

RESEARCH ARTICLE

Effects of Breast Cancer Fatalism on Breast Cancer Awareness among Nursing Students in Turkey

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Abstract

Background: Breast cancer is the most common cancer among women and leading cause of death worldwide, including in Turkey. High perceptions of cancer fatalism are associated with lower rates of participation in screening for breast cancer. This study was conducted to evaluate the effect of breast cancer fatalism and other factors on breast cancer awareness among nursing students in Turkey. **Materials and Methods:** This cross-sectional descriptive study was conducted at three universities in the Western Black Sea region. The sample was composed of 838 nursing students. Data were collected by Personal Information Form, Powe Fatalism Inventory (PFI) and Champion's Health Belief Model Scale (CHBMS). **Results:** Breast cancer fatalism perception of the students was at a low level. It was determined that students' seriousness perception was moderate, health motivation, BSE benefits and BSE self-efficacy perceptions were high, and BSE barriers and sensitivity perceptions were low. In addition, it was determined that students awareness of breast cancer was affected by breast cancer fatalism, class level, family history of breast cancer, knowledge on BSE, source of information on BSE, frequency of BSE performing, having breast examination by a healthcare professional within the last year and their health beliefs. **Conclusions:** In promoting breast cancer early diagnosis behaviour, it is recommended to evaluate fatalism perceptions and health beliefs of the students and to arrange training programs for this purpose.

Keywords: Breast cancer - cancer fatalism - health beliefs - nursing students

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Introduction

Breast cancer is the most common cancer among women and leading cause of death worldwide (Ertem and Kocer, 2009; Akhtari-Zavare et al., 2013; Al-Sharbatti et al., 2013; Charkazi et al., 2013; Andsoy and Gul, 2014; Boulos and Ghali, 2014; Gur et al., 2014; Jones et al., 2014; Karadag et al., 2014a; Karadag et al., 2014b). The breast cancer accounts for 30-40 % of all the cancers in women all over the world (Charkazi et al., 2013; Andsoy and Gul, 2014; Celik et al., 2014; Che et al., 2014; Karadag et al., 2014b). Its incidence rates are also increasing rapidly in Turkey (Ertem and Kocer, 2009; Andsoy and Gul, 2014). According to Turkish population-based cancer registration report, breast cancer was becoming the most prevalent cancer among Turkish women accounting for 23.4% of all cancers diagnosed among women. The age-adjusted incidence rate was 40.60 per 100.000 women in this period (Ministry of Health of Turkey, 2009).

Early detection and breast cancer diagnosis is logically a significant process and it can consequently lead to an increase in the survival rate (Yarbrugh and Braden, 2001; Ertem and Kocer, 2009; Yousuf, 2010; Al-Sharbatti et al.,

2013; Charkazi et al., 2013; Andsoy and Gul, 2014; Gur et al., 2014; Karadag et al., 2014b; Yucel et al., 2014). Therefore in the world, primary breast cancer prevention studies are adopted. The most commonly known and implemented approaches in the world are breast cancer screening programs. With these programs, it is provided to increase awareness status of the individuals for cancer, to understand the importance of early diagnosis and to implement appropriate treatment. Provision of early diagnosis can occur by training and informing women about this subject and by implementing screening programs. The most significant benefit of screening methods is their ability to enable diagnosis of the diseases at the end of periodical screenings and to make probability of survival high. It is qualified as highly beneficial since it is possible to detect cancer in the initial phase by screening methods. As a result, it is stated that life quality may be significantly increased by minimizing the damage of the disease over the society (Ertem and Kocer, 2009; Rizalar and Altay, 2010; Yousuf, 2010; Akhtari-Zavare et al., 2013; Al-Sharbatti et al., 2013; Andsoy and Gul, 2014; Bien et al., 2014; Ebrahim, 2014; Gur et al., 2014; Karadag et al., 2014a; 2014b; Yucel et al., 2014). Therefore, against to

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increased breast cancer to help women's awareness, breast cancer information and applications to improve their behavior and health promotion gain is important (Ertem and Kocer, 2009; Akhtari-Zavare et al., 2013; Al-Sharbatti et al., 2013; Boulos and Ghali, 2014; Karadag et al., 2014b; Yucel et al., 2014). For early detection of breast cancer; breast self examination every month after the age of 20, a clinical breast exam preferably every 3 years in 20-30's age, a clinical breast exam and an annual mammogram every year after the age of 40 is recommended (Rizalar and Altay, 2010; Celik et al., 2014; Erbil and Bolukbas, 2014; Karadag et al., 2014a). The practice by the individuals are expressed as early diagnosis or screening behaviors (Ertem and Kocer, 2009; Rizalar and Altay, 2010; Yousuf, 2010; Gur et al., 2014). However, several research reports on breast cancer address the inadequacy of behaviours for early diagnosis (Ertem and Kocer, 2009; Rizalar and Altay, 2010; Akhtari-Zavare et al., 2013; Al-Sharbatti et al., 2013). The incidence of fulfilling screening practice for early diagnosis of breast cancer among women in Turkey is at a low level. The frequency of having BSE done at least once varies between 40.9% and 66.2% while the frequency of having BSE done regularly every month has varied between 10.2% and 24.5% (Ertem and Kocer, 2009; Celik et al., 2014). These low rates suggest the presence of many factors that affect the behaviors and attitudes of women concerning early diagnosis. These factors include cultural beliefs, health/disease perception, support of family and neighbourhood, information concerning the disease, risk perception, and self-efficacy in the practice that should be performed in the early period of the disease (Yucel et al., 2014).

