



# An Example from the Rural Areas of Turkey: Women Breast Cancer Risk Levels and Application and Knowledge Regarding Early Diagnosis- Scan of Breast Cancer

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## ABSTRACT

**Objective:** This research has been conducted for the purpose of determining the cancer risk levels of women living in a small village of in Saraycık village of Ankara and their knowledge and application of breast cancer early diagnose-scan methods.

**Materials and Methods:** 317 women were taken as examples for the study. Data were collected by giving survey forms to women and conducting face-to-face interviews. In determining breast cancer risk, "the form to determine the breast cancer risk" has been used. For breast cancer informational questions, one point has been given for each correct answer. In evaluating the data, number, percentage calculations, average and standard deviation, Mann-Whitney U (MU), Kruskal-Wallis (KW), One-way analysis of variance (F) independent sample T (t) tests have been used.

**Results:** It has been found that breast cancer risk is low, the knowledge level about cancer early recognition methods are medium among the women. It has been determined that 74.4% women didn't perform breast self-examination. 89.6% of women don't have mammography taken and 88.6% don't have their breast examined by health personnel.

**Conclusion:** In our study, it has been found that the risk levels of women are low, their knowledge about early diagnosis and cure are at a medium level and their use of these methods are inadequate. For this reason, we suggest that responsibility of healthcare professionals have to be increased in determining breast cancer risk among women and education and advisory services for this subject to be offered.

**Keywords:** Breast cancer, early diagnosis methods, risk level, women

## Introduction

Breast cancer is one of the types of cancer that are most commonly seen among women and cause the highest mortality and it constitutes approximately 25% of all cancers in women and 15% of all cancer-related deaths in women (1).

The International Cancer Agency stated that the incidence of breast cancer increased by 20% and deaths by 14% among women in the year 2012 according to the 2008 data (2). The incidence of breast cancer is higher in developed countries than in developing countries and mortality due to breast cancer is lower in developed countries in comparison to developing countries (3). The most commonly seen cancer type in American women is the invasive breast cancer with 231,840 new cases and it is estimated that 40,290 women died because of that (4). In Turkey, breast cancer is the most commonly seen type of cancer among women. One out of every 4 cancers diagnosed in women within the year 2013 is breast cancer (5). While the incidence of breast cancer in 2006 was 37.6 out of 100.000, this rate rose to 41.6 in 2008 (6) and to 45.9 between the years 2009-2013 (5). Additionally, breast cancer ranks the first among the reasons for cancer-related deaths in women with a ratio of 16.7% (7). In Turkey, it is seen that 45% of women diagnosed with breast cancer are aged between 50 and 69 and 40% are aged between 25 and 49 (5). Breast cancer not only threatens the lives of women, it also influences their sexual identity and physical appearance, thereby jeopardizing their mental health. For that reason, early diagnosis protects women against mental troubles as well as any disruptions that may occur in their physical structures. Mammography, ultrasonography (USG), clinical examination and breast self-examination (BSE) rank the first among the methods for early diagnosis and screening in breast cancer (8). Methods for early diagnosis facilitate women to become knowledgeable about this subject and participate in screening programs (9).

Several studies conducted demonstrate that women do not have knowledge about BSE, which is free of charge and takes a very short time, and do not perform BSE (10-12). According to the study report on health improvement in Turkey, 65.1% of the individuals above the age of 19 have not performed BSE at all to date (13). The American Ministry of Health and Cancer Society conducted 5-year-long study recommending BSE, mammography and clinical examination to 280 thousand women inhabiting in 29 different areas and 75% of the women (1200 women) were found to have early-stage breast cancer (14).

Therefore, it is primarily necessary to ensure that women regularly perform BSE, undergo clinical examination and mammography as methods for early diagnosis of breast cancer and to demonstrate the breast cancer risk factors and identify the risk groups in every society towards the aim of enhancing the effectiveness of early diagnosis programs (15).

