RESEARCH ARTICLE

Turkish Female Academician Self-Esteem and Health Beliefs for Breast Cancer Screening

Ilknur Aydin Avci*, Hatice Kumcagiz, Busra Altinel, Ayse Caloglu

Abstract

Purpose: This study aimed to analyse female academician health beliefs for breast cancer screening and levels of self-esteem. Materials and Methods: This cross-sectional study was conducted between October 2010 and March 2011, covering female academicians working in all faculties and vocational schools at Ondokuz Mayis University, except for the ones in the field of health (n=141). Data was collected using a questionnaire developed by researchers in the light of the related literature, the Champion's Health Belief Model Scale for Breast Cancer, and the Coopersmith Self-Esteem Inventory. Descriptive statistics, the t-test, Mann-Whitney U and correlation analysis were used to analyze the data with the SPSS 13.0 statistical package. Results: 53.8% of the participants were single, 58.6% did not have children, 80.7% had regular menstrual cycles, 28.3% was taking birth control pills, 17.9% were undergoing hormone therapy, 11% suffered breast problems, 8.3% had relatives with breast cancer, 78,6% knew about breast self-examination (BSE), 68.3% was performing BSE, 16.2% were performing BSE monthly, 17.9% had had mammograms, and 30.3% had undergone breast examinations conductedby physicians. The women who had breast physical examinations done by physicians had higher susceptibility, self-efficacy and health motivation, and fewer barriers to mammography than those who did not have breast physical examinations. Conclusions: There was a relationship between the female academician self-esteem and their perceived seriousness of breast cancer, perceived barriers to BSE and health motivation. Our Turksih female academicians had medium levels of self-esteem.

Keywords: Health beliefs - breast cancer screening - self-esteem - female academicians - Turkey

Asian Pac J Cancer Prev, **15 (1)**, 155-160

Introduction

In most of the developed and developing countries, breast cancer is the most common women cancer type and the most common cause of death from cancer (Ozmen et al., 2009). According to the most recent reports of the Turkish Cancer Registry, BC is currently the most commonly occurring female cancer in Turkey with an incidence of 35.5 cases per 100,000 of all cancers diagnosed in women (Ministry of Health of Turkey, 2005). Early detection plays a crucial role for breast cancer. Early detection of cancer increases chance of recovery and extend lifespan.

Ministry of Health, Department of Cancer Control, Cancer Early Detection, Screening and Education Centres in Turkey provides breast cancer detection. The purpose is to enable healthy and long lives through early detection, to keep breasts healthy and to improve the quality of life and to reduce deaths from breast cancer. The studies conducted in Turkey indicated that rates of breast cancer screening increased, but were not at the desired level (Findik and Turan, 2004; Gozum and Aydin, 2004).

As the most common cancer among women, breast cancer not only threatens their lives but also affect their sexual identity and body image. Early detection of breast cancer protects women against early death and physical illnesses as well as mental disorders. For these and many other reasons, breast cancer is frequently researched (Baider et al., 2003; Ceber et al., 2009).

Any problem in the breast that has great significance for female identity results in psychological problems. Diagnosis and treatment of breast cancer is a crisis situation that affects women's lives physically, psychologically, socially and spiritually. During this period, women suffer many problems such as the chance of breast cancer spreading to the other parts of the body, uncertainty about the future, anxiety, depression, anger, despair, pain, alteration in body image, diminished self-esteem and the fear of losing femininity (Gumus, 2006). Previous studies indicated that the rate of breast cancer detection in Turkish women was lower than in the women living in western countries (Ozmen, 2008; Parsa 2008). Breast self-examination (BSE), mammography and clinical breast examination are screening methods used to detect early breast cancer. Special attention should be paid to BSE to enhance the possibility of early detection of change in breast tissue. Although BSE alone is not sufficient for early detection of breast cancer, it influences women to

*Samsun School of Health, Ondokuz Mayis University, Samsun Turkey *For correspondence: ilknursezera@hotmail.com*

be responsible for their own health, to recognize breast tissue and to adopt preventive health behaviour (Kosters and Gotzsche, 2003; Akhtari-Zavare et al., 2013; Fotedar et al, 2013). BSE increases breast health awareness of women.