Fatalism is another factor that is analyzed as a psychosocial barrier for cancer prevention and screening behavior (Niederdeppe and Levy, 2007; Talbert, 2008; Akhtari-Zavare et al., 2013; Charkazi et al., 2013). Fatalism is identified as a doctrine of fate, a philosophical doctrine held by individuals who believe that all events are fated to happen and that human beings have no control over their futures and are unable to change their outcomes (Talbert, 2008; Charkazi et al., 2013). Fatalism is the belief that situations, including illnesses or catastrophic events, happen because of a higher power (such as God) or they are just meant to happen and cannot be avoided (Dettenborn et al., 2005; Talbert, 2008; Charkazi et al., 2013). Cancer fatalism is the belief that death is inevitable when cancer is present (Powe and Finnie, 2003; Powe et al., 2006). Higher perceptions of cancer fatalism are associated with lower rates of participation in screening for breast cancer (Powe et al., 2005).

Due to their frequent contact with patients and their relatives, nurses particularly are often looked upon to provide information and support regarding health problems, including breast cancer. Nurses can play an important role in teaching women and promoting BSE through specially designed educational programs in the clinical setting, as well as through community outreach strategies (Yousuf, 2010; Andsoy and Gul 2014; Ebrahim, 2014; Karadag et al., 2014a; 2014b; Yucel et al., 2014). Therefore, nurses should perform BSE that is important for early diagnosis of cancer, on a regular basis every

month and that they should teach women around them how to perform it (Yousuf, 2010; Karadag et al., 2014b). In this role, nursing education is the key factor for nursing students to gain knowledge and awareness about breast cancer. Also, defining the beliefs and fatalism of students with regard to breast cancer may shed a light on future studies focusing on changing wrong beliefs and increasing the efficiency of education about breast cancer that will be given by them. Although cancer fatalism has been studied in various populations as means of identifying other strategies to help promoting cancer screening programs, there is no information concerning such a study in Turkey. Therefore, this study was conducted to evaluate the effect of breast cancer fatalism and other factors on breast cancer awareness among nursing students in Turkey.

Materials and Methods

Study design and sample

This was a cross-sectional descriptive study. The study was conducted at three universities in Western Black Sea Region, Turkey. Study population included a total of 914 female nursing students during 2014-2015 academic term. The students who were studying during the dates of data collection and who approved to participate in the study were included. In accordance with these criteria, 838 students participated in the study. This meant that 85.4% of the target population was achieved.

Data collection

Instruments: Data were collected by Personal Information Form, Powe Fatalism Inventory (PFI) and Champion's Health Belief Model Scale (CHBMS): *i*) Personal Information Form: There were open and close-ended questions in the form evaluating the personal and family characteristics, health status, health behaviors and breast self-examination knowledge and practice of the students: *ii*) Powe Fatalism Inventory (PFI): The scale was developed by Powe in 1995. In this study, a modified version of PFI was used. This modified scale was used because it is breast cancer specific (Mayo et al., 2001). The PFI consists of 11 items including yes or no responses. "Yes" response is scored as one point, "no" response is scored as zero point. The increase in the score obtained from the scale shows that fatalism increases. Mayo et al. (2001) reported a Cronbach's alpha of 0.89 for the PFI. Its value was calculated as 0.79 in the Turkish adaptation. In this recent study; the Cronbach's alpha was 0.69: *iii*) Champion's Health Belief Model Scale (CHBMS): The scale was developed by Champion in 1984. The scale was also adapted to Turkish by three different studies in Turkey (Gozum and Aydin, 2004; Secginli and Nahcivan, 2004; Karayurt and Dramali, 2007). In this study, Turkish form of CHBMS was used which was adapted by Gozum and Aydin (2004). This self-completed scale consisted of 36 items that were clustered into 6 subscales: susceptibility (3 items), seriousness (6 items), health motivation (5 items), benefits of breast self-examination (BSE) (4 items), barriers to BSE (8 items), and self-efficacy of BSE (10 items). Participants answer items on a five point Likert-type scale, ranging from 1 to 5 (1=strongly

disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree). Each domain of the scale is evaluated separately and they are not combined to obtain a total score. Thus, a score is acquired for each of the domains. Higher scores indicate stronger feelings related to that construct. The Cronbach's alpha values ranged between 0.69 and 0.83. In this recent study; the Cronbach's alpha values ranged between 0.66 and 0.94.

