The relationship between women's early diagnosis of, knowledge about as well as behaviours towards breast cancer and the fear of breast cancer

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ABSTRACT

Purpose: The aim of this study is to investigate the relationship between breast cancer early diagnosis, knowledge and behaviors towards cancer and fear of breast cancer in women who applied to the KETEM
Materials and Methods: It is a descriptive study. It was carried out with 360 volunteer women who applied to KETEM between April and September 2017. A descriptive questionnaire consisting of 33 questions and the "Breast Cancer Fear Scale" were used. Percentage, mean, frequency, standard deviation, chi-square, t-test and Anova test were used to evaluate the data.
Results: While 7.5% of the women had breast self-exam, 2.8% had clinical breast examination and 9.4% had mammography. Fear of breast cancer was high in 71.9% of women, and the relationship between fear of breast cancer and self-examination and early diagnosis behaviors was statistically significant. Breast cancer fear scale mean scores were higher in women who did breast self-exam compared to those who did not. The relationship between them was statistically significant. The relationship between breast cancer early diagnosis methods and breast cancer fear scale mean scores of women was found to be significant.
Conclusion: Fear of breast cancer is high in women. In order to improve the early diagnosis behaviors of women with a high fear of breast cancer, different training programs can be organized, the factors causing fear can be determined, and counseling can be given to eliminate this fear.
Keywords: Breast cancer, Cancer, Early diagnosis, Fear of breast cancer, Woman

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INTRODUCTION

Breast cancer is one of the most common types of cancer among women in terms of incidence and mortality rates and continues to be an important public health problem that poses threat to women's health [1–3]. More than one and a half million women in the world are diagnosed with breast cancer in a year. It is estimated that 30% of new cancer cases seen among women in America in 2017 were caused by breast cancer [3]. According to Globocan 2018 data published by the International Agency for Research on Cancer (IARC), the number of new cases in both sexes in the world in 2018 was 11.6%, and the mortality rate was 6.6% [4]. According to the 2015 reports of Ministry of Health in Turkey, breast cancer ranks the first among women. Its incidence was 52.5 in a hundred thousand. One in every four women is diagnosed with breast cancer and this number is likely to increase over time [5].

It is known that the survival rates of breast cancer increase in developed countries with appropriate and effective application of early diagnosis and screening as well as treatment methods [6–8]. In order to prevent breast cancer, it is important that women at high risk be informed and followed up more closely. Determining the breast cancer risk levels of women can be life-saving in terms of early detection of breast cancer by taking the necessary measures for primary prevention and applying effective screening methods for secondary prevention [9–11].

According to the Turkish national breast cancer screening standards, as of 20, women must do BSE regularly every month, women 20-40 every 2 years, while the 40-69 age range is suggested to do CBE every year and women aged 40-69 are recommended to do mammography every two years [12]. According to the studies carried out in Turkey, women were found that they did not implement early diagnosis and screening methods at a sufficient level [13–15]. According to 2016 data from Ministry of Health Statistics Yearbook, 19.7% of women aged 15 and over in Turkey did BSE regularly every month, 60.9% never did BSE, and 71.1% of women aged 40 and over never had mammography [16]. Studies have shown that 21-83.8% of women did not have BSE, 56-82.1% did not have mammography or breast ultrasound, and 69.7% did not have CBE [17–19].

Among the reasons why women do not take early diagnosis measures for breast cancer, neglect of early diagnosis practices, not remembering, lack of information, low education and income levels, and fear are among the top reasons. The fear that the woman herself might have the breast cancer, and thus the fear of breast loss is an important factor in affecting women's early diagnosis behaviors [20]. Champion et al. (2004) reported that women with moderate breast cancer fear had high rates of early diagnosis of breast cancer, and women with low and high levels of fear of breast cancer negatively affected their ability to perform early diagnosis behaviors [21]. In a study conducted in Malaysia [22] and Miller et al. (2011) and similar studies, it was found that the rates of having mammography are low in women who have fear of breast cancer for different reasons or that fear prevents early diagnosis [23–27].