The main function of a university is education, research and community service. As individuals with university-level degrees, female academicians are role models for other women in society to raise the status of women, to protect social and political rights of women, to lead healthier lives and to assume responsibility for their own health. Therefore, especially female scholars need to adopt attitudes, behaviour and information related to BSE for a healthy society (Ekici and Utkualp, 2007). BSE is within the scope of protective health services in the health belief model (Cenesiz and Atak, 2007). Thus, it is necessary to define the health belief model related to BSE and self-esteem of female academicians.

Just as studies conducted in foreign countries some studies conducted in our country indicated that most of the academicians did not monthly perform BSE and protective behaviour against breast cancer (Ekici and Utkualp, 2007; Kabatas et al., 2010); they had inadequate knowledge, did not perform BSE, and did not know how to perform BSE (Aslan et al., 2007; Avci and Gozum, 2009).

Female academicians who educate future intellectual individuals should acquire adequate knowledge about breast cancer and BSE, and create awareness of protective health because they are role model for the society through their health protective behaviour. It is important to identify the health beliefs for BSE of female academicians who have crucial responsibilities for maintaining students' education. It is believed that there is a positive relationship between protective health behaviour and self-esteem, which will positively affect BSE behaviour. Furthermore, identifying the health beliefs for BSE of female academicians may increase the efficacy of health counselling they provide students when necessary, and may shed light on further researches to change negative beliefs.

Aim

This study aims to analyse women academicians' health beliefs for breast self-examination and levels of self-esteem.

Research question

What are the knowledge, practices, levels of self-esteem, and health beliefs of female academicians related to BSE?

Materials and Methods

Population

This study was conducted between October 2010 and March 2011. The population of this cross-sectional study consists of the female academicians who work in all faculties, schools, vocational schools at Ondokuz Mayis University, except for the ones in field of health (n=141). The study aimed to reach all of these women; however, the female academicians in all faculties, schools, and high schools on the main campus except for the ones in field of health were involved in the study based on the principle of voluntary participation. The study reached 113 female academicians who agreed to be involved in.

Data collection tools

Data was collected using the questionnaire developed by the researchers in the light of the related literature, the Champion's Health Belief Model Scale for Breast Cancer, and Coopersmith Self-Esteem Inventory. The women involved in the study were visited in their schools, and their information was obtained through face-to-face interviews.

The Champion's Health Belief Model Scale (CHBMS) for breast cancer screening: In this study, data was collected using the BSE dimension of the Health Belief Model Scale for Breast Cancer Screening, which was first developed by Rosenstock et al., and adapted for breast cancer by Champion, and the validity and reliability of Turkish version were tested by Gozum and Aydin. Sub-dimensions of the Scale, "Barriers to Mammography" and "Benefits of Mammography" were not used in this study. We used the Scale's six sub-dimensions of 42 items in total consisting of the concepts "susceptibility" (3 items), "seriousness" (6 items), and "health motivation" (5 items) which assess individual's judgement on breast cancer and general health; and the concepts which assess "barriers" (8 items), "benefits" (4 items), and "self-efficacy" (10 items) related to BSE. This scale is a five-point Likert scale. Higher points mean increased susceptibility and seriousness as well as increased perceived benefits

Table 1. Identifying Knowledge and Practices Related to Breast Examination with Descriptive Features of Women Working in Academic

Demographic features		number	%
Age	x±SD=33.9±7.6 (min=22, Max=53)		
Marital status	Married	67	46.2
	single	78	53.8
Have a child	Yes	60	41.4
	No	85	58.6
Menstruel Siclus period	Reguler	117	80.7
	Irreguler	28	19.3
Use of birth control pills	Used	41	28.3
	Not used	104	71.7
Status of hormonal therapy use			
	Used	26	17.9
	Not used	119	82.1
Breast problem living situation			
	Yes	16	11.0
	No	129	89.0
The presence of breast cancer in individuals with a family			
	Yes	12	8.3
	No	133	91.7
BSE knowing	knowing	114	78.6
	unknowing	31	21.4
BSE Practice	Performing	99	68.3
	Not performing	46	31.7
BSE practice frequency	Every mounth. as reguler	16	16.2
	Sometimes. as irreguler	83	83.8
Have a mammogram	Yes	26	17.9
	No	119	82.1
Status of clinical breast exmination practiced			
	Yes	44	30.3
	No	101	69.7

and perceived barriers (Gozum and Aydin, 2004). The coefficient alpha in this study varies between 0.64 and 0.90 (Susceptibility, 0.75; Seriousness, 0.79; BSE benefits, 0.77; BSE barriers, 0.64; Mammography benefits, 0.66; Mammography barriers, 0.79; Health motivation, 0.78).

