BC was provided for participants. The questionnaire used prior to the training to measure levels of knowledge about BC was re-administered 3 weeks after the training.

Results: The women were most commonly aware of the breast self-examination (68.1%). The ratio of women who had had mammography in the previous year was 11.4%. The BC knowledge level significantly increased after the training ($p=0.001$).

Conclusion: This study determined that the level of knowledge about BC in terms of early detection and screening was low and that the percentage of participation in screening was also low.

Keywords: Education, early diagnosis, breast cancer, breast cancer screening

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Introduction

Breast cancer (BC) is the second most common type of cancer in the world and the primary cancer type among women (25.2%) (1). Analyses using Globocan 2012 data have reported that one out of every 25 women in Turkey will develop BC in some period of their lives (2).

The early detection and treatment of BC has an impact on extending the life span, decreasing mortality and raising the quality of life. The methods primarily recommended for early detection include the Breast Self-Examination (BSE), Clinical Breast Examination (CBE) and mammography (3). Developing screening programs, identifying high risk groups and raising individual awareness are important in promoting the early detection of BC. The lack of knowledge about cancer and methods of early detection diminish awareness and have a negative impact on the participation of women in cancer screening programs (4). Studies conducted in Turkey show that women are inadequately informed about early diagnosis and screening methods for breast cancer. Socio-cultural characteristics also have an important influence on the screening behaviors of women (5-8).

Screening programs for BC in Turkey are conducted by the Cancer Early Diagnosis, Screening and Education Centers (CEDSEC). According to the national BC screening standards, women at the ages of 40-69 years are eligible to undergo mammography and CBE every two years (3). The screening rates have not reached the desired levels in Turkey (20-30% of the target population could be screened). The

Public Health Agency of the Turkish Ministry of Health has stated that one of the three main reasons for this is a lack of awareness (3). It is aimed to increase the participation of women in screening programs by increasing the level of knowledge about early diagnosis and screening methods for breast cancer in this study.

Materials and Methods

Study design and sample

This is a pretest-posttest one group study design conducted at Eskişehir Osmangazi University, Turkey between January and November 2013. The universe of the study comprised a total of 903 women, ages 30 and above (min: 30-max: 59 years), working in 11 academic and administrative departments of university. Women who were at and above 30 years of age and were literate constituted the sample of the study. The women who received BC treatment were not included in this study.

Data collection tool

The first part of the data collection for the study consisted of 36 questions that were formulated to determine the women's sociodemographic characteristics, their risk factors with respect to BC and the status of their use of secondary protection methods; the second part comprised a questionnaire of 20 items designed to measure the level of their knowledge about BC. The questions that determined the level of knowledge were related to the risk factors, symptoms and early diagnosis methods of BC. Questions that were answered correctly were scored as "1", wrong answers were scored "0" (total score min: 0-max: 20).

Breast cancer training program and data collection

The training presentation and booklet related to the risk factors, symptoms and early diagnosis methods of BC were prepared before the training. The training meetings were planned in 11 academic and administrative departments in total. All of the women were visited and invited to attend the training program by the researchers. Out of the 903 women, 405 participated in the training sessions and constituted the study group. The women who did not attend the training program (n=498), were given booklet about BC. Immediately before the start of the training, the women participating in the meeting (n=405) were provided with information about the purpose of the study and their verbal consents were obtained. Later, the data collection tool was distributed and the participants were asked to fill these out. After the completion of the data collection tool, an educational presentation of 25 minutes was given by the same researchers in all the departments. Booklets were distributed after the training. Three weeks after the training, the researchers visited the departments where the women worked to carry out an assessment of the effectiveness of the sessions. At this point, the 20-item questionnaire on BC that had been administered prior to the training to ascertain knowledge levels was re-administered to the 405 women.

Breast cancer screening

The women who were 40 years of age and older were invited to participate in the screening of BC according to National Cancer Screening Standards (144 out of 405). Out of the 144 women, 55 had had mammography scans in the last two years; 32 did not agree to participate in the screening. The contact information (the department they worked in, their phone numbers and email addresses) was obtained from the 57 women who agreed to participate in the screening. Appointments were made at Eskişehir CEDSEC for the women's breast cancer screening process. The women who took part in the screening on the appointment dates were picked up at their work stations

and driven to CEDSEC by a vehicle provided by the Eskişehir Osmangazi University. The screening process was completed with 45 women. The women were admitted to CEDSEC and their CBEs and mammography scans were taken. In addition, the women were registered in CEDSEC's screening program for subsequent routine check-ups. The screening results were obtained via courier service from CEDSEC by the researchers, who informed the women of the results and sent them their reports. Cases from which adequate data could not be obtained or that appeared to be dubious according to the mammography test results were referred to the relevant departments for advanced tests.