Procedure

The most appropriate days and hours were determined for the collection of data by discussing it with the supervisors of the departments. The classes were visited at these determined days and hours. Students were informed about the purpose and significance of the study and were reminded that they were not obliged to participate in study. Data collection tools were distributed to the students who were agreed to participate in study. Students were asked to respond to the statements as honest as possible and were reminded not to sign the data collection tools for anonymity.

Data analysis

We analyzed the data by using SPSS 16.0 for Windows (SPSS Inc., Chicago, IL, USA). Numerical and percentage values were used for categorical variables. Descriptive statistics for numerical variables were expressed as mean±standard deviation. Student's t-test, one-way ANOVA and Pearson correlation analysis were used. Results were evaluated within 95% confidence interval and $p < 0.05$ was considered as statistically significant.

Ethical consideration

In order to conduct the study, we obtained written approval from the nursing departments of the universities and verbal consent from all students who participated in the study.

Results

The students' mean age was 20.45 ± 1.66 . 33.8% of the students ($n=283$) were studying in their first year, majority had a core family (86.7%, $n=726$), families of 50.3% ($n=422$) were living in the city center, economic incomes of 74.1% ($n=621$) were equal to their expenses and majority of them (91.8%, $n=769$) had social assurance (Table 1).

It was determined that 75.2% of the students ($n=630$) had a normal weight, 94.7% ($n=794$) were not drinking alcohol and 88.4% ($n=741$) were not smoking, 62.6% ($n=525$) had an adequate and balanced diet and only 9.5% ($n=80$) were exercising regularly. Family of 25.2% of the students ($n=211$) had a cancer history and of 6.8% ($n=57$) had breast cancer history. Most of the students (83.7%, $n=701$) had knowledge about BSE. It was determined that knowledge about BSE can be mostly acquired by academic education and this is followed by knowledge acquired from healthcare team (29.6%, $n=248$). It was also detected that nearly 43.2% ($n=363$) of the students were performing BSE regularly, 4.5% ($n=38$) experienced problems about their breasts and 5.0% ($n=42$) underwent

breast examination by a healthcare professional within last year.

Mean scores of the students from Powe Fatalism Inventory (PFI) and Champion's Health Belief Model Scale (CHBMS) are included in Table 2. According to Table 2, mean PFI score is 1.94 ± 1.65 . Mean scores of CHBMS subdimensions are as follows: 7.55 ± 2.14 for susceptibility, 19.48 ± 4.5 for seriousness, 21.40 ± 3.79 for health motivation, 16.68 ± 3.08 for BSE benefits, 16.28 ± 4.78 for BSE barriers and 35.54 ± 8.40 for BSE self-efficacy.

It was determined that there was not a statistically significant difference between mean scores of susceptibility, BSE benefits and BSE barriers subdimensions ($p > 0.05$). On the contrary, it was found that there was a significant difference between mean scores of seriousness ($p = 0.001$), health motivation ($p = 0.028$) and BSE self-efficacy ($p = 0.0001$) subdimensions based on education years of the students. In further analyses performed, it was detected that differences in seriousness ($p = 0.0001$) and health motivation ($p = 0.0001$) subdimensions were present between first and fourth year students, fourth year students gave too much importance to breast cancer and BSE and their health motivation perceptions were higher. It was also determined that the difference in mean self-efficacy score is derived from the fact that first year students got lower scores than second ($p = 0.0001$), third ($p = 0.0001$) and fourth year ($p = 0.0001$) students, and second year students got lower scores than fourth year ($p = 0.0001$) students.

In the study, it was found that there was no significant difference between mean CHBMS subdimension scores based on family type, economic status, social assurance, BMI, alcohol use and smoking status of the students ($p > 0.05$). When students were compared based on the presence of cancer history in the family, there was no significant difference in mean CHBMS subdimension scores ($p > 0.05$). It was detected that mean susceptibility

Table 1. Demographic Characteristics of the Students

	X±SD	Min-Max
	n	%
Age (years)	20.45 ± 1.66	17-28
Year		
First	283	33.8
Second	230	27.4
Third	177	21.1
Fourth	148	17.7
Family type		
Core family	726	86.7
Large family	85	10.1
Broken family	27	3.2
Family's living place		
City center	422	50.3
District center	304	36.3
Village/town	112	13.4
Economic status		
Income is lower than expenses	149	17.8
Income is equal to expenses	621	74.1
Income is more than expenses	68	8.1
Social assurance		
Yes	769	91.8
No	69	8.2

scores of the students with a breast cancer history in the family were high (p=0.005).

Based on having knowledge about BSE, there was no significant difference between mean seriousness and health motivation scores of the students (p>0.05). It was

determined that mean scores of susceptibility (p=0.043) and BSE barriers (p=0.0001) subdimensions of the students who have knowledge about BSE were low and their mean BSE benefits (p=0.001) and BSE self efficacy (p=0.0001) scores were high (Table 3).

