

RESEARCH ARTICLE

Evaluation of Breast Self-Examination (BSE) Application in First and Second Degree Relatives of Patients with Breast Cancer

Hatice Bebis¹, Serife Zehra Altunkurek¹, Cengizhan Acikel², Ilker Akar³, Serife Zehra Altunkurek^{1*}

Abstract

Background: The aim of this study was to determine beliefs concerning breast self-examination in first- and second-degree relatives of patients with breast cancer and evaluate their breast self-examination (BSE) application. **Materials and Methods:** A survey study was conducted in an oncology polyclinic and general surgery clinic of a hospital in Ankara, the capital of Turkey with a sample of 140 women. **Results:** It was determined that 60.7% of the participants had conducted BSE and 48.1% had undergone a clinical breast examination. Perceived self-efficacy of the women who performed BSE were significantly higher compared with women who did not practice BSE ($p < 0.001$). Furthermore, perceived barriers were lower among those who had performed BSE ($p < 0.001$). Logistic regression analysis indicated that women who perceived higher self-efficacy (OR: 1.119, 95% CI: 1.056-1.185, $p < 0.001$) and had regular CBE (OR: 8.250, 95% CI: 3.140-21.884, $p < 0.001$) and educational status (OR: 5.287, 95% CI: 1.480-18.880, $p < 0.01$) were more likely to perform BSE. **Conclusions:** Findings from this study indicated that perceived barriers, perceived self-efficacy, and educational status could be predictors of BSE behavior among the first- and second-degree relatives of patients with breast cancer. Therefore, BSE training programs that emphasize self-efficacy and address perceived barriers are recommended.

Keywords: Breast cancer - breast self-examination - health belief - relatives

Asian Pac J Cancer Prev, 14 (8), 4925-4930

Introduction

Breast cancer is the most frequent type of cancer among women worldwide, and it accounts for 23% of cancer deaths in both developed and developing countries. Approximately 1.38 million women worldwide are diagnosed with breast cancer every year, and is the associated mortality accounts for 14% (458,400) of all deaths from cancer. The incidence of breast cancer among Turkish women was found to be 10.6 out of 100,000, and the mortality rate was found to be 6.4 out of 100,000 (Globacan, 2008).

Early diagnosis of breast cancer is known to be vital to the treatment of the disease and the reduction in cancer deaths (Yi and Park, 2012). Turkish Association for Research and Control on Cancer (2010) recommend breast self examination (BSE), clinical breast examination and mammography to reduce breast-cancer-related deaths and diagnoses. Mammography is regarded as the best method for the early diagnosis of breast cancer; however, it also may fail to diagnose a tumor approximately 10% of the time, or it may give false positives (Norman and Brain, 2005). There is no study that definitively shows the

efficacy of BSE in reducing deaths from breast cancer. The efficacy of BSE is usually tested with the help of mammography (Green and Taplin, 2003). Also, in terms of feasibility, the mammography screening method is inaccessible for many countries for financial reasons. In contrast, BSE is a simple, low-priced, secure, effective, appropriate, and feasible diagnostic procedure for developing countries like Turkey when compared with mammography and clinical breast examination (Norman and Brain, 2005; Nakhichevan and Secginli, 2007).

Thirty percent of women with breast cancer have diagnosed their lumps by themselves through BSE (Park et al., 2007). In their study, Manascievez (2003), Thomas et al. (2002) and Smith (2003) have reported that 81.9% of women have diagnosed their own breast tumor by performing BSE (Norman and Brain, 2005). As a national standard in Turkey, every woman at the age of 20 or above is advised to perform BSE once a month. Additionally, CBE is recommended once every three years for women aged between 20 and 39 and once a year for women at the age of 40 or above, whereas mammography is advised once every two years for women aged between 50 and 69 (National Cancer Institute, 2010). BSE plays