Statistical analysis

The data obtained from the study were evaluated using the Statistical Package Program. In the data analysis, descriptive statistics (mean, standard deviation) as well as paired sample t-test were used.

Results

Within the study group, 64.4% of the women were aged between 30-39 years (n=261) and 35.6% of them were aged between 40-59

Table 1. Characteristics of the women's knowledge and behavior concerning breast cancer early detection and screening methods

	n	%
Known early detection and screening methods for breast cancer*		
Breast self-exam	276	68.1
Clinical examination	188	46.4
Breast ultrasound	213	52.6
Mammography	252	62.2
Regularly performing a breast self-exam		
Performing it once a month	41	10.1
Performing it irregularly	210	51.9
Not performing it	154	38.0
Times mammography were taken		
In the last 1 year	46	11.4
Every 1-2 years	28	6.9
Every 3-4 years	27	6.7
In more than 5 years	14	3.5
Reasons for women's non-use of detection and screening methods*		
Husband/family does not permit it	1	0.2
Embarrassed	15	3.7
Fear of examination and mammography	22	5.4
Not knowing where to have it done	4	1.0
Not knowing that it should be done	41	10.1
Fear of breast cancer	5	1.2
Neglect	229	56.5
*More than one responses provided		

Table 2. Comparison of women's mean knowledge level scores regarding breast cancer before and after the training program

	N	$\bar{X} \pm SD$	t	p
Pretest	405	8.69±0.283	-3.503	0.001
Posttest	405	10.01±0.273		

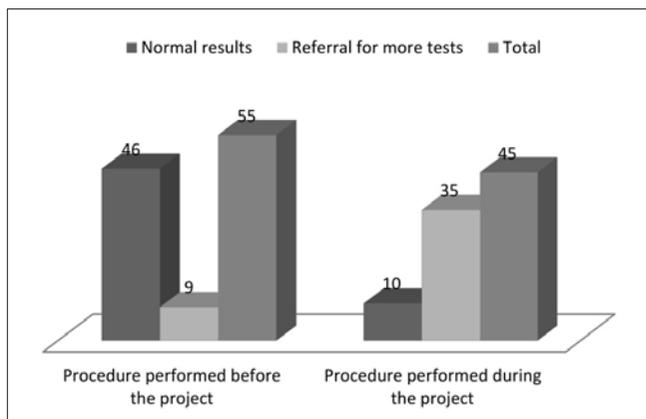


Figure 1. Women's screening results

years (n=144). More than half of the women were married (66.4%) and a large majority (75%) were university graduates. While 50.6% of the women worked as civil servants, 23.5% were academicians. It was found that 7.4% were in the postmenopausal period and 1.2% of the women in menopause were receiving hormone replacement therapy (HRT). Within the whole group, 361 (89.1%) women had no family history of BC (Table 1).

The women were most commonly aware of the BSE method of early detection and screening (68.1%). Although knowledge of this method scored higher than the other methods, the women who regularly used this method represented only 10.1% of the group. The women who had had mammography in the previous year represented 11.4% (Table 1).

A highly significant relationship was found in the statistical analysis of the study group's scores between the women's knowledge levels before the training on BC (pretest) and their knowledge after the training (posttest) (p=0.001) (Table 2).

Women's screening results

According to the mammography test results, CEDSEC assessed the results of 10 out of the 45 women as normal. Thirty-five women were referred to the General Surgery Breast Diseases Clinic for a breast ultrasound and other studies. One individual out of these referred cases was recommended a biopsy. Out of the 55 women who did not participate in the screening but had participated in a screening over the last two years, the screening results of 46 were normal, while 9 were referred for further studies, and 1 received an in situ diagnosis of carcinoma and was started on treatment (Figure 1).