Table 2. Mean Scores of Powe Fatalism Inventory and Champion’s Health Belief Model Scale

	Number of Items	Range of Score	X±SD	Min-Max Scores of Students
Powe Fatalism Inventory	11	0-11	1.94±1.65	0-11
Champion’s Health Belief Model Scale				
Susceptibility	3	3-15	7.55±2.14	3-15
Seriousness	6	6-30	19.48±4.5	6-30
Health motivation	5	5-25	21.40±3.79	5-25
BSE benefits	4	4-20	16.68±3.08	4-20
BSE barriers	8	8-40	16.28±4.78	8-40
BSE self-efficacy	10	10-50	35.54±8.40	10-50

Table 3. Comparison of the Students’ Health Status, Breast Self-Examination Knowledge and Practice with Mean Scores of Champion’s Health Belief Model Scale

	Susceptibility X±SD	Seriousness X±SD	Health motivation X±SD	BSE benefits X±SD	BSE barriers X±SD	BSE self-efficacy X±SD
Knowledge on BSE						
Yes	7.48±2.17	19.47±4.48	21.39±3.79	16.83±2.97	15.87±4.75	37.41±7.0
No	7.86±1.92	19.51±4.59	21.48±3.81	15.88±3.47	18.39±4.35	25.96±8.41
t/p	-2.039/0.043	-0.075/0.940	-0.252/0.802	3.334/0.001	-5.701/0.0001	16.882/0.0001
Source of information on BSE						
Television, radio, internet						
Yes	7.41±2.24	19.52±4.21	21.77±3.20	17.15±2.54	15.80±4.55	35.65±6.96
No	7.57±2.12	19.48±4.56	21.34±3.90	16.59±3.17	16.38±4.82	35.52±8.66
t/p	-0.810/0.436	0.106/0.915	1.224/0.221	1.939/0.053	-1.292/0.181	0.167/0.867
Book, magazine, brochure, newspaper						
Yes	7.51±2.18	19.18±4.54	21.40±3.94	16.94±3.01	15.56±4.70	38.39±6.37
No	7.56±2.12	19.59±4.49	21.41±3.74	16.59±3.10	16.54±4.79	34.54±8.80
t/p	-0.293/0.773	-1.155/0.252	-0.023/0.982	1.421/0.156	-2.615/0.009	5.948/0.0001
Healthcare personnel						
Yes	7.51±2.18	19.53±4.38	21.35±3.98	16.77±2.95	15.52±4.56	37.76±6.47
No	7.56±2.11	19.46±4.55	21.43±3.71	16.64±3.13	16.60±4.83	34.61±8.93
t/p	-0.313/0.758	0.216/0.829	-0.0278/0.788	0.585/0.559	-2.984/0.002	5.027/0.0001
Friends, neighbors						
Yes	7.89±2.41	18.97±4.74	21.40±4.55	16.77±2.88	15.80±4.63	34.71±7.71
No	7.53±2.12	19.51±4.49	21.41±3.76	16.68±3.09	16.31±4.79	35.58±8.44
t/p	0.956/0.339	-0.689/0.516	-0.011/0.993	0.177/0.859	-0.612/0.531	-0.596/0.522
Relatives, family						
Yes	7.67±2.19	19.57±3.71	22.57±2.85	17.50±2.76	14.47±4.21	37.20±7.00
No	7.54±2.14	19.48±4.53	21.36±3.82	16.35±3.09	16.35±4.79	35.48±8.44
t/p	0.310/0.756	0.102/0.919	1.708/0.088	1.484/0.138	-2.125/0.023	1.100/0.272
Academic education						
Yes	7.58±2.18	19.82±4.43	21.21±3.93	16.82±3.00	16.03±4.85	38.30±6.88
No	7.51±2.07	18.98±4.56	21.71±3.57	16.47±3.19	16.68±4.65	31.43±8.79
t/p	0.463/0.643	2.684/0.007	-1.866/0.058	1.607/0.108	-1.920/0.053	12.648/0.001
Frequency of BSE practice						
Do not examine	7.63±1.96	19.48±4.47	20.74±4.26	15.81±3.31	18.14±4.43	30.98±8.73
Regular	7.45±2.17	19.44±4.53	21.93±3.43	17.22±2.86	14.87±4.72	38.87±6.68
Irregular	7.58±2.42	19.61±4.53	21.61±3.28	17.33±2.58	15.60±4.30	37.68±6.54
F/p	0.642/0.526	0.073/0.929	8.921/0.0001	23.121/0.0001	46.594/0.0001	101.911/0.0001
Having a problem with breast						
Yes	8.05±2.02	19.26±4.87	21.60±3.66	16.63±2.99	16.00±4.86	37.31±8.36
No	7.52±2.13	19.49±4.48	21.39±3.80	16.68±3.08	16.29±4.78	35.45±8.40
t/p	1.492/0.136	-0.310/0.775	0.330/0.742	-0.101/0.919	-0.375/0.708	1.332/0.183
Having a breast examination by a healthcare professional within last year						
Yes	8.02±2.36	20.02±4.41	22.28±2.97	17.48±2.41	14.81±5.22	38.24±8.30
No	7.52±2.12	19.45±4.51	21.36±3.83	16.64±3.11	16.36±4.75	35.40±8.39
t/p	1.483/0.138	0.797/0.426	1.542/0.123	1.718/0.086	-2.056/0.066	2.137/0.033