¹Public Health Nursing, Gulhane Military Medicine Academy Nursing School, Gulhane Military Medicine Academy, ²Department of Public Health, ³Department of General Surgery, Gulhane Military Medicine School, Ankara, Turkey *For correspondence: zehraaltunkurek@gmail.com

a major role in early diagnosis and screening, especially in countries like Korea and Turkey, where the incidence of breast cancer is high (Yi and Park, 2012). Although BSE is recommended for early diagnosis, the regular execution of BSE every month in developing countries like Korea and Turkey is quite low (Gasalberti, 2002; Lechner et al., 2004; Nakhichevan and Secginli, 2007; Yi and Park, 2012). The risk of developing breast cancer increases due to factors such as sex, lifestyle and age. One of the most important factors that increase the risk of developing breast cancer among women is family history (Arevian et al., 2011). For first-degree relatives of breast cancer patients, the risk of breast cancer increases twice or three times when compared with women without a family history of breast cancer (Norman and Brain, 2005; Gil et al., 2009). Fifteen to twenty percent of the women diagnosed with breast cancer have a family history of that disease (Mulsow et al., 2009). In order to raise awareness, especially in women whose relatives are diagnosed with breast cancer, it is advised for women in England to have a regular breast examination every month and to report any abnormalities found through observation. Even if they have a family history of breast cancer, most women perform BSE irregularly or never (Norman and Brain, 2005). No report or study concerning cases of BSE execution of women with breast cancer in their family history has been found in the literature. There are many reasons for the execution and non-execution of BSE. Some of these reasons are associated with socio-demographic qualities, the presentation of health services, and individual's health beliefs about BSE and breast cancer (Champion, 1999; Gasalberti, 2002; Petro-Nustas and Mikhail, 2002; Nakhichevan and Secginli, 2007). The health belief model is a good means of determining the factors influencing BSE performance for women with a family history of cancer (Petro-Nustas and Mikhail, 2002; Norman and Brain, 2005; Azaiza and Cohen, 2006).

The health belief model was used as a theoretical framework in this study. In the 1950s, U.S. public health researchers began to develop various models to enhance the efficacy of health education programs (Rosenstock, 1966). HBM was founded to quantify the expectation of sanitary behaviors, the individual importance of avoiding disease and whether a certain behavior can lead to disease prevention and health improvement (Petro-Nustas and Mikhail, 2002).

In the 1950s, HBM was formed for the first time by Hochbaum, Leventhal, Kegeles, and Rosenstock, including concepts such as *i*) sensitivity; *ii*) solemnity; *iii*) profit; and *iv*) obstacles (Rosenstock, 1966). Later, two concepts, health motivation and self-efficacy, were added to the original HBM. According to HBM, women will be more motivated to maintain their health and more likely to perform BSE if they are sensitive to the fact that they may develop breast cancer, see breast cancer as a serious disease and believe that BSE is effective in detecting the disease.

Studies have indicated that the adaptation of HBM to breast cancer and BSE execution are influenced by age (Petro-Nustas and Mikhail, 2002; Siahpush and Singh, 2002), income level, health insurance (Secginli and

Nahcivan, 2006), education level (Yılmaz et al., 2010), personal or family history with breast cancer (Petro-Nustas and Mikhail, 2002; Gil et al., 2003; Cohen, 2006), knowledge about BSE (Nakhichevan and Secginli, 2007; Avci, 2008), and beliefs about BSE (Azaiza and Cohen, 2006). One study found that women with a family history of breast cancer and those who perform BSE regularly are more anxious and worried about breast cancer than those who do not have a family history of breast cancer. That is, their health beliefs are more sensitive to the disease, and their perception of the seriousness of the disease is high (Brain et al., 1999).

This study was conducted to determine the influence of the health beliefs of women who have a family history of breast cancer on their performance of BSE, as we have not seen any study in Turkey concerning the impact of the health beliefs of the relatives of patients with breast cancer on BSE performance. By observing the impact of health beliefs on BSE performance, we aimed to determine the best method for the early diagnosis of the disease to protect women in this high-risk group from breast cancer.

Materials and Methods

Design

This study was conducted as a descriptive study. The population of the study consisted of the relatives of patients who were diagnosed with breast cancer and applied for the oncology polyclinic in a hospital.

Ethical consideration

The study has been approved by the medical ethical committee of the Gulhane Military Medicine Academy. Full medical ethical approval has been obtained in January 2012.

Sample/participants

The study was planned to reach 140 patient relatives. It was stipulated that the participants who volunteer should have no disadvantage in communication, be able to speak and write Turkish, have no history with breast cancer, and be first- or second-degree relatives of the patient. The patient relatives were asked questions in face-to-face interviews or over the telephone. The average interview lasted for 15 minutes per person.