It has been stated that fear of breast cancer does not always prevent early diagnosis behaviors, but sometimes affects these behaviors positively and facilitates early diagnosis behaviors (20).

In Turkey, the studies examining the effects of the fear of breast cancer upon early diagnosis and behavior are limited. In line with this information, it was investigated whether women aged 20 and over who applied to KETEM in Kars province had fear of breast cancer, and it was aimed to determine whether the fear of breast cancer had an effect on their early diagnosis, knowledge and behavior. In this respect, it is thought that the study will contribute to the literature.

The aim of this study is to investigate the relationship between breast cancer early diagnosis, knowledge and behaviors towards cancer and fear of breast cancer in women who applied to the Cancer Early Diagnosis Screening and Training Center (KETEM) in Kars/TURKEY.

MATERIALS AND METHODS

This descriptive research was conducted with women aged 20 and over who applied to KETEM in Kars between April-September 2017. The sample size of the research was analyzed with PASS 11 package program. Considering the breast cancer fear scale scores according to BSE and mammography status, the number of samples that should be taken with a test power of at least 80% and 99.9%, respectively, at 95% confidence interval, was calculated as a minimum of 300 people. No sample was selected in the study, 360 women who were not diagnosed with breast cancer between the specified dates, who were able to communicate and volunteered to participate in the study were included in the study. Based on post hoc power analysis, the power of the test was 85.5 % at 95 % confidence interval for 360 cases based on the BSE status; the power of the test was 96.0 % at 95 % confidence interval for 360 cases based on the CBE status; the power of the test was 81.8 % at 95 % confidence interval for 360 cases based on the MG.

Data Collection Tools

As a data collection tool, developed in line with the literature by researchers, a Descriptive Questionnaire of 33 questions and Champion's "Breast Cancer Fear Scale" consisting of 8 questions were used to determine women's breast cancer fear

behavior, adapted in Turkey by Seçginli (2012) [21,28].

Descriptive Questionnaire

The questionnaire form, created by the researcher scanning the literature, consists of questions about sociodemographic characteristics (Age, education, marital status, social insurance, residential area) and Questions about early diagnosis of breast cancer (Family history of breast cancer, Knowing about breast cancer diagnosis methods, Awareness of early symptoms of breast cancer, Knowing early signs of breast cancer, Awareness of breast cancer diagnosis methods, Getting information about breast cancer and early diagnosis, knowing that BSE is important for early diagnosis, Knowing that there is a chance of getting rid of cancer with early diagnosis, Knowing early diagnosis methods, application of early diagnosis methods, BSE status).

Breast Cancer Fear Scale

The breast cancer fear scale was developed by Champion et al. In 2004 and its validity and reliability in Turkish was taken by Seçginli in 2012. The scale consists of eight items. It is a 5-point Likert type scale that is scored from 1 to 5. The minimum score to be obtained from the scale is 8 and the maximum score is 40 [21,28]. Items in the scale are ranked from 1 point to "Absolutely disagree" and "Strongly agree" to 5 points. In calculating the scores obtained from the breast cancer fear scale; 8-15 points indicate low level fear, 16-23 points medium level fear, 24-40 points high level fear. The scale average is 26.36 ± 7.29 and the Cronbach Alpha coefficient is 0.90. In our study, the mean score of the breast cancer fear scale was 26.35 ± 6.61, and the Cronbach Alpha coefficient was found to be 0.91.

Data Collection

The data were collected by the researcher with face-to-face interview technique. Each interview with women lasted 15 minutes. During the interviews, the researcher first introduced herself, informed the women about this interview, and their voluntary verbal consent was obtained. After the interview, women were briefly informed about breast cancer early diagnosis methods and symptoms.

Statistical Evaluation

Statistical analysis of the data was performed using the Statistical Package For Social Sciences (SPSS 20.0) package program. Significance level was accepted as $p < 0.05$.