High-risk groups should be identified and early diagnosis and treatment programs should be primarily implemented in risky groups to ensure the effectiveness of early diagnosis programs for breast cancer (8). Important risk factors for the development of breast cancer include age, family history of cancer, early menarche or late menopause, history of childbirth and ionized radiation (16-18). Knowledge of the afore-mentioned risk factors is very important in protecting against breast cancer, early diagnosis and increasing the chance of treatment.

The approaches that are most commonly known and applied globally are cancer screening programs. These programs enable a higher awareness of cancer among individuals, an understanding of the importance of early diagnosis and provision of appropriate treatment (19). In Turkey, the awareness level of women about breast health is very low in comparison with women in western countries (20, 21). Even though cancer screening centers have recently been opened in Turkey, the number of women presenting to these centers is still not at the desired level. The attitudes/beliefs and perceptions of women about the value of health may be considered as an important barrier in the way of their participation.

Therefore, the responsibility of healthcare professionals is to provide women with advice on early diagnosis and treatment. To be able to effectively carry out the training programs and advisory services towards women, it is required to determine the knowledge women regarding their breast cancer risk levels as well as their knowledge and practices regarding the methods for early diagnosis and treatment. Hence, this study was conducted to identify the knowledge of women living in a village of Ankara, the Turkish capital, about their breast cancer risk levels and their knowledge and practices regarding the methods for early diagnosis and treatment.

## Materials and Methods

This descriptive study was conducted in Saraylık village of Ankara. The study universe was made up of women at an above the age of 20 registered at the family health center of 6<sup>th</sup> Health Care. The study sample was calculated based on the formula of the frequency at which an event occurs in situations where the universe is known (22). It was identified that 317 women above 20 had to be contacted and the entire sample was contacted.

The data were prepared by the researchers based on a literature review (8, 16, 17, 19, 21, 23, 24). After that, a face-to-face interview method was employed using a survey form the scope of which was validated based on the opinions of three experts; the data were collected by two people conducting the said interviews at the houses of women. The survey form is composed of four sections that include multiple choice and open-ended questions. In the first part, questions

about the socio-demographic characteristics of women (10 questions) were included; in the second part, knowledge check questions about methods for early diagnosis (18 questions) were included; in the third part, questions about the application of methods for early diagnosis (15 questions) were included and in the fourth part, questions about the risk assessment form geared towards breast cancer were included. It took approximately 30-45 minutes to complete the survey form. A written approval from the Ethics Committee and written consents from women were obtained to be able to conduct the study.

## Statistical Analysis

The information obtained was assessed by the researchers in the computer environment using the SPSS (Statistical Package for Social Sciences) 11.5 (Chicago, IL, USA) package program. For assessment, the knowledge score was used as the dependent variable and descriptive characteristics were used as the independent variable. In assessing the answers to the knowledge check questions on the methods for early diagnosis of breast cancer, "1 point" was assigned to every correct answer and "0 points" were assigned to every wrong answer. The total score that can be obtained in knowledge check questions is 18. In our study, 18 points were considered to represent 100 and evaluations were made in four groups as follows: very good (13.5-18 points), good (13.4-9 points), moderate (4.5-8.9 points) and poor (4.4 points and lower).

The weights and heights of women were measured by the researchers. After that, the Body Mass Index (BMI) values of women were calculated as follows: the weight was divided to the squared height ( $BMI = \text{Weight (kg)} / \text{Height (m}^2\text{)}$ ). Those with a BMI below 18.5 were assessed as underweight; those between 18.5 and 29.9 were assessed as normal and those at or above 30.0 were assessed as overweight (25).

For assessing the risk factors, the "Form for Assessing the Breast Cancer Risk", which was developed by the American Cancer Society and recommended by the Turkish Ministry of Health towards the aim of evaluation breast cancer risk, was applied. In the Breast Cancer Risk Assessment Form, specific scores are calculated for every risk factor including the age, family history of breast cancer, personal history of breast cancer, age at childbirth, menstrual history and bodily characteristics in order to determine the risk level (four levels as follows: "200 points and below" - low risk, "201-300 points" - moderate risk, "301-400 points" - high risk, "400 points and above" - the highest risk) (26). In order to assess the data, the number, percentage calculation, average and standard deviation, Mann Whitney U (MU), Kruskal-Wallis (KW), One-Way Analysis of Variance (F) and Independent Sample T-Test (t) were used.