Data collection and instruments

This research aims to identify the health beliefs of patients with breast cancer deriving from the BSE and the beliefs of the patient relatives who have applied to the GATA Oncology Polyclinics between the dates of January – May 2012.

The data have been collected by using the questionnaires below.

Personal information sheet

From the literature, the Health Belief Model Scale and the sheet including socio-demography and other variables prepared by the researchers were used. The descriptive sheet includes determinative questions such as socio-demographic qualities (age, education level, financial

condition, marital status, job status, health insurance, degree of relation, income level), knowledge and application concerning BSE, reasons for not performing BSE, and reasons for undergoing (or not undergoing) clinical breast examination.

Procedure

Protocols were approved by the hospital director. Two research assistants were trained to collect data. Verbal consent to participate was obtained from participants before administering questionnaires. Respondents were assured that their responses were private and confidential and informed that the data would be used strictly for scientific purposes. Self-administered questionnaires were distributed by the researchers, and participants were asked during their relatives at the hospitals to read all of the statements carefully and respond truthfully. Data collection averaged 15-20 minutes per participant.

Champion health belief model scale

The Health Belief Model Scale concerning breast cancer and screening, grounded in the health belief model related to the early diagnosis of breast cancer, was evaluated by revising the Champion Health Belief Model Scale (Champion, 1993). In Turkey, validity and credibility studies were conducted by Gozum and Aydın (2004). The Turkish version consists of six sections and 36 questions: perception of sensitivity (3 questions), perception of seriousness (6 questions), health motivation (5 questions), BSE effectiveness (4 questions), BSE disability (8 questions), and perception of self-efficacy (10 questions). According to the scale, 1 point is given for "strongly disagree", 2 points for "disagree", 3 points for "Not sure", and 4 points for "Agree" and 5 points for "strongly agree". Higher-rated responses to the questions in each section indicated higher scores on the related dimensions of the health belief model.

The question sheet was applied after 10 patient relatives that are out of the research were performed pre-execution and necessary corrections.

Statistics

Frequencies and percentages for categorical variables and median (minimum-maximum) values for continuous variables were used as descriptive statistics. A normality analysis of the distribution of variables was performed by the One Sample Kolmogorov Smirnov test. The coherence of constant variances for normal range was analyzed by Kolmogorov Smirnov test as one example. Chi square tests were used to compare categorical variables between groups, and Mann Whitney U tests were used for continuous variables. In the multivariate analysis, such as that performed to determine factors that affect BSE application, a backward elimination logistic regression model was used. A p value<0.05 was considered statistically significant.

Results

Seventy percent of the participants of the study have a history of breast cancer among their first-degree relatives,

while the remaining 30% have a history of breast cancer among their second-degree relatives. There were no differences between the two groups in the six-dimension point averages for socio-demographic features, BSE application or health belief ($p>0.05$). The average age of the 140 women forming the sample was determined to be 35.24 ± 12.3 (min=18, max=70). In total, 49.3% of the participants were married, 42.1% were single and 8.5% were widowed or divorced. Of the participants, 76.4% have eight years or more of education, 33.6% (n=40) of which do not perform BSE regularly. Sixty-eight percent of the subjects with less than 8 years of education do not use BSE. There is a statistically significant relationship between BSE performance and education level. Ninety percent of the participants have social security, and 54.3% of them have regular employment. Forty-five percent of the subjects have an equal income-spending profile, and 35% of earn more than they spend. All of the participants were Muslim and there were no different ethnic groups in the sample.

Comparison of performers and nonperformers

Overall, 42.9% of the participants consider BSE as the

Table 1. Assessment of Possible Variables that Effect Performing Breast Self-Examination