When mean CHBMS subdimension scores of the students were examined based on the source of information about BSE, no significant difference was found between mean CHBMS subdimension scores of the students who got information from social/visual media (television, radio, internet) and friends/neighbors ($p>0.05$). Of the students who got information from written media (book, magazine, brochure, newspaper), mean BSE barriers score was significantly low ($p=0.009$) and mean BSE self-efficacy score was significantly higher ($p=0.0001$). Of the students who got information from healthcare personnel, mean BSE barriers score was low ($p=0.002$) and mean BSE self-efficacy score ($p=0.0001$) was high. Mean BSE barriers scores of the students who got information from relatives/family were low ($p=0.023$). Mean health motivation ($p=0.007$) and BSE self-efficacy ($p=0.0001$) scores of the students who got information during academic education were significantly high (Table 3).

It was also determined that there was not a statistically significant difference in mean susceptibility ($p=0.526$) and seriousness ($p=0.929$) scores of the students; and there was a significant difference in mean scores of health motivation ($p=0.0001$), BSE benefits ($p=0.0001$), BSE barriers ($p=0.0001$) and BSE self-efficacy ($p=0.0001$). In the further analysis performed, the differences in all three subdimensions were found to be between the groups who did not perform breast examination and who performed breast examination regularly ($p=0.0001$). According to this result, health motivation, BSE benefits and BSE self-efficacy perceptions of the students who performed BSE regularly were found to be higher and their BSE barriers perceptions were lower (Table 3).

While no significant difference was found in mean CHBMS subdimension scores of the students based on their status of experiencing problems about breast in the past ($p>0.05$), BSE self-efficacy perception of the students who underwent breast examination by a healthcare personnel within the last year was significantly higher ($p=0.033$) (Table 3).

When the relationship between PFI and CHBMS subdimensions was examined, it was found that breast cancer fatalism had a positive and weak correlation with susceptibility ($r=0.179$, $p=0.0001$) and BSE barriers ($r=0.095$, $p=0.006$), it had a negative and weak correlation with BSE benefits ($r=-0.085$, $p=0.014$), and it did not have any correlation with seriousness ($r=0.067$, $p=0.053$), health motivation ($r=-0.062$, $p=0.071$) and BSE self-efficacy ($r=-0.056$, $p=0.105$).

Discussion

Health Belief Model is the most frequently used model to determine and provide breast cancer early diagnosis behaviors (Yarbrough and Braden, 2001; Nahcivan and Secginli, 2003; Ersin and Bahar, 2012). Also in this study, CHBMS was used for the determination of early diagnosis behaviors of the students. It was found that seriousness perception of the students was moderate, their perception of health motivation, BSE benefits and BSE self efficacy were high and their perceptions of BSE barriers and

susceptibility were low. Results obtained from the study reveal that it is required to increase susceptibility and seriousness perceptions of the students for breast cancer. When other studies on this topic were examined, similar and different results were obtained. In the study by Aydin-Avci et al. (2008), it was found that susceptibility and seriousness perceptions of the students were moderate, perceptions of health motivation, BSE benefits and BSE self-efficacy were high and perception of BSE barriers was low. In the study by Yucel et al. (2014), it was determined that susceptibility, seriousness, BSE self-efficacy and health motivation perceptions of the students were at a moderate level, perception of BSE benefits was high and their BSE barriers perception was low. In another study, it was found that susceptibility perceptions of the students were moderate, perceptions of seriousness, health motivation, BSE benefits and BSE self-efficacy were high and their perceptions of BSE barriers were at a low level (Celik et al., 2014).

Fatalistic approach is an important factor that is effective on attitudes and behaviors for early diagnosis (Nahcivan and Secginli, 2003; Niederdeppe and Levy, 2007; Talbert, 2008; Ersin and Bahar, 2012; Akhtari-Zavare et al., 2013; Charkazi et al., 2013; Ersin and Bahar, 2013; Pehlivan et al., 2013). In the study, it was detected that breast cancer fatalism perception of the students was low. Moreover, it was determined that there was a positive and weak correlation between breast cancer fatalism perception and perceptions of susceptibility and BSE barriers of the students; and negative and weak correlation between breast cancer fatalism perception and perception of BSE benefits in the study. These results demonstrate that fatalism perception is important in behavioral change. For this reason, it is important to evaluate fatalism perception of the students by nurse educators and to plan education programs by considering fatalism perceptions of the students in order to create changes in positive attitudes and behaviors among students (Pehlivan et al., 2013).