## Results

The average age of women in our study was  $39.03 \pm 14.979$ , 57.7% were aged between 20-39, 82.3% were married, 53.9% had been living in their residence area for 12 years or more, 91.8% lived in the Central Anatolia region for the longest time of their lives, 58.7% were primary school graduates and 60.5% had husbands that were primary school graduates. It was identified that 98.4% of women were not working, 74.1% had some form of social security, 67.8% had social security provided by SKK (Social Security Agency of Turkey), 69.1% considered that they had mid-level income and 61.2% were overweight. While the difference between their average scores for breast cancer knowledge and their age, marital status, time of residence in their current location, the area where they lived the longest, employment status, perception of income level and bodily characteristics was not found statistically significant ( $p > 0.05$ ) while the difference between their average scores for breast cancer knowledge and the area where they lived

Table 1. Comparison of the average breast cancer knowledge scores of women based on specific characteristics

Characteristics	Number	%	n=317	
			Average knowledge score (X±SD)	Statistical analysis
<b>Age</b>				
20-39	183	57.7	8.19±3.598	F=1.759
40-49	61	19.2	7.52±3.557	p=0.415
50 and above	73	23.0		
<b>Marital status</b>				
Married	261	82.3	8.13±3.589	KW=3005.000
Single	26	8.2	9.08±4.088	
Widow-divorcee	30	9.5	5.87±2.177	p=0.334
<b>Duration of residence at the current Location</b>				
5 years and below	97	30.6	8.05±3.607	F=1.475
6-11 years	49	15.5	8.45±3.658	
12 years and above	171	53.9	7.83±3.573	p=0.478
<b>Region of longest residence</b>				
Central anatolia	291	91.8	8.01±3.569	KW=0.438
Eastern anatolia	9	2.8	6.89±2.667	
Other	17	5.4	8.24±4.423	p=0.803
<b>Location of longest residence</b>				
Province	25	7.9	9.00±3.651	KW=3.541
Sub-province	60	18.9	8.82±3.762	
Village	232	73.2	7.67±3.501	p=0.030
<b>Educational status</b>				
Illiterate	58	18.3	5.86±2.585	KW=53.416
Literate	23	7.3	7.26±3.078	
Primary school	186	58.7		
Secondary school	21	6.6	9.38±3.775	p=0.001
High school-university graduate	29	9.1	11.28±2.59	
<b>Education status of husband</b>				
Illiterate	7	2.7	5.71±2.059	KW=27.791
Literate	11	4.2	4.64±1.206	
Primary school	158	60.5	7.83±3.506	
Secondary school	46	17.6	9.13±3.851	p=1.000
High school-university graduate	39	14.9		9.59±3.218
<b>Employment status</b>				
Working	5	1.6	8.60±3.715	MU=677.000
Not working	312	98.4	7.98±3.595	p=0.611
<b>Social security status</b>				
Present	235	74.1	8.60±3.715	t=-4.450
None	82	25.9	7.98±3.595	p=0.030
<b>Social security type</b>				
Social security agency	160	67.8	8.18±3.456	KW=8.491
SSA for self-employed	27	11.4	8.67±4.000	
Pension fund	28	11.9	9.18±3.791	p=0.037
Green card	21	8.9	6.33±2.331	
<b>Perception of the income level</b>				
Good	56	17.7	8.50±3.469	F= 2.660
Middle	219	69.1	8.08±3.594	
Low	42	13.2	6.88±3.597	p=0.072
<b>Bodily characteristic</b>				
Underweight	17	5.4	7.24±3.382	KW=1.394
Normal	106	33.4	8.33±3.807	
Overweight	194	61.2	7.88±3.487	p=0.498

X: mean  
SD: standard deviation  
MU: Mann-Whitney U testi  
KW: Kruskal Wallis-H Testi  
F: Varyans Analizi = ANOVA

Table 2. Distribution of average risk scores for breast cancer of women (n=317)