It was used to determine descriptive statistics (number, percentage, average, standard deviation) of the questions in the questionnaire form prepared by the researcher. Chi-square significance test, t test and Anova analysis were performed between the breast cancer fear scores of women and breast cancer early diagnosis, knowledge and behaviors.

LIMITATION OF THE STUDY

This study is limited to women who came to KETEM between April - September 2017 in Kars province in Turkey.

RESULTS

In this section, there are findings resulting from the analysis of data obtained from 360 women. The average age of the women included in the study is 47.13 ± 13.18 years (min-max = 20-85). The average age of marriage for women was 18.45 ± 3.28 years (min-max = 13-32) and women with children breastfeed their babies for an average of 17.85 ± 5.16 months. It has been determined that 24.2% of women are illiterate, 25.5% are primary school graduates, 10.6% are university graduates, 85% are married, 79.7% have social security and 40.8% live in the village. 93.9% of the participants had children, 78.3% did not smoke, 76.9% did not exercise, 63.1% had irregular menstrual cycles, 68.3% did not use oral contraceptives, and 45.6% were in menopause, 96.4% menopause 52.5% of women were found to have moderate general health status.

The women participating in the study stated the reasons for not doing BSE: 84.3% did not know how to do BSE and 11.8% did not have time. It was determined that 64.5% of 152 women who were 40 years and older (n = 267) did not have mammography, did not have time to have mammography, 17.1% had no idea about what to do, and 7.9% was afraid to have mammography since it might have been painful.

The breast cancer fear levels of the women participating in the study were examined, and it was found that 6.7% of women had a low level of fear of breast cancer, 21.4% moderate level and 71.9% high level of fear of breast cancer. The mean score for fear of breast cancer was 26.35 ± 6.61, and it was found that women experienced high levels of fear.

It was found that 86.7% of the participants did not have a family history of breast cancer. 86.4% of women knew early signs of breast cancer, 57.5% knew the methods of breast cancer diagnosis, 51.9% received information about breast cancer and early diagnosis methods, 40.8% were the source of information from health personnel, 11%, It was determined that 2 of them received information from television, books and magazines. It was determined that 49.4% of the women had BSE, 70.3% CBE and 56.9% had never had mammography (Table 1).

In the study, it was determined that 66.7% of the women aged 39 and younger did BSE, 22.6% did CBE and 38% did not have MG. The difference between the groups according to the age variable was

found to be significant in terms of BSE and mammography ($p < 0.05$). It was determined that it has an effect on the frequency of BSE and the status of having mammography according to the educational status and the relationship between them was statistically significant ($p < 0.05$). It was found that as the education level increased, the rate of BSE increased and the rate of mammography had decreased.

It was determined that 64.6% of those with a history of breast cancer in their relatives had BSE, 56.2% CBE and 54.2% had mammography, and the difference between the groups was statistically significant ($p < 0.05$).

Looking at Table 2, the breast cancer fear scale score is higher in married women compared to single women, and a statistically significant difference was found between marital status and breast cancer fear scale score average ($p < 0.05$). A significant difference was found between the place of residence and the mean score of the breast cancer fear scale ($p < 0.05$).

According to the Posthoc test Tukey analysis, it was found that the group living in the city center caused this difference.

The fear scale mean score of those with a family history of breast cancer was found to be higher ($p < 0.05$).

It was found that age, education and social security status did not affect breast cancer fear status ($p > 0.05$).

When Table 3 is examined, the fear scale score average of those with a family history of breast cancer was found to be higher ($p < 0.059$). Individuals with breast cancer in their family experience higher levels of breast cancer fear.