	Nonperformers (N=55)		Performers (N=85)		X ²	p
	N	%	N	%		
Age (years)						
18-39	34	37	58	63		
≥40	21	43.8	27	56.3	0.61	0.435
Marital status						
Married	24	34.8	45	65.2		
single	24	40.7	35	59.3	2.46	0.292
Widowed or divorced	7	58.3	5	41.7		
Educational status					9.137	0.003
0-8	15	68.2	7	31.8		
8+	40	33.9	78	66.1		
Employment status					0.985	0.321
Working	27	35.5	49	64.5		
Not working	28	43.8	36	56.3		
Income					1.685	0.321
Very bad or bad	14	50	14	50		
Middle	23	36.5	40	63.5		
Very good or good	18	36.7	31	63.3		
Health insurance					0.083	0.773
Uninsured	5	35.7	9	64.3		
State or private	50	39.7	76	60.3		
Relationship to a breast cancer patient					0.036	0.85
First degree	38	69.1	60	70.6		
Second degree	17	30.9	25	29.4		
Regular CBE					20.884	0.001
Yes	20	52.6	52	61.2		
No	43	78.2	33	38.8		
Performs BSE regularly					1.486	0.223
Yes	20	52.6	44	64.7		
No	18	47.4	24	35.3		
Making the right time					0.247	0.62
Yes	4	21.1	15	78.9		
No	15	26.8	41	73.2		
Correct technical application					5.764	0.16
Yes	20	27.4	53	72.6		
No	5	71.4	2	28.6		

Table 2. Subscale Scores for Health Belief Model Scales Involving BSE of Breast Cancer Patients' First- and Second-Degree Relatives

Beliefs	Items	Range of scores	Cronbach's alpha	Mean	SD	Mean of item	SD
Susceptibility	3	3-15	0.7	8.85	2.52	2.95	0.84
Seriousness	6	6-30	0.78	19.19	5.92	3.15	0.81
Health promotion	5	5-25	0.89	19.39	4.66	3.87	0.93
Benefits	4	4-20	0.85	16	3.69	3.83	0.92
Barriers	8	8-40	0.83	16	6.12	2.18	0.76
Self-efficacy	10	10-46	0.92	32	8.86	3.18	0.88

Table 3. Comparison of Health Beliefs between Breast Self-Examination Nonperformers and Performers

Variable	Nonperformers (N=55)		Performers (N=85)		p
	X	SD	X	SD	
Susceptibility	9.04	2.71	8.73	2.39	0.61
Seriousness	18.96	5.42	19.34	6.26	0.97
Health promotion	18.87	4.22	19.72	4.91	0.14
Benefits	14.36	4.09	15.96	3.29	0.24
Barriers	19.87	6.5	15.95	5.35	0.001
Self-efficacy	27.21	8.48	34.84	7.77	0.001

Table 4. Terminal Logistic Regression Analysis Model of Variables for Performing Breast Self-Examination

Variable	β	SE	Wald	p	OR	95% CI
Regular CBE	2.115	0.495	18.238	0.001	8.25	3.140-21.884
Self-efficacy	0.112	0.029	14.423	0.001	1.119	1.056-1.185
Educational status	1.665	0.649	6.573	0.01	5.287	1.480-18.880

most effective methods in the early diagnosis of breast cancer. Other methods were perceived as follows: 32% state mammography, 26.4% state clinical examination, and 19.3% state breast ultrasound as the best method for the early diagnosis of breast cancer.

It was ascertained that 60.7% of the participants perform BSE, while 39.3% of them do not. Of the BSE performers, 64.7% report knowing the proper BSE frequency, and 78.9% report knowing the proper BSE time, but no statistically significant link was found between BSE knowledge and BSE application ($p > 0.05$). Of the nonperformer participants, 56.3% state they do not know how to perform BSE, and 27.4% of them state they regard BSE as unnecessary as they have no complaints. Additionally, 16.3% stress other reasons for non-performance, such as that they cannot recognize by themselves if a mass requires greater attention, do not believe they perform a BSE properly, do not need BSE as they get regular mammography or are afraid of a finding a lump/mass.

When BSE performance and SIM sub-dimensions were evaluated, it was found that there is a statistically significant difference between BSE performers and nonperformers in the complication feeling sub-dimension and self-effectiveness sub-dimension. It was found that 61.2% of the BSE performer participants have also had CBE. It was determined that there is a statistically significant relationship between BSE performance and having undergone CBE ($p < 0.05$). Also, 48.1% of the participants who had had CBE did so at the suggestion of health personnel (such as a doctor or nurse).

Health beliefs

Health belief scale six sub-dimension point average and Cronbach alpha values are summarized in Table 2. Health motivation, perception of benefits of BSE performance and self-effectiveness perception points were found to be high according to the scale sub-dimension point average of the women. The data are summarized as follows: susceptibility: point average of BSE performing and sensitivity perception, 2.95 ± 0.84 ; importance perception point average, 3.15 ± 0.81 ; health motivation perception point average, 3.87 ± 0.93 ; benefit perception of BSE performing point average, 3.83 ± 0.92 ; barriers: hurdle perception of BSE point average, 2.18 ± 0.76 ; and self-effectiveness perception of BSE point average, 3.18 ± 0.88 .