Risk Factor	Category	S	%	Average risk score X±SD
Age	30 years and below	105	24.5	93.14±34.055
	30-40 years	88	22.3	101.36±18.581
	41-50 years	55	20.6	149.36±16.640
	51-60	38	16.9	177.11±24.540
	60 years and above	31	15.7	202.42±19.743
<b>Family history of breast Cancer</b>	None	307	96.8	124.02±44.997
	An aunt or a grandmother	7	2.2	167.86±42.608
	Mother or sister	3	1.0	223.33±46.458
	Mother and sister	-	-	- -
	Mother and two sisters	-	-	- -
<b>Personal history of cancer</b>	No breast cancer	317	100.0	125.93±46.274
	Breast cancer present	0		±
<b>Age at first childbirth</b>	Before 30	266	83.9	122.91±46.083
	After 30	6	1.9	184.17±32.468
	No children	45	14.2	136.00±42.980
<b>Age of first menstruation</b>	15 years and above	-	-	-
	11 years and below	26	8.6	132.50±42.573
	12-14	291	91.4	125.34±46.613
<b>Bodily characteristic</b>	Underweight	17	3.7	85.88±30.580
	Normal	106	26.2	98.77±37.940
	Overweight	194	70.1	144.28±41.960
<b>Total</b>		317	100	125.93±46.274

X: mean  
SD: standard deviation

the longest, their educational background, their husbands' educational background, social security status and type of social security was found statistically significant ( $p<0.05$ ) (Table 1).

Almost all of the women were found to have a low Average Risk Score (ARS) for breast cancer:  $125.34 \pm 46.274$ . The ARS was "93.14±34.055" for women below the age of 30, "101.36±18.581" for those aged between 30-40, "149.36 ± 16.640" for those aged between 41-50, "177.11 ± 24.540" for those aged between 51-60 and "202.42 ± 19.743" for those at or above 60 years of age. Additionally, it is seen that the risk score of women increased in parallel with age. Those who were below 60 years of age had low risk levels while those above the age of 70 had moderate risk levels (Table 2).

**Table 3. Comparison of average breast cancer knowledge scores against the fertility characteristics**

Characteristics	Number	%	X ± SD	n=317
				Statistical analysis
<b>Age of first menstruation</b>				
11 years and below	26	8.2	8.54±3.690	MU=3503.000
12 and above	291	91.8	8.44±3.658	p=0.532
<b>Age at first childbirth</b>				
30 and below	266	97.8	8.00±3.607	MU=365.000
30 and above	6	2.2	5.17±1.941	p=0.033
<b>Number of pregnancies</b>				
1-2	69	25.7	8.91±3.811	t=2.999
3 and above	199	74.3	7.59±3.438	p=0.003
<b>Number of living children</b>				
1	28	10.4	8.00±3.485	KW=16.734
2	78	29.0	9.26±3.869	p=0.000
3 and above	163	60.6	7.32±3.290	
<b>Breastfeeding of the youngest child</b>				
Breastfeeding	252	95.5	7.98±3.623	MU=1189.000
No Breastfeeding	12	4.5	6.67±2.535	p=0.211
<b>Duration of breastfeeding for the youngest child (months)</b>				
5 months and less	48	19.1	8.48±3.936	KW=1.594
6-12 months	75	29.9	7.95±3.401	p=0.205
13 months and more	128	51.0	7.83±3.534	
<b>Climacterium status</b>				
Climacteric	74	23.3	6.35±2.722	t= -4.126
Non-climacteric	243	76.7	8.49±3.679	p=0.000
<b>Age of menopause</b>				
Early Menopause	58	78.4	6.69±2.754	MU=406.000
Late Menopause	16	21.6	5.13±2.277	p=0.015
<b>Status of taking medicines for menopause</b>				
Taking Medicines	10	13.5	7.70±2.830	MU=207.00
Not Taking Medicines	64	86.5	6.16±2.662	p=0.074

X: mean  
SD: standard deviation  
U: Mann-Whitney U test  
W: Kruskal Wallis-H Test  
t: t test

Also, 3.2% of women (10 women) had family history of breast cancer. Looking at the average score for breast cancer as compared to the family history of breast cancer, it can be seen that those who had history of breast cancer in an aunt or grandmother had an ARS of 167.86 ± 42.608 while those who had history of breast cancer in their mother or sister had an ARS of 223.33 ± 46.458. As can be seen, those who had history of breast cancer in their mother and sister were found to

have higher risk scores than others and their risk was identified to be moderate (Table 2).