Discussion and Conclusion

It is important to know early diagnosis methods for increasing the participation rate in breast cancer screening programs. In this study, it was aimed to increase the knowledge and participation levels of

women in the screening by means of training on BC. Knowledge of early detection and screening methods and the appropriate use of these techniques are of great importance for early diagnosis of BC since this increases the probability of a successful treatment, raises patients' quality of life, and reduces mortality rates.

This study examined known early detection and screening methods and found that the techniques most widely known were consistent with the reports of other studies in Turkey (7, 8), namely BSE (68.1%) and in second place, mammography (62.2%) (Table 1). In a study that looked into the levels of knowledge about early detection and screening tests for BC among women aged 40 and over in Iran, it was reported that 20% knew about BSE, 15% knew about CBE and 10% about mammography (9). In another study conducted in Nigeria, 29% of the women were reported to be aware of the BSE and the BC detection methods (10). When these studies that were carried out in Iran and Nigeria are compared with the results of the present study, it can be seen that the rates reported are low. In Kwok & Fonk's study (2014) about the use of BC screening methods by women in Hong Kong, it was shown that 70%-90% of the women had heard about BSE, CBE and mammography. The knowledge levels of women about screening methods were higher than in our study (11).

The implementation of early detection and screening methods are as important in cancer as the awareness of these methods. Since medical check-ups are not adequately pursued and the BC mortality rate is high due to late detection and treatment in Turkey, it has been pointed out that the practice of BSE is of particular importance in the early diagnosis of BC, as it is in other low-medium income countries, the group of which Turkey is a member (12). The ratio of women in the study group that practiced BSEs was 68%, and only 10.1% among these practiced it regularly, a fairly low rate (Table 1). In community-based studies carried out in Turkey, it is reported that the rate of women practicing BSEs range from 23.7%-84.1% depending upon the characteristics of their particular regions and those they share with the women in the study group. The rate of women practicing BSEs regularly is even lower (9.6%-42.6%) (8, 13).

While the rate of women in the study group undergoing mammography is 28.5%, the women in this group that had a mammography in the previous year represent 11.4% (Table 1). This rate, when compared with the rate of practicing BSE, is considerably low. Studies in Turkey have generally reported low rates of women undergoing mammography, similar to the present study (5.1%-42.7%) (6, 14). According to the European Health Interview Survey (EHIS) conducted by the European Commission EUROSTAT in 17 European countries, the rate of women in the age range of 50-69 who have their mammography scans taken varies between 13.5%-92.9%; Turkey's mammography rate is 28.1% (15).

The main reasons that women cited for not making use of detection and screening methods was neglect, lack of knowledge about the need for the procedure rating second, and lastly, the fear of being examined and undergoing a mammography scan (Table 1). Our results are consistent with the literature in Turkey (5, 14). After reviewing 17 studies on the subject, Alexandraki and Mooradian (2010) have reported the reasons why women do not have mammography done as follows: pain, embarrassment, being financially disadvantaged and not having health insurance, a lack of knowledge, lack of trust in healthcare professionals and hospitals, and language problems (16).

A high level of knowledge about BC has a positive impact on the screening behavior. In order to raise women's awareness about early detection and screening methods in BC, it is recommended that programs of education be organized for this purpose (8, 17). The level of knowledge of women was low before the training. The present study showed that intervention via training was effective in increasing women's knowledge levels about BC ($p=.001$). Working with 40-to-49-year-old women in a study conducted in Alabama, Bryan et al. (18) provided the women with an educational program designed to extend their information and change their attitudes about BC screening methods. After the program, the knowledge levels of the women about BC screening methods were reported to increase when compared with the scores prior to the training as in the present study, and it was found that their attitudes toward screening methods had taken a positive turn (18). Studies in Turkey have also reported that women's knowledge levels about BC increased after an educational program in a similar way to our research (7, 18, 19).

The fact that training was given to women and they were also taken to the screening sessions makes this study different from many other studies. However, even though the researchers had picked the women up and arranged their appointments for them, the women's level of participation in the screening sessions was not at the desired rate.

In this study that was conducted with women working at a university, it was observed that the levels of knowledge and awareness about early detection and screening for BC were low. The educational program that was organized raised their knowledge levels. To raise these levels to the desired extent and to create a change in behavior, however, it is believed that repeated educational programs must be organized. Although the women in the study group worked at a university that operated in coordination with a research and application hospital that provided training, their rates of benefiting from early detection methods such as mammography were low. The reasons for this should be explored with qualitative studies that will review the issue in detail and suggest a solution.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Eskisehir Osmangazi University Faculty of Medicine Ethics Committee (10.04.2011/0212011).