In the study, it was determined that fourth year students were giving more importance to breast cancer and BSE, and their perceptions of health motivation and BSE self-efficacy were high. It may be considered that this difference might be derived from the courses which students have taken since second year and from the fact that this topic was emphasized in trainings given to the families in public health course during last year. When previously performed studies were examined, similar and different results were obtained. In study by Celik et al. (2014), it was determined that fourth year students received the lowest score from BSE barriers subscale and highest score from BSE self-efficacy subscale. In the study by Erbil and Bolukbas (2014), it was determined that the confidence subscale score in the third and fourth years of university study was higher than the first and second years, and the barrier subscale score in the third and fourth year was lower than that of the first and second year. In another study, BSE barriers and BSE self-efficacy perceptions of first year students were found to be at a low level (Yucel et al., 2014).

In the study, it was observed that students who had a breast cancer history in their families were more sensitive.

Similar to the result of our study, it was found that the students who had a breast cancer history in the family were more sensitive in the study by Erbil and Bolukbas (2014). The study results showed that students, in whose families there are individuals suffering from breast cancer, might consider themselves under risk of developing breast cancer, perceive the consequences of the disease seriously as vital threats and become more sensitive against breast cancer. Unlike our study results, it was determined that status of having breast cancer history in the family did not affect health beliefs of the students in the study by Aydin-Avci et al. (2008). In the study by Celik et al (2014), BSE benefits and health motivation perceptions of the students who have a breast cancer history in their families were determined to be low.

In the study, it was determined that majority of the students had knowledge about BSE. When relevant literature was examined, it was found in some studies that BSE knowledge rate was at a high level (Uzun et al., 2004; Celik et al., 2014); and that it was at a low level in others (Sevindik et al., 2011; Che et al., 2014). Besides; it was determined that BSE benefits and BSE self-efficacy perceptions of the students who have knowledge about BSE were high and their perceptions of BSE barriers and susceptibility were low in the study. Similar results were obtained in the relevant literature. For instance; it was determined in the study by Aydin-Avci et al. (2008) that status of having knowledge about BSE affected BSE benefits, BSE barriers and BSE self-efficacy perceptions; and in the study by Yucel et al. (2014) that BSE benefits, BSE self-efficacy and health motivation perceptions of the students who had knowledge about BSE were high and their BSE barriers perception was low.

It was determined that sources of obtaining BSE information were similar in this study as well as in previous studies (Uzun et al., 2004; Aslan et al., 2007; Gwarzo et al., 2009; Al-Naggar et al., 2011; Sevindik et al., 2011; Celik et al., 2014; Che et al., 2014; Yucel et al., 2014). When we examined health beliefs of the students based on their BSE information sources, it was determined that health beliefs of the students were not affected by the information obtained from social/visual media (television, radio, internet) or the information from friends/neighbors. It was found that BSE barriers perception of the students who got information from written media (book, magazine, brochure, newspaper) was low and their BSE self-efficacy perception was high. Although it was determined that information obtained from social/visual media did not affect health beliefs of the students, social/visual media are considered as the methods that can be effective in increasing the awareness about breast cancer. When we consider that especially television is a device that is found in all houses in today's conditions, a larger women group can be accessed by television. Therefore, effective programs for breast cancer and its early diagnosis may be included in television channels, and they can be commonly used for education in especially developing and underdeveloped countries.

In the study, it was determined that BSE barriers perception of the students who got information from healthcare personnel was low and their perception of

BSE self-efficacy was high. Similar to the results of our study, perceptions of BSE benefits, BSE self-efficacy and health motivation of the students who got information from healthcare professionals were higher and perception of BSE barriers was lower than the students who got information from other sources (Yucel et al., 2014). Besides, Celik et al. (2014) have reported that health motivation perception of the students who got information from the nurses was high. The results obtained from the studies show that healthcare personnel is important in the formation of awareness for breast cancer and early diagnosis behaviors. For this reason, increasing knowledge levels of the students about breast cancer and BSE does not only provide positive changes in individual health behaviors of the students, it will also show an important effect within overall preventive health services for breast cancer since they are basic facilitators of health education programs for the public after graduation.

While there was no difference in perceptions of susceptibility and seriousness of the students who were trained during academic education, perceptions of BSE self-efficacy and health motivation were determined to be high in the study. Similarly in another study, it was determined that no difference was found in perceptions of susceptibility and seriousness of the students who were trained during academic education, perceptions of health motivation, BSE benefits and BSE self-efficacy were high and perception of BSE barriers was low (Celik et al., 2014). Although breast cancer and BSE topics are included nursing education syllabus, the fact that academic education did not change susceptibility and seriousness perceptions of the students reveals the necessity of reviewing education methods.

Although the number of students who have knowledge about BSE, the rate of regular BSE practice was determined to be low also in this study (43.2%). When relevant literature was examined, it was detected that the rate of regular BSE practice of the students was at a low level and the rate of performing breast examination regularly once a month varied between 13.4% and 56.7% (Uzun et al., 2004; Aslan et al., 2007; Aydin-Avci et al., 2008; Gok-Ozer et al., 2009; Gwarzo et al., 2009; Sevindik et al., 2011; Che et al., 2014; Erbil and Bolukbas, 2014; Yucel et al., 2014). The results obtained from the studies also showed that education is not sufficient alone in providing behavioral change. Therefore, evaluation of nursing students' knowledge and behaviours on BSE and determination of external barriers which are effective in performing these behaviours are very important. This condition helps to determine early diagnosis behaviors of the students and also it will indicate how much they may help other women in the society during their professional life.