Table 1. Breast cancer early diagnosis information of women, status of practicing early diagnosis methods (n = 360)

Breast Cancer Early Diagnosis Information	**n**	**%**
Family history of breast cancer		
Yes	48	13.3
No	312	86.7
Awareness of early signs of breast cancer		
Aware	311	86.4
Unaware	49	13.6
Awareness of the methods of diagnosing breast cancer		
Aware	207	57.5
Unaware	153	42.5
Status of Getting information about breast cancer and early diagnosis methods		
Yes	187	51.9
No	173	48.1
Source of Information (n=187])		
Healthcare personnel	147	40.8
Tv, book, magazine	40	11.2
Status of Practicing Early Diagnosis Methods		
Status of BSE		
Never	178	49.4
Sometimes	155	43.1
Regularly	27	7.5
CBE		
Never	253	70.3
Sometimes	97	26.9
Regularly	10	2.8
Mammography*		
Never	152	56.9
Sometimes	90	33.7
Regularly	25	9.4

*Women aged 40 and over were analyzed (n = 267)

Table 2.Mean score of breast cancer fear scale based on certain descriptive characteristics of women (n = 360)

Characteristics	**Breast Cancer Fear Scale Score**		
		X±SD	**Statistical Value**
Age	39 and under	27.23±6.63	t=1.50 p=0.13
	40 and over	26.04±6.58	
Education	Illiterate	24.64±7.53	F=2.195 p=0.054
	Literate	26.84±5.95	
	Primary School	26.01±6.88	
	Secondary School	27.31±4.96	
	High School	27.70±6.72	
	University	27.52±5.38	
Marital Status	Married	26.70±6.40	**t=2.44 p=0.01**
	Single	24.33±7.42	
Social Insurance	Yes	26.46±6.72	t=0.64 p=0.52
	No	25.90±6.19	
Residential Area	City center	27.98±6.36	**F=5.99 p=0.00**
	County	25.22±6.07	
	Village	25.67±6.90	
Breast cancer history in relatives	Yes	29.50±6.02	**t=3.60 p=0.00**
	No	25.86±6.57	

Table 3. Distribution of women's breast cancer early diagnosis knowledge status and breast cancer fear scale scores (n = 360)

Characteristics	**Breast Cancer Fear Scale Score**		
	Value	**X±SD**	**Statistical**
A family history of breast cancer	Yes	29.50±6.02	**t=3.60 p=0.00**
	No	25.86±6.57	
Knowing about breast cancer diagnosis methods	Knowing	27.14±6.48	**t=2.67 p=0.008**
	Not knowing	25.27±6.66	
Knowing early signs of breast cancer	Knowing	27.45±6.48	**t=3.38 p=0.001**
	Not knowing	25.12±6.55	
Getting information about breast cancer and early diagnosis	Yes	27.54±6.41	**t=3.60 p=0.000**
	No	25.06±6.60	
Knowing that BSE is important for early diagnosis	Knowing	27.38±6.39	**F=6.36 p=0.002**
	Not knowing	24.51±6.15	
	Knowing partially	5.45±7.14	
Knowing that there is a chance of getting rid of cancer with early diagnosis	Knowing	26.52±6.50	t=1.23 p=0.217
	Not knowing	25.26±7.24	
Knowing early diagnosis methods	Not knowing	24.89±6.79	**F= 7.63 p=0.00**
	BSE	26.47±7.14	
	Mammography	18.66±3.05	
	All*	28.25±5.46	

*BSE, CBE and mammography

The mean score for fear of breast cancer among those who knew about breast cancer diagnosis methods was higher than those who did not, and the relationship between them was statistically significant ($p < 0.05$).

The significant ($p < 0.05$) relationship between the awareness of early signs of breast cancer and the fear of breast cancer among the women participating in the study.

The mean score of the women who received information about breast cancer and early diagnosis was higher than those who did not, and the relationship between them was statistically significant ($p < 0.05$). The relationship between knowing that BSE is important for early diagnosis and fear of breast cancer was statistically significant ($p < 0.05$).

The mean score of those who knew about early diagnosis methods was higher than those who did not know the fear of breast cancer, and the relationship between them was statistically significant ($p < 0.05$). The relationship between early diagnosis and knowing that there is a chance of getting rid of cancer and the mean score of the fear of breast cancer scale was not statistically significant ($p > 0.05$).