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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References

1. Cancer I.A.F.R.O. World cancer report 2014. Geneva: WHO.
2. Eser S. Life time cumulative risks for cancers in Turkey. *Turk J Public Health*. 2015; 13: 87-96. [CrossRef]
3. Turkey Cancer Control Plan. Turkey Cancer Control Plan 2013-2018. Ankara: Ministry of Health; 2015.
4. Sahin ZA, Ozdemir KF. Assessment of the Knowledge, Beliefs and Attitudes of Women Living in Kars Regarding the Practice of Breast Self-Examination. *J Med Res* 2015; 13: 54-61.
5. Acikgoz A, Cehreli R, Ellidokuz H. Women's Knowledge And Attitude About Cancer And The Behaviour For Early Diagnosis Procedures. *DEU Medicine Faculty Journal* 2011; 25: 145-154.
6. Dündar PE, Özmen D, Öztürk B, Haspolat G, Akyıldız F, Çoban S, Çakiroğlu G. The knowledge and attitudes of breast self-examination and mammography in a group of women in a rural area in western Turkey. *BMC Cancer* 2006; 6: 43. (PMID: 16504119) [CrossRef]
7. Koc Z, Sağlam Z. Determination of the knowledge and the practice of female patients about breast cancer, preventive measures and breast self-examination and effectiveness of education. *Eur J Breast Health* 2009; 5: 25-33.
8. Kocycigit O, Erel S, Kısmet K, Kılıcoğlu B, Sabuncuoğlu M, Akkus M. Knowledge About Breast Cancer, Mammography And Breast Self Examination In Women Who Applied To Outpatient Clinics: A Study Conducted In The City Center. *Nobel Med* 2011; 7: 19-25.
9. Parsa P, Mirmohamadi A. Breast cancer screening behaviors among women above 40 years in Hamadan, Iran. *Maturitas* 2015; 81: 232-233. [CrossRef]
10. Isara A, Ojedokun C. Knowledge of breast cancer and practice of breast self examination among female senior secondary school students in Abuja, Nigeria. *J Prev Med Hyg* 2011; 52: 186-190.
11. Kwok C, Fong DY. Breast cancer screening practices among Hong Kong Chinese women. *Cancer Nurs* 2014; 37: 59-65. [CrossRef]
12. Akyolcu N, Uğraş GA. Breast Self-Examination: How Important Is It In Early Diagnosis? *J Breast Health* 2011; 7: 10-12.
13. Acikgoz A, Ergör G. Factors Affecting Breast Cancer Risk Perception In Women and Comparison of Risk Levels To The Gail Model. *Eur J Breast Health* 2013; 9: 156-162. [CrossRef]
14. Sadikoglu G, Ozcakar A, Dogan F, Gokgoz S, Bilgel N. Mammography utilization among Turkish women. *Asian Pac J Cancer Prev* 2010; 11: 377-381. (PMID: 20843119)
15. Eurostat. Eurostat Breast Cancer Screening Statistics Available from: http://ec.europa.eu/eurostat/statisticsexplained/index.php/Breast_cancer_screening_statistics#cite_ref-4. Access date: 27.02.2015.
16. Alexandraki I, Mooradian AD. Barriers related to mammography use for breast cancer screening among minority women. *J Natl Med Assoc* 2010; 102: 206-218. (PMID: 20355350) [CrossRef]
17. Mahfouz AA, Hassanein MH, Nahar S, Farheen A, Gaballah II, Mohamed A, Rabie FM, Aftab R. Breast Cancer Knowledge and Related Behaviors among Women in Abha City, Southwestern Saudi Arabia. *J Cancer Educ* 2013; 8: 516-520. (PMID: 23797712) [CrossRef]
18. Bryan TJ, Estrada CA, Castiglioni A, Snyder ED. Impact of an educational intervention on provider knowledge, attitudes, and comfort level regarding counseling women ages 40-49 about breast cancer screening. *J Multidiscip Healthc* 2015; 8: 209. [CrossRef]
19. Yılmaz M, Sayın Y, & Cengiz HÖ. The Effects of Training on Knowledge and Beliefs about Breast Cancer and Early Diagnosis Methods among of Women. *Eur J Breast Health* 2017; 13.