The coopersmith self-esteem inventory: This inventory developed by Coopersmith consists of 25 questions that evaluate a person's attitude about him/herself in various areas. Self-esteem concept valid for this scale was used as a continuous assessment which a person makes about him/herself. The validity and reliability of this inventory was tested on 30 cancer patients in 1987 by Turan and Tufan. Test-retest result was r=0,65, which was found significant (Turan and Tufan, 1987). The coefficient alpha was calculated 0.71.

Analysis of data

Data obtained from the study was analysed using SPSS 13.0 software, t-test, ANOVA test as well as descriptive statistics.

Ethical principles

During the planning and implementation phase of the study, we received a written consent of the university management and female academicians 'verbal consent.

Results

Table 1 shows that the mean age of the female academicians was calculated 33.9±7.6 (min=22, Max=53).53.8% of the participants were single, 58.6% did not have children, 80.7% had regular menstrual cycles, 28.3% was taking birth control pills, 17.9% was undergoing hormone therapy, 11% suffered breast problems, 8.3% had relatives with breast cancer, 78,6% knew BSE, 68.3% was performing BSE, 16.2% was performing BSE monthly, 17.9% had mammograms, 30.3% had breast examinations done by physicians.

There was a relationship between the mean age of the female academicians and their barriers to mammography ($p<0.01$), and between their health motivation and their scores of self-esteem ($p<0.01$). We determined that younger women had more perceived barriers to mammography, and health motivation and self-esteem increased with age (Table 2).

Having children had an influence on the female academicians' self-esteem, and those with children had higher levels of esteem. The difference between the women with children and without children reached statistical significance ($p<0.05$).

Having relatives with breast cancer influenced the

Table 2. Distribution of the Relationship Between Health Beliefs and Self-Esteem with Descriptive Characteristics of Women Working as an Academician