In the study, it was determined that perceptions of health motivation, BSE benefits and BSE self efficacy of the students who regularly perform BSE were high and their perception of BSE barriers was low. Similar and different results were obtained from the studies on this subject. For instance; Yucel et al. (2014) have reported that perceptions of health motivation, BSE benefits and BSE self-efficacy of the students who regularly performed BSE

were high and their perception of BSE barriers was low. In the studies by Celik et al. (2014) and Ozkan et al. (2010), it was determined that perceptions of BSE benefits and BSE self-efficacy of the students who regularly perform BSE were high and their BSE barriers perception was low. Erbil and Bolukbas (2014) have reported that BSE barriers perception of the students who regularly perform BSE was low; and Aydin-Avci et al. (2008) have reported that there was no difference between health beliefs of the students based on the incidence of BSE.

In this study, it was determined that experience of students about breast problems did not affect health beliefs. In contrary to our results from this study, it was detected in the study by Aydin-Avci et al (2008) that status of the students of experiencing breast problems have affected their awareness of susceptibility and seriousness. In another study, BSE benefits perception of the students experiencing breast problems was determined to be high (Erbil and Bolukbas, 2014).

In conclusion, it was found that breast cancer fatalism perception of the students was low. It was also determined that students' perception of seriousness was moderate, health motivation, BSE benefits and BSE self efficacy were high and BSE barriers and susceptibility were low. In addition, it was determined that students' awareness of breast cancer was affected by breast cancer fatalism, education year, family history of breast cancer, knowledge on BSE, source of information on BSE, frequency of BSE practice, undergoing a breast examination by a healthcare professional within the last year and their health beliefs. In line with the results that were obtained, it is recommended to evaluate students' awareness of fatalism and their health beliefs for increasing the awareness for breast cancer and providing early diagnosis behaviors and to arrange training programs in this direction.

References

- Al-Sharbatti SS, Shaikh RB, Mathew E, Al-Biate MAS (2013). Breast self examination practice and breast cancer risk perception among female university students in Ajman. *Asian Pac J Cancer Prev*, **14**, 4919-23.
- Andsoy II, Gul A (2014). Breast, cervix and colorectal cancer knowledge among nurses in Turkey. *Asian Pac J Cancer Prev*, **15**, 2267-72.
- Aslan A, Temiz M, Yigit Y, et al (2007). The knowledge attitude and behavior of nursery students about breast cancer. *TSK Koruyucu Hekimlik Bulteni*, **6**, 193-8.
- Aydin-Avci I, Altay B, Kocaturk B (2008). Midwifery students' health beliefs intended for breast self examination. *J Breast Health*, **4**, 25-8.
- Bien AM, Korzynska-Pietas M, Iwanowicz-Palus GJ (2014). mAssessment of midwifery student preparation for performing the role of breast cancer educator. *Asian Pac J Cancer Prev*, **15**, 5633-8.
- Boulos DNK, Ghali RR (2014). Awareness of breast cancer among female students at Ain Shams University, Egypt. *Global J Health Sci*, **6**, 154-161.
- Celik S, Tasdemir N, Sancak H, et al (2014). Breast cancer awareness among Turkish nursing students. *Asian Pac J Cancer Prev*, **15**, 8941-46.
- Charkazi A, Samimi A, Razzaghi K, et al (2013). Adherence to recommended breast cancer screening in Iranian Turkmen women: the role of knowledge and beliefs. *ISRN Preventive Medicine*, **2013**, 1-8.
- Che CC, Coomarasamy J, Suppayah DB (2014). Perception of breast health among Malaysian female adolescents. *Asian Pac J Cancer Prev*, **15**, 7175-80.
- Dettenborn L, Duhamel K, Butts G, Thompson H, Jandorf L (2005). Cancer fatalism and its demographic correlates among African American and Hispanic women. *J Psychosoc Oncol*, **22**, 47-60.
- Ebrahim SM (2014). Knowledge of students toward breast cancer and breast self-examination practice at high school nursing in Basra city. *J Kufa for Nurs Sci*, **4**, 1-9.
- Erbil N, Bolukbas N. (2014). Health beliefs and breast self-examination among female university nursing students in Turkey. *Asian Pac J Cancer Prev*, **15**, 6525-29.
- Ersin F, Bahar Z (2012). Effects of health promotion models on breast cancer early detection behaviors: a literature review. *DEUHYO ED*, **5**, 28-38.
- Ersin F, Bahar Z (2013). The relation between focus group discussions and the cultural care: diversity and universality theory. *DEUHYO ED*, **6**, 172-5.
- Ertem G, Kocer A (2009). Breast self-examination among nurses and midwives in Odemis health district in Turkey. *Indian J Cancer*, **46**, 208-13.
- Gok-Ozer F, Tasci-Beydag KD, Ozbay C (2009). Determination of nursing students' knowledge about breast cancer and how they perform breast examination. *Pamukkale Tip Dergisi*, **2**, 15-9.
- Gozum S, Aydin I (2004). Validation evidence for Turkish adaptation of Champion's health belief model scales. *Cancer Nurs*, **27**, 491-8.
- Gur K, Kadioglu H, Sezer A (2014). Breast cancer risks and effectiveness of BSE training among women living in a district of Istanbul. *J Breast Health*, **10**, 154-60.
- Gwarzo UMD, Sabitu K, Idris SH (2009). Knowledge and practice of breast-self examination among female undergraduate students of ahmadu bello university zaria, northwestern nigeria. *Annals of African Medicine*, **8**, 55-8.
- Health Ministry of Turkish Republic (2009). The most common ten type of cancer in women, Department of fight against cancer, Turkey cancer statistics, 2009. Available from: <http://kanser.gov.tr/daire-faaliyetleri/kanser-istatistikleri.html>.
- Jones CEL, Maben J, Jack RH, et al (2014). A systematic review of barriers to early presentation and diagnosis with breast cancer among black women. *BMJ Open*, **4**, 1-11.
- Karadag G, Gungormus Z, Surucu R, Savas E, Bicer F (2014a). Awareness and practices regarding breast and cervical cancer among Turkish women in Gaziantep. *Asian Pac J Cancer Prev*, **15**, 1093-98.
- Karadag M, Iseri O, Etikan I (2014b). Determining nursing student knowledge, behavior and beliefs for breast cancer and breast self-examination receiving courses with two different approaches. *Asian Pac J Cancer Prev*, **15**, 3885-90.
- Karayurt O, Dramali A (2007). Adaptation of Champion's health belief model scale for Turkish women and evaluation of the selected variables associated with breast self examination. *Cancer Nurs*, **30**, 69-77.
- Mayo RM, Ureda JR, Parker VG (2001). Importance of fatalism in understanding mammography screening in rural elderly women. *J Women Aging*, **13**, 1-19.
- Nahcivan NO, Secginli S (2003). Attitudes and behaviors toward breast cancer early detection: using the health belief model as a guide. *Hemsirelik Yuksek Okulu Dergisi*, **7**, 33-8.
- Niederdeppe J, Levy AG (2007). Prevention behaviors fatalistic beliefs about cancer prevention and three fatalism. *Cancer Epidemiol Biomarkers Prev*, **16**, 998-1003.
- Ozkan A, Malak AT, Gurkan A, Turgay AS (2010). Do Turkish