In Table 4, the breast cancer fear scale mean score of women who have never done BSE was found to be the lowest (25.06 ± 6.58), and the difference between the groups was statistically significant ($p < 0.05$). The mean score of the breast cancer fear scale was higher (29.10 ± 6.69) in women who had CBE regularly than those who did not, and the difference between the groups was statistically significant ($p < 0.05$). Breast cancer fear scale mean score of women who had never had mammography was found to be the lowest, and the difference between the groups was statistically significant ($p < 0.05$).

Table 4. Mean scores of breast cancer fear score of women according to breast cancer early diagnosis and applications

Characteristics	**Mean Scores of Breast Cancer Fear Scale**		
	VALUE	**X±SD**	**Statistical**
BSE Status	Never Sometimes Regulary	25.06±6.58 27.78±6.04 26.59±8.30	F=7.30 p=0.00
CBE Status	Never Sometimes Regulary	25.36±6.46 28.62±6.40 29.10±6.69	F=9.88 p=0.00
Mammography (n = 267)	Never Sometimes Regulary	24.57±6.09 28.13±6.61 27.40±7.30	F=6.90 p=0.00

DISCUSSION

This research reveals that women's BSE status is not sufficient, and lack of sufficient information about BSE affects attitudes and behaviors towards breast cancer.

In the study, it was determined that 70.3% of women never had CBE, and 26.8% occasionally had it. 31.3% of women by Donnelly et al. (2013), 30.3% by Avcı et al. (2014), 13.9% by Norouznia (2014), and 15.5% by Sohbet and Karasu (2017) [18,19,26,29]. was found to do CBE. The low rate (2.8%) of women regularly having CBE in this study may be related to the insufficient knowledge of women on CBE. In addition, the fact that 40.8% of women live in the village may have negatively affected their access to health services.

In the study, it was determined that only 9.4% of women had regular mammography and 33.7% of them had mammography occasionally. 19.7% of women [29] were reported to do MG by Sohbet and Karasu [2017); 17.9% by [19] Avcı et al. (2014); 21% [24] by Yavan et al. (2010) ; 22.8% [26] by Norouznia (2014); 26.9% [18] by Donnelley et al. (2013). The results of this study are in line with results in the literature.

In the study, the difference between BSE and mammography according to the age variable was found to be statistically significant ($p < 0.05$). In the study of Donnelly et al. (2013), it was stated that there was a statistically significant difference between the age of women and their BSE behavior [18]. In the study of Sönmezer et al. (2012), it was stated that there was a significant relationship between age and the status of having mammography [30]. The results of this study are similar to the research results in the literature.

It was determined that the higher the education level, the higher the rate of BSE, and the lower the mammography rate ($p < 0.05$). Many studies have obtained similar results to the results of this study. It is observed that as the educational status increases, awareness about breast cancer early diagnosis and applications increases, but education is not effective in terms of mammography [7,19,24].

In the study, it was determined that 64.6% of those with a history of breast cancer in the relatives had BSE, 56.2% had CBE and 54.2% had mammography, and the difference between the groups was statistically significant ($p < 0.05$). It was found that 8.3-59% of individuals with a family history of breast cancer regularly perform BSE every

month, and their mammography rate is higher than these figures [8,14,31]. It is expected that women's knowledge and attitudes towards breast cancer and its early diagnosis will increase if they have breast cancer in their relatives. Their behavior is also expected to be positive. Our study findings were found to be higher than other studies.