	Susceptibility	Seriousness	BSE Benefits	BSE Barriers	BSE Self Efficacy	Mammography Benefits	Mammography Barriers	Health Motivation	Self Esteem Scale
Age	r=-0.063	r=-0.028	r=0.140	r=-0.153	r=0.051	r=-0.025	r=-0.254	r=0.208	r=0.231
	p=0.449	p=0.741	p=0.093	p=0.068	p=0.542	p=0.765	p=0.002	p=0.012	p=0.005
Marital Status									
Married	7.8±2.3	20.6±4.7	15.7±2.8	17.4±4.7	33.1±7.5	18.3±3.0	25.4±7.0	21.3±2.7	76.1±12.5
Single	8.0±2.2	20.6±5.3	15.8±3.3	17.9±4.7	32.8±8.2	18.7±3.4	27.3±7.0	20.7±3.3	75.2±14.4
Statistics	t=-0.476,	t=0.883,	t=-0.092,	t=0.564,	t=0.211,	t=-0.826,	t=-1.653,	t=1.540,	t=0.398,
	p=0.633	p=0.930	p=0.926	p=0.574	p=0.833	p=0.410	p=0.101	p=0.293	p=0.691
Have Child									
Yes	8.0±2.7	20.8±4.7	15.7±2.9	17.4±5.1	33.6±7.8	18.2±2.9	25.1±7.7	21.4±2.5	78.9±11.4
No	7.9±2.0	20.5±5.2	15.8±3.2	17.8±4.4	32.6±8.1	18.7±3.3	27.1±6.4	20.8±3.3	73.3±14.1
Statistics	t=0.208,	t=0.322,	t=-0.325,	t=-0.461,	t=0.782,	t=-1.000,	t=-1.690,	t=1.138,	t=2.542,
	p=0.836	p=0.748	p=0.746	p=0.645	p=0.436	p=0.319	p=0.093	p=0.257	p=0.012
Menstruel Siclus period									
reguler	7.9±2.3	20.4±4.8	15.8±3.2	17.5±4.5	33.1±7.6	18.7±2.9	26.1±7.0	21.2±3.2	76.4±13.0
Irreguler	7.8±2.1	21.3±5.7	15.5±2.6	18.1±5.3	32.4±9.5	17.6±4.1	27.3±7.0	20.4±2.1	72.6±14.6
Statistics	U=1599.5,	U=1439.0	U=1396.0	U=1506.5	U=1545.0	U=1364.5	U=1378.0	U=1300.5	U=1397.0
	p=0.845	p=0.318	p=0.219	p=0.509	p=0.641	p=0.168	p=0.192	p=0.087	p=0.225
Use of Birth Control pills									
Used	8.0±2.5	19.2±5.7	15.3±3.8	17.1±5.3	32.4±9.0	18.1±3.3	24.9±7.4	21.2±3.6	76.7±13.5
Not Used	7.9±2.2	21.2±4.6	16.0±2.7	17.8±4.4	33.2±7.5	18.6±3.1	26.9±6.8	20.9±2.7	75.2±13.3
Statistics	t=0.241,	t=-1.964,	t=-1.057,	t=0.794,	t=-0.520,	t=-0.835,	t=-1.564,	t=0.457,	t=0.589,
	p=0.810	p=0.054	p=0.295	p=0.429	p=0.604	p=0.405	p=0.120	p=0.648	p=0.557
Status of Hormonal therapy Use									
Yes	8.7±2.5	20.3±6.7	15.1±3.9	16.5±5.5	33.8±9.9	17.7±4.2	24.8±7.3	21.0±3.8	77.7±11.6
No	7.7±2.2	20.7±4.6	15.9±2.8	17.8±4.5	32.8±7.5	18.7±2.7	26.6±6.9	21.0±2.8	75.2±13.7
Statistics	U=1237.5	U=1517.0	U=1376.5	U=1277.0	U=1422.5	U=1435.0	U=1309.5	U=1470.0	U=1419.0
	p=0.106	p=0.877	p=0.372	p=0.163	p=0.502	p=0.561	p=0.220	p=0.688	p=0.507
Breast problem Living Situation									
Yes	8.6±2.7	21.8±3.3	16.3±2.5	18.4±5.3	37.8±7.4	18.1±3.1	22.9±7.5	21.3±2.8	74.5±11.9
No	7.2±2.2	20.5±5.2	15.7±3.1	17.5±4.6	32.8±8.0	18.6±3.2	26.5±6.9	21.0±3.0	75.8±13.5
Statistics	U=831.0	U=923.5	U=881.0	U=870.5	U=842.0	U=961.0	U=737.0	U=980.0	U=954.5
	p=0.199	p=0.493	p=0.333	p=0.307	p=0.230	p=0.670	p=0.062	p=0.740	p=0.623
the presence of Breast Cancer in Individuals with a Family									
Yes	10.0±2.3	18.8±5.0	16.1±3.3	17.7±4.5	36.7±5.0	18.8±4.9	22.8±8.7	21.7±3.1	74.0±12.2
No	7.7±2.2	20.8±5.0	15.7±3.1	17.6±4.7	32.6±8.1	18.5±3.0	26.6±6.8	21.0±3.0	75.8±13.5
Statistics	U=366.5	U=638.5	U=732.0	U=745.5	U=520.0	U=611.5	U=545.5	U=706.5	U=721.5
	p=0.002	p=0.251	p=0.630	p=0.754	p=0.040	p=0.178	p=0.080	p=0.504	p=0.581

Table 2. Distribution of the Relationship between Health Beliefs and Self-esteem with Breast Cancer Screenings Features of Women Working as an Academician