- nursing and midwifery students teach breast self-examination to their relatives? *Asian Pac J Cancer Prev*, **11**, 1569-73.
- Pehlivan S, Yildirim Y, Fadiloglu C (2013). Cancer, culture and nursing. *Acibadem Universitesi Saglik Bilimleri Dergisi*, **4**, 168-74.
- Powe BD (1995). Fatalism among elderly African Americans: effects on colorectal screening. *Cancer Nurs*, **18**, 385-92.
- Powe BD, Daniels EC, Finnie R (2005). Comparing perceptions of cancer fatalism among African American patients and their providers. *J Am Acad Nurse Pract*, **17**, 318-24.
- Powe BD, Finnie R (2003). Cancer fatalism. The state of the science. *Cancer Nurs*, **26**, 454-67.
- Powe BD, Hamilton J, Brooks P (2006). Perceptions of cancer fatalism and cancer knowledge. *J Psychosoc Oncol*, **24**, 1-13.
- Rizalar S, Altay B (2010). Early diagnosis applications of women with breast cancer. *Firat Saglik Hizmetleri Dergisi*, **5**, 73-87.
- Secginli S, Nahcivan N (2004). Reliability and validity of the breast cancer screening belief scale among Turkish women. *Cancer Nurs*, **27**, 1-8.
- Sevindik S, Ikde-Oner O, Celebi E, Oguconcul F (2011). Risk factors of breast cancer and knowledge and behaviours of nursing and midwifery students about breast self examination. *Life Sciences*, **6**, 1-10.
- Talbert PY (2008). The relationship of fear and fatalism with breast cancer screening among a selected target population of African American middle class women. *J Social, Behavioral, and Health Sciences*, **2**, 96-110.
- Uzun O, Karabulut N, Karaman Z (2004). Knowledge and practices of nursing students about breast self-examination. *Ataturk Universitesi Hemsirelik Yuksekokulu Dergisi*, **7**, 10-8.
- Yarbrough SS, Braden CJ (2001). Utility of health belief model as a guide for explaining or predicting breast cancer screening behaviours. *J Advanced Nursing*, **33**, 677-88.
- Yousuf SA (2010). Breast cancer awareness among Saudi nursing students. *Med Sci*, **17**, 67-78.
- Yucel SC, Orgun F, Tokem Y, Unsal-Avdal E, Demir M (2014). Determining the factors that affect breast cancer and self breast examination beliefs of Turkish nurses in academia. *Asian Pac J Cancer Prev*, **15**, 1275-80.