In the study, it was determined that 6.7% of women had low level of fear of breast cancer, 21.4% of them moderate level and 71.9% of them had high level of fear of breast cancer ($p < 0.05$). It was determined that the mean score for fear of breast cancer was 26.35 ± 6.61 and accordingly, women experienced a high level of fear. In a similar study, 5.8% of women had a low fear of breast cancer, while 82.6% had a high level of fear of breast cancer [27]. In another study, 55.6% of women were found to have a moderate fear of breast cancer [34]. In the study of Yavan et al. (2010), it was stated that 85.1% of women had a fear of breast cancer [25]. The results of this study are similar to the research results in the literature. Norouznia, (2014) found a significant relationship between the fear of breast cancer and the behavior of doing BSE [27]. In addition, it was found that women with moderate breast cancer fear level mostly performed BSE. In the studies of Aydoğdu and Bahar (2012), it was stated that women did not do BSE due to fear of getting a mass in hand [28]. The results of this study are similar to the research results in the literature.

In the study, fear of breast cancer scale score was found to be significantly higher in married women compared to single women ($p < 0.05$). It was stated in the study of Güçlü and Tabak (2013) that married women and women aged 35 and over performed BSE more [35]. The reason why married women have more fear of breast cancer compared to single ones may be due to the fact that married women have more family responsibilities than singles, and they have a spouse and children whom he is responsible for. In the study, a significant difference was found between the place of residence and the mean score of the breast cancer fear scale ($p < 0.05$). This difference is due to women living in the city center, the fact that being in the city center is very accessible to early diagnosis and applications of breast cancer, and they may be afraid of breast cancer with the thought of developing breast cancer.

Fear of breast cancer appears to be an important determinant for women to perform early diagnosis behaviors of breast cancer. The mean score of breast cancer fear scale of those who knew about breast cancer diagnosis methods was higher than those who did not, and the relationship between them was found to be statistically significant ($p < 0.05$). Although Polat's (2015) study with seasonal agricultural worker women reported that 50% of women had not received any information about breast cancer and early diagnosis practices until then, 32% wanted to get information from a healthcare professional [36]. Similar to this study, in the study of Ersin et al. (2015), breast cancer fear scale scores of women with MG were found to be significantly higher than those who did not have MG [34]There are many studies indicating that fear affects breast cancer early diagnosis behaviors [28,38]. Women with a high level of fear of breast cancer may be taking breast cancer seriously, with a higher rate of applying early diagnosis behaviors compared to women with low and moderate fear. The reasons why women with low fear of breast cancer do not engage in early diagnosis behaviors may be due to their not taking cancer seriously and / or adopting a fatalism. Fear arises because cancer is seen as a fatal and serious disease in most societies. In this study, it is an expected result that the breast cancer fear scale mean scores of those who undergo breast self-examination, clinical breast examination and mammography are high.

Mean score of those with a family history of breast cancer was found to be higher ($p < 0.05$). Studies show that women with a familial history of breast cancer have anxiety, fear, despair, etc. It has been reported that they experience emotional states such as [39,40]. Individuals with breast cancer in their family are expected to have a higher fear of breast cancer. Having breast cancer nearby makes women take breast cancer seriously and worry about the harmful consequences of breast cancer. This situation causes an increase in breast cancer fear levels.

The relationship between the knowledge of early signs of breast cancer and the fear of breast cancer was found statistically significant ($p < 0.05$). It has been determined that levels of breast cancer fear were found higher in women who know the early signs of breast cancer, have knowledge about early diagnosis, think that BSE is important for early diagnosis and know all of the early diagnosis practices and methods. It is thought that knowing the applications and methods of early diagnosis of breast cancer and the thought that they will develop breast cancer while applying them make women feel a high level of fear. The average score for fear of breast cancer among those who knew about early diagnosis methods was found to be higher than those who did not ($p < 0.05$). In a study, a significant difference was found between breast cancer fear level and early screening behaviors [27]. In another study, it was found that women who had low and high levels of fear of breast cancer had less mammography and CBE compared to those who experienced moderate fear [41]. It has been found that women who know the diagnostic methods of breast cancer have higher fear of breast cancer, and it is thought that women feel more fear because of the knowledge of the diagnostic methods, which suggests that they will develop breast cancer. The higher rates of women with a high level of fear of breast cancer compared to women with low and moderate fear may be that

they take breast cancer seriously. The reasons why women who experience low fear of breast cancer do not engage in early diagnosis behavior may be due to their not taking cancer seriously and / or adopting a fatalism.