	Susceptibility	Seriousness	BSE benefits	BSE barriers	BSE self efficacy	Mammography benefits	Mammography barriers	Health motivation	Self esteem scale
Age	r=-0.063	r=-0.028	r=0.140	r=-0.153	r=0.051	r=-0.025	r=-0.254	r=0.208	r=0.231
	p=0.449	p=0.741	p=0.093	p=0.068	p=0.542	p=0.765	p=0.002	p=0.012	p=0.005
BSE knowing									
Knowing	8.0±2.3	20.4±5.0	16.1±2.9	17.0±4.4	35.5±6.0	18.5±3.2	25.5±7.4	21.0±3.1	75.6±13.3
Unknowing	7.5±2.2	21.3±4.9	14.7±3.6	19.9±4.8	23.5±7.1	18.5±3.1	29.2±4.6	20.9±2.4	75.6±13.8
Statistics	U=1508.0	U=1562.0	U=1537.5	U=1080.5	U=328.0	U=1755.5	U=1243.5	U=1666.5	U=1753.5
	p=0.206	p=0.322	p=0.045	p=0.005	p=0.000	p=0.955	p=0.011	p=0.624	p=0.948
BSE Practice									
Performing	7.9±2.4	20.5±5.1	16.1±2.9	16.6±4.5	36.2±5.8	18.6±3.4	25.2±7.6	21.2±3.2	76.3±12.2
Not performing	7.8±2.0	20.8±4.8	15.0±3.2	19.7±4.4	26.0±7.3	18.3±2.6	28.6±5.0	20.6±2.5	74.2±15.5
Statistics	t=0.208,	t=-0.323,	t=2.130,	t=-3.909,	t=8.311,	t=0.384,	t=-3.182,	t=1.173,	t=0.902,
	p=0.780	p=0.747	p=0.035	p=0.000	p=0.000	p=0.702	p=0.002	p=0.247	p=0.369
BSE practice frequency									
Every mounth, as reguler	8.9±3.1	19.5±5.6	17.2±3.1	13.5±5.0	42.1±5.3	20.4±2.8	19.8±8.4	23.2±2.2	75.8±11.2
Sometimes, as irreguler	7.8±2.2	20.7±5.0	15.9±2.9	17.2±4.2	35.1±5.3	18.2±3.4	26.3±7.0	20.8±3.2	75.7±12.4
Statistics	U=529.5	U=619.0	U=485.0	U=385.0	U=227.0	U=414.5	U=341.0	U=339.0	U=541.5
	p=0.197	p=0.634	p=0.084	p=0.008	p=0.000	p=0.017	p=0.002	p=0.002	p=0.241
Have a mammogram									
Yes	8.6±2.8	21.0±3.6	16.5±2.5	17.5±4.5	34.3±6.6	18.8±3.3	21.6±6.9	22.0±2.8	78.9±11.7
No	7.7±2.1	20.5±5.3	15.6±3.2	17.6±4.7	32.7±8.2	18.4±3.2	27.3±6.6	20.8±3.0	74.9±13.6
Statistics	U=1194.5	U=1542.5	U=1290.0	U=1542.5	U=1390.5	U=1414.0	U=858.5	U=1164.0	U=1279.5
	p=0.066	p=0.981	p=0.178	p=0.981	p=0.419	p=0.490	p=0.000	p=0.046	p=0.166
Status of clinical breast exmination practiced									
Yes	8.5±2.6	19.8±4.9	15.8±3.1	16.6±4.0	35.5±7.3	18.6±3.1	22.3±7.0	21.8±2.6	77.2±12.1
No	7.7±2.1	20.9±5.0	15.7±3.1	18.0±4.7	31.9±8.0	18.5±3.2	28.0±6.0	20.6±3.1	75.0±13.9
Statistics	t=2.208,	t=-1.219,	t=0.194,	t=-1.671,	t=2.592,	t=0.179,	t=-4.917,	t=2.292,	t=0.917,
	p=0.029	p=0.225	p=0.846	p=0.097	p=0.011	p=0.858	p=0.000	p=0.023	p=0.361

female academicians' susceptibility perceived self-efficacy related to BSE. The women who had relatives with breast cancer had higher susceptibility ($p<0.01$) perceived self-efficacy ($p<0.05$) than others.

Knowing and performing BSE influenced the female academicians' perceived benefits, barriers and self-efficacy related to BSE. The women who knew and was performing BSE had more perceived benefits and self-efficacy than others and fewer perceived barriers to BSE and mammography. Knowing and performing BSE affected perceived barriers to mammography, the women who did not know and was not performing BSE had more perceived barriers.