The relationship between the people performing BSE using the correct technique and those not performing the correct technique in health belief sub-dimensions was examined with the Mann-Whitney U test. A statistical meaningful difference was found between the health motivation sub-dimension point average ($U = 85.500$, $p = 0.003$) of the health belief scales, the benefit sub-dimension point average ($U = 67.500$, $p = 0.001$), and the self-efficacy sub-dimension point average ($U = 47.000$, $p = 0.001$) scores of people who properly performed BSE. However, there was no statistically significant difference between the sensitivity perception sub-dimension point averages, importance perception sub-dimension point averages and BSE complication perception sub-dimension point averages.

Logistic regression analysis was conducted to determine the factors affecting the application of BSE. It was found that there is a higher probability of performing BSE and a statistically significant difference in self-effectiveness in subjects whose sub-dimension point average ($OR = 1.119$, $p = 0.001$) is high, whose education level is secondary school and above ($OR = 5.287$, $p = 0.010$), and who have a family history of breast cancer.

Discussion

This study supports the thesis that BSE affects the treatment of breast cancer, prognosis and rates of survival. This study was also conducted to determine the effects of some socio-demographic features and health belief on BSE performance in Turkish society among women who have a family history of breast cancer.

Seventy percent of the participants have first-degree relatives who have breast cancer, and 30% of the participants have second-degree relatives who have breast cancer. Many studies have also been conducted among the sisters, mothers and daughters of the women who have breast cancer.

These groups of women, because they have a higher risk of breast cancer, should be given information and support to prolong their lives with early diagnosis.

In a cohort study conducted in Spain in which (Gil et al., 2003) and her colleagues aimed to evaluate the risk perception among women who have a family history of breast cancer, it was observed that 81% of the participants perform BSE. Chalmers (2003) reported in his study that

94.4% of the participants perform BSE. In Cohen's (2006) study, in which he talked both to women who do and do not have breast cancer in their families, it was found that 60.7% of the participants with family histories of cancer perform BSE.

Our study showed that more than half of the participants perform BSE. It has been stated that BSE performance rates are higher when a patient has a family history of breast cancer (Norman and Brain, 2005). It is common to have a relative with breast cancer, and it is crucial that relatives of the patient obtain knowledge about breast cancer and early diagnosis methods and that they use these methods routinely. Also, in the course of our study, participants received information from health personnel about breast cancer and were guided to CBE. Yet, some studies have reported that women whose breast cancer risks are high do not perform BSE sufficiently frequently and that having a relative with the disease does not affect the frequency of BSE performance.

In our study, it was observed that there is no relationship between BSE performance and social security, marital status, age, or having a regular job. In the literature, other studies have shown that, contrary to our findings, there is a relationship between these factors and BSE performance. In our study, a relationship was revealed between BSE performance and education level, having a family history of breast cancer, and having knowledge about BSE. In other studies, it was observed that as a woman's education level increases her self-confidence, self-respect, and awareness of her own body and protective health services increase in parallel.

According to both our results and those of other studies, it was seen that as women's education level increases, access to information about breast cancer protection and performance of early diagnosis methods like BSE increase, too. In our study, BSE performance was more common in women who have 8 or more years of education. The findings that higher levels of education and a family history of breast cancer lead to higher rates of BSE performance are supported by those of Chalmers and Petro-Nustus and Mikhail's studies (Petro-Nustus and Mikhail, 2002; Chalmers, 2003). However, there are also studies that show there is no relation between BSE performance and education level.

In the literature, the relationship between BSE performance and CBE performance has been examined in a few studies. In one study, BSE and CBE performance was found to be high among women in academia compared to housewives. CBE utilization and education level were found to be related in a study in Nigeria. In Azaiza and Cohen's (2006) studies, in which they examined breast cancer scanning methods and health beliefs of a group of Israeli women, it was revealed that Christian women use more CBE and mammography than Muslim women, and that Muslim women feel ashamed and uncomfortable, which hinders CBE application.