The mean score for fear of breast cancer was found to be higher in women who received information about breast cancer and early diagnosis than those who did not ($p < 0.05$). In Polat's (2015) study with seasonal agricultural worker women, it was stated that 50% of women had not received any information about breast cancer and early diagnosis practices until then, and 32% wanted information from a healthcare professionals [36]. The relationship between the fear of breast cancer and the knowledge that cancer is important for early diagnosis of BSE during the treatment process was found to be statistically significant ($p < 0.05$). The fear of breast cancer arises because cancer is seen as a fatal and serious disease in most societies. In this study, it is an expected result that the breast cancer fear scale mean scores of those who undergo breast self-examination, clinical breast examination and mammography are high. Studies have reported that fear affects breast cancer early diagnosis behaviors [28,38].

Similar to this study, in the study of Ersin et al. (2015), the mean breast cancer fear scale scores of women with MG were found to be higher than those who did not have MG, and the difference between them was statistically significant [37]. Karabaş (2013) found that 74.8% of women who were afraid of having breast cancer did BSE, and 74.7% of those who were not afraid did not, and did not find a statistically significant relationship between fear of having breast cancer and having BSE [38]. In the study by Donnelly (2013), fear of being diagnosed with breast cancer was not found to be an important obstacle for Arab women to participate in screenings [19]. In Seçginli's (2012) study, no statistically significant difference was found between the groups who had mammography and those who did not [29].

The mean score of breast cancer fear scale in women who have never done BSE was found to be significantly lower ($p < 0.05$). Similar to this study, Polat's (2015) study conducted with seasonal agricultural worker women found a significantly higher breast cancer fear scale score averages of women who did BSE than those who did not [36]. It is an expected result that women who do not have BSE should not be afraid of breast cancer. The fact that 84.3% of the women participating in the study did not know how to do BSE and 11.8% did not have time supports this result. If the reason why women do not have BSE and fearlessness is due to lack of knowledge, it is important to correct this deficiency.

The mean score of the breast cancer fear scale was found to be higher in women who had CBE regularly than those who did not ($p < 0.05$). Similar to this study, in Polat's (2015) study conducted with seasonal agricultural workers, the breast cancer fear scale mean scores of women who had CBE were found to be significantly higher than those who did not [36].

Breast cancer fear scale score average of women who had never had mammography was found to be the lowest. It was found that they experienced a lower level of fear ($p < 0.05$). Similar to this study, Ersin et al. (2015) found that women who had MG had higher mean breast cancer fear scale scores than those who did not have MG [37]. Similar to this study, Polat's (2015) study conducted with seasonal agricultural workers found significantly higher breast cancer fear scale scores of women who had MG than those who did not [36]. In the study conducted by Miller et al. (2011) [24], a statistically significant difference was found between the fear of breast cancer and the status of having mammography, and it was found that the high fear of breast cancer increased the behavior of having mammography. Norouznia (2014) found a significant difference between the fear of breast cancer and the behavior of having mammography [27]. She stated that women who felt the fear of breast cancer at a moderate level had more mammography than women who felt low and high. In another study, it was found that women who felt moderate breast cancer fear had more mammograms than women who felt low and high levels of breast cancer fear [41]. In another study, it was stated that the participants did not undergo mammography due to fear of breast cancer [28]. In the study conducted by Seçginli (2012), no statistically significant difference was found in the breast cancer fear scale mean score between the groups of women with and without MG [29]. The results of this study are similar to the results of the studies in the literature, and there is a difference, and it is observed that the effect of breast cancer fear on early diagnosis and applications is positive and negative.

CONCLUSIONS

As a result of this study, breast cancer fear scores of women were found to be at a high level, and it was determined that those who had fear of breast cancer negatively affected the behavior of self-examination, clinical breast examination and mammography. It would be beneficial to train women on early diagnosis methods of breast cancer.

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Conflict of interests

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