The frequency of performing BSE had an influence on benefits, barriers and self-efficacy related to BSE and mammography and health motivation. The women who were performing BSE regularly had more perceived benefits and self-efficacy, higher health motivation, and fewer perceived barriers to BSE and mammography than those who were not performing BSE regularly.

The women who had mammograms had fewer perceived barriers and higher health motivation than those who did not have mammograms. The difference between them reached statistical difference (Table 4).

The women who had breast physical examinations done by physicians had higher susceptibility, self-efficacy and health motivation, and fewer barriers to mammography than those who did not have breast physical examinations. There was a statistically significant relationship between the female academicians' self-esteem and seriousness about breast cancer screening, their perceived barriers to BSE and health motivation ($r=-0.188$, $p=0.024$; $r=-0.211$, $p=0.011$; $r=0.358$, $p=0.000$, respectively). There is no relationship between the female academicians' self-esteem and susceptibility to breast cancer screening, perceived benefits of BSE, perceived self-efficacy related to BSE, perceived benefits of mammography and perceived barriers to mammography ($r=-0.092$; $r=0.129$; $r=0.041$; $r=0.073$; $r=-0.149$; $p>0.05$, respectively).

Discussion

This study conducted on female academicians. However, researches on female academicians' health belief for breast cancer screening, levels of self-esteem, knowledge and practices of BSE are limited. Therefore discussion on the data derived from this study would be limited, too.

There was a relationship between the mean age of the female academicians and their perceived barriers to mammography ($p<0.01$), their health motivation ($p<0.05$), and levels of self-esteem ($p<0.01$). Younger women had more perceived barriers to mammography, and with age health motivation and self-esteem increased. We attribute this result to the fact that the young participants considered themselves at risk in terms of age (the mean age; min=22, max=53). This comment is supported by other studies. In the study of Ekici et al. (2007) 10% of the women aged 20-29 years were performing BSE while 16.2% of those aged 30 years and over were performing BSE. The study analyzing the risk level of breast cancer in women suggested that the mean risk score increased with age (Aslan and Gurkan, 2007).

Health motivation is the willingness to change a thought into behaviour or enact the behaviour (Nahcıvan and Secginli, 2003). Altunkan et al. (2008) concluded that

the mean score of health motivation perception was higher in the group aged 39 years and under than in the group aged 40 years and over. Cevik et al. (2005) suggested that the women with high self-esteem were more hopeful about the future, had positive body images, and paid more attention to their own health and breast cancer screening.

Having children influenced the female academicians' self-esteem. The female academicians with children had higher levels of self-esteem than others ($p<0.05$).

In their study involving the women aged 20-60 years, Altunkan et al. (2008) did not discover a relationship between having children and the scores of perceived susceptibility, seriousness, health motivation, barriers to BSE, benefits of BSE and self-efficacy ($p>0.05$).

It was stated in the literature that the women had long intervals between menarche and menopause, had never given birth, and gave birth to their first child at age 30 or over were at risk for breast cancer (Karayurt and Zorukos, 2008; Gross, 2000). The teachers involved in the study of Kabatas et al. (2000) gave birth to their birth child before 30 years of age. In Turkish culture, marriage and giving birth are important events through which women gain status. Therefore, that the women with children have higher scores of self-esteem may be resulted from this situation.

Ekici et al. (2007). stated that 55.5% of the female academicians with a family history of breast cancer monthly performed BSE while 7.7 of the other academicians did not perform BSE. When comparing the situation that the female academicians with a family history of breast cancer monthly perform BSE with the other academicians, there is a significant difference. In a study on the level of risk for breast cancer in women, the women with a family history of breast cancer had higher scores of risk (Aslan and Gurkan, 2007). According to the Health Belief Model, perceiving a disease as a threat is one of the factors on the adoption of health behaviours (Nahcivan and Secginli, 2003). A family history of breast or ovarian cancer in first or second degree relatives is ranked first among the criteria for high risk breast cancer assessment (Karayurt and Zorukos, 2008). Avci (2008) discovered that a family history of breast cancer had no influence on health beliefs ($p>0.05$). This result is similar with the findings derived from our study.