In our study, all of the participants were Muslims, and more of them claimed to have undergone CBE as opposed to performing BSE. In our study, a statistically significant relationship was found between CBE utilization and BSE performance. It was suggested that BSE performance

increased the awareness of its performers regarding breast cancer scanning methods and affected them positively by leading them to use CBE and other scanning methods.

The relationship between Health Belief Model Scale (HBMS) sub-dimension point averages and BSE performance was examined. BSE complication perception was found to be low and BSE self-effectiveness perception was found to be high among women performing BSE. Tavafian and his colleagues' studies reported similar results to ours, showing that BSE complication perception was found to be low and BSE self-effectiveness perception was found to be high among women performing BSE.

Seriousness and susceptibility perceptions were related to the threat perception of the disease. It was hypothesized that woman who have high scores in these sub-dimensions would demonstrate increased protective health behaviors and perform BSE more frequently. There was no statistically significant relationship between BSE performance and the average score of importance or sensitivity perception in our study. The reason for this situation was thought to be the fatalistic approach of Turkish Muslim women. In other words, the subjects believe that whether they perform BSE or not, there will be no change. The fact that the perceptions of seriousness and susceptibility were found to be lower compared with other studies can be interpreted to mean that the women who are at high risk of breast cancer need to develop greater awareness about the disease. It is expected that the perception of complication should be low for individuals to show positive behaviors for early diagnosis. The performance of positive behavior will increase with low BSE complication perception. In a study by Canbulat, BSE complication perception was found to be lower among highly educated groups compared to other groups (Canbulat, 2008). In our study, the lower complication perception can be explained by the education levels of the women and the region in which the study was conducted. The study was conducted in a hospital whose local socioeconomic level is high and most of the women in the region had high education levels.

In this study, BSE self-effectiveness perception represents the individuals' opinion of their ability to perform a certain activity with success. High BSE self-effectiveness perception will probably lead to an increase in the performance of breast cancer scanning behavior and patients' breast cancer awareness. One needs to have sufficient knowledge of this subject to perform BSE properly. In our study, BSE self-effectiveness perception was found to be high among CBE-performing women who have eight or more years of education.

Health motivation represents the patients' enthusiasm for manifesting their thoughts into behaviors. HBMS also states that the higher the health motivation level is, the more the demanded behavior is performed. No relationship was found between health motivation perception and BSE performance in our study ($p > 0.05$). Nakhichevan and Secginli (2007) also did not find a meaningful relationship between health motivation and BSE performance in their study. However, contrary to our study, Graham et al. (2002) determined that there is a relationship between BSE performance frequency and health motivation.

In this study, although many people were reached, only 140 people replied to us and were accepted to participate. Also, the study was conducted in one hospital in Ankara. Because of this, our study could not be widespread in Turkey, and not all of the women who have a first-degree relative with breast cancer were reached. In future studies, there is a need for a wide sample and control group and for studies to be conducted in different regions.

Another limitation resulted from the scarcity of literature in Turkey and all over the world describing the relationship between health beliefs and BSE performance in first- and second-degree relatives of breast cancer patients. Therefore, our findings have some limitations in comparing BSE performance behaviors and health beliefs.

In conclusions, our data suggest that women who have a close relative with breast cancer do not perform BSE any more frequently than those who do not have a family history of breast cancer. Also, the ones who perform BSE do it intentionally, and nonperformers have inadequate knowledge about BSE and do not have sufficient education about it. It was also found that the women in our study, who have a three times higher breast cancer risk compared to the general population, perform CBE in addition to BSE. Additionally, the fact that HBM susceptibility and seriousness perception points were found to be low with regard to breast cancer suggested that the subjects are influenced by fatalistic thinking. Education level was found to be directly proportional to the frequency of BSE performance. Women whose education level is low and who have a family history of breast cancer are at high risk of not performing BSE.

Nurses should evaluate BSE performance by prioritizing these risk groups of women in protective and preventive health services and support information transfer. This approach would help encourage BSE performance throughout society.

Acknowledgements

We thank Hüseyin Salman for help during our study.

References

Arevian M, Noureddine S, Abboud S (2011). Belief related to breast cancer and breast cancer screening among Lebanese Armenian women. *Health Care Women Int*, **32**, 972-89.

Avcı AI (2008). Factors associated with breast self-examination practices and beliefs in female workers at a Muslim community. *Eur J Oncol Nurs*, **12**, 127-33.