Perceived self-efficacy related to BSE is an individual's ability to perform an act successfully or perception/ judgement of controlling events (Avci and Gozum 2009). To perform behaviour properly, a person should have adequate knowledge about the related issue (Altunkan et al., 2008). Altunkan et al. (2008) determined that a family history of breast cancer had no influence on perceived susceptibility, perceived seriousness, health motivation, perceived barriers to BSE, and perceived benefits of BSE ($p>0.05$). Nevertheless, perceived self-efficacy related to BSE was significantly higher than in the person with a history of breast cancer than in the ones with no history of breast cancer ($p<0.05$). Yılmaz et al. (2013) were found in their study that perceptions of self-efficacy were significantly higher among women who implemented early diagnosis practices compared to women who did not implement early diagnosis practices. In the literature and this study, perceived susceptibility increases in persons who have a relative diagnosed with breast cancer. This is attributed to the doctrines learned through experiences.

This study indicated that knowing and performing BSE influenced perceived benefits, and that the women who did not know and perform BSE had more perceived barriers to BSE. This is an expected result.

Ekici et al. (2007) determined that 13.4% of the academicians involved in their study performed BSE monthly, 38.8% did not perform BSE monthly, and 47.8% performed BSE irregularly. Demirhan et al. (2002) discovered that almost half of the women involved in their study knew BSE; however, only one-third (29.5%) performed BSE properly. Kabatas et al. (2010) stated that 62.5% of the teachers involved in their study knew BSE while 37.5% did not know, and that 44.3% performed BSE while 55.7% did not perform. Petro Nustas et al. (2013) were found in their study that 91.5% of women had heard about BSE, and 71.3% had performed it sometime in the past. This result is similar with the ones derived from our study.

The women who had mammograms had fewer perceived barriers and higher health motivation than those who had no mammograms (Table 3).

The effectiveness of mammography in early detection of breast cancer has been proven, and international institutions suggest mammography in breast cancer screening (Tuncer, 2008). Mammography is a screening method increasing the mortality rates of breast cancer (Ozmen, 2008). Getting a mammogram is a practice that women do to take care of themselves. Thus, women both protect themselves against breast cancer and take a step to protect and improve their health. Therefore, it is safe to say that getting a mammogram is an effective way to increase health motivation and decrease women's perceived barriers to mammography.

The women had breast physical examination done by physicians had more perceived susceptibility, self-efficacy, higher health motivation, and fewer perceived barriers to mammography than those who did not have.

In this study, Ekici et al. (2007) stated that 20.9% of the participants had breast physical examinations done by physicians. In their study on the behaviour of working women aged 20-25 years toward breast cancer, Günal et al. (2000) stated that 11.1% of the women had breast physical examination done by physicians. Kabatas et al. (2010) stated that the number of the teachers who had breast physical examinations by physicians was higher in the age group of 41-50 years. There was statistically significant relationship between age groups and having breast physical examinations by a physician ($p<0.05$). Similar to these studies, it is an expected result that the women who had breast physical examinations done by physicians had higher susceptibility, self-efficacy and health motivation.

In this study, there is positive relationship between the female academicians' self-esteem and health motivation. This makes us think that persons with high self-esteem may assume more responsibility related to breast cancer screening. However, it is remarkable that there was no relationship between knowing and performing BSE and

having mammograms. Female academicians are scientist. In addition to their services as educators, they also perform their social roles as being mothers, wives and housewives. This might have influenced their responsibilities for themselves and their health.

In conclusion, the research findings indicated that: *i)* The female academicians did not regularly perform BSE, *ii)* The female academicians who knew and was performing BSE had more perceived benefits of BSE and self-efficacy, and less perceived barriers to BSE and mammography, *iii)* There was a relationship between the female academicians' self-esteem and their perceived seriousness of breast cancer screening, perceived barriers to BSE and health motivation, and *iiii)* Female academician had medium levels of self-esteem.

Academicians can be informed about BSE and the risk factors for breast cancer; a research can be conducted on the factors affecting the involvement in breast cancer detection, and planning a training program utilizing the results of the research abovementioned will be more beneficial.

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