Aydın I (2004). Knowledge and practices about breast self examination of university students. *Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi*, **7**, 26-34.

Azaiza F, Cohen M (2006). Health belief and rates of breast cancer screening among Arab women. *J Womens Health*, **15**, 520-30.

Brain K, Norman P, Gray J, Mansel R (1999). Anxiety and adherence to breast self-examination in women with a family history of breast cancer. *Psychosom Med*, **61**, 181-7.

Canbulat N, Uzun Ö (2008). Health beliefs and breast cancer screening behaviours among female workers in Turkey. *Eur J Oncol Nurs*, **12**, 148-56.

Chalmers K, Marles S, Tataryn D, Scott-Findlay S, Serfas K (2003). Reports of information and support needs of

daughters and sisters of women with breast cancer. *Eur J Cancer Care*, **12**, 81-90.

Champion VL (1993). Instruent refinement for breast cancer screening behaviours. *Nurs Res*, **42**, 139-43.

Champion VL (1999). Revised susceptibility, benefits, and barriers scale for mammography screening. *Res Nurs Health*, **22**, 341-8.

Cohen M (2006). Breast cancer early detection, health beliefs, and cancer worries in randomly selected women with and without a family history of breast cancer. *Psychooncology*, **15**, 873-83.

Ferlay J, Shin HR, Bray F, et al (2010). GLOBOCAN 2008 v2.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 10 [Internet]. Lyon, France: International Agency for Research on Cancer. .

Gasalberti D (2002). Early detection of breast cancer by self-examination: the influence of perceived barriers and health conception. *Oncol Nurs Forum*, **29**, 1341-7.

Gil F, Mendez I, Sirgo A, et al (2003). Perception of breast cancer risk and surveillance behaviours of women with family history of breast cancer: a brief report on a Spanish cohort. *Psychooncology*, **12**, 821-7.

Graham ME, Liggons Y, Hypolite M (2002). Health beliefs and self breast examination practice an health beliefs. *J Cult Divers*, **9**, 49-54.

Green BB, Taplin SH (2003). Breast cancer screening controversies. *J Am Board Fam Pract*, **16**, 233-41.

Lechner L, Nooijer DJ, Vries DH (2004). Breast self-examination: longitudinal predictors of intention and subsequent behaviour. *Eur J Cancer Prev*, **13**, 369-76.

Manascievez R (2003). Editorial misses central point. *Bri Med J*, **26**, 710.

Nakhichevan N, Secginli S (2007). Health belief related to breast self-examination in a sample of Turkish women. *Oncol Nurs Forum*, **34**, 425-32.

Norman P, Brain K (2005). An application of an extended health belief model to the prediction of breast self-examination among women with a family history of breast cancer. *Br J Health Psychol*, **10**, 1-16.

Park S, Hur HK, Kim G, Song H (2007). Knowledge, barriers and facilitators of Korean women and their spouses in the contemplation stage of breast self-examination. *Cancer Nurs*, **30**, 78-84.

Petro-Nustas W, Mikhail BI (2002). Factors associated with breast self-examination among Jordanian women. *Public Health Nurs*, **19**, 263-71.

Rosenstock IM (1966). Why people use health services. *Milbank Mem Fund Q*, **44**, 94-124.

Secginli S, Nahcivan NO (2006). Factors associated with breast cancer screening behaviours in a sample of Turkish women: a questionnaire survey. *Int J Nurs Stud*, **43**, 161-71.

Siahpush M, Singh GK (2002). Sociodemographic variations in breast cancer screening behavior among Australian women: results from 1995 national health survey. *Prev Med*, **35**, 174-80.

Smith RA (2003). Breast self examination: do we really know what we think we know? *BMJ*, **3**, 168-9.

Thomas DB, Gao DL, Ray RM, et al (2002). Randomized trial of breast self-examination in Shanghai: Final results. *J National Cancer Institute*, **94**, 1445-57.

Yılmaz M, Guler G, Bekar M, Güler N (2010). Risk of breast cancer, health beliefs and screening behaviour among Turkish Academic women and housewives. *Asian Pac J Cancer Prev*, **12**, 817-22.

Yi M, Park EY (2012). Effects of breast health education conducted by trained breast cancer survivors. *J Adv Nurs*, **68**, 1100-10.