Additionally, 83.9% had given birth to their first child before the age of 30. The ARS of those who gave birth to their first child before the age of 30 was 122.91 ± 46.083 while this score was 136.00 ± 42.98 for women who had never given birth. The breast cancer risk score of women who gave birth after the age of 30 was higher in the study while they were found to have a low risk level (Table 2).

To add, 91.4% of women had their first menstruation between the ages 12-14 and their ARS was 125.34 ± 46.63. According to the Body Mass Index calculation, 70.1% of women were overweight with an ARS of 144.28 ± 41.96. The breast cancer risk level of these women was identified to be low according to the age at menstruation and body mass index of women (Table 2).

In our study, the Average Knowledge Score (AKS) of women regarding the early diagnosis methods for breast cancer was 7.99±3.591, which is the moderate level. Also, 10.1% of women were identified to have very good level of knowledge about early diagnosis methods for breast cancer, 28.7% good, 43.2% moderate and 18.0% poor.

In addition, 91.8% of women had the age of first menstruation at or above 12 years, 97.8% had the age of first childbirth at or below 30 years, 74.3% had 3 or more pregnancies, 60.6% had 3 or more children that were alive, 95.5% breastfed their youngest child, 51.0% breastfed their youngest child for 13 months or longer, 76.7% were climacteric, 78.4% had menopause at an early age and 86.5% did not use any medicines for menopause. The average of women at menopause was identified to be 46.04 years and the average breastfeeding duration was identified to be 2.3 months. The difference between the women's average scores for knowledge of breast cancer and their age at first menstruation, status of breastfeeding the youngest child and its duration, status of being climacteric, status of taking medicines for menopause was found not to be statistically significant (p>0.05) while the difference between their average scores for knowledge of breast cancer and their age at first childbirth, number of pregnancies, number of living children, status of being climacteric and age at menopause was found to be significant (p<0.05) (Table 3).

It was identified that 74.4% of women did not perform BSE, 82.4% did not undergo mammography and 88.6% did not have their breast examinations performed by healthcare professionals. As for the other findings not indicated on the table, it was found that 66.1% of women did not know how to perform BSE and 50.6% of those who performed BSE did it for early diagnosis of cancer. Furthermore, 53.1% of women specified that they regularly performed BSE. When women were asked how they performed BSE, 72.8% of them were identified as performing it wrong. It was determined that 78.5% of women did not undergo mammography since they did not have any complaints. Additionally, 48.4% stated that they did not undergo it since they had no complaints while 36.7% stated that the reason was that they were unaware of this clinical examination. It was determined that 63.7% of women did not know about BSE, 84.2% wanted to receive information on BSE and 92.9% of women who wanted to receive information on BSE wished to receive it from a healthcare professional (Table 4).

**Table 4. Practices of women for early diagnosis and screening of breast cancer**

<b>n=317</b>		
<b>Methods for early diagnosis and screening</b>	<b>n</b>	<b>%</b>
<b>Status of performing BSE</b>		
Performing it	81	25.6
Not performing it	236	74.4
<b>Status of undergoing mammography (at and above 40 years)</b>		
Undergoing it	23	17.6
Not undergoing it	108	82.4
<b>Status of having breast examination performed by healthcare professionals</b>		
Having it performed	36	11.4
Not having it performed	281	88.6

BSE: breast self-examination

## Discussion and Conclusion

Breast cancer is an important public health problem since it is frequently seen among women and it is a life-threatening disease. In the year 2008, it constituted 23% of all cancers in women globally (27) and in the year 2012, it was reported that it constituted 25% thereof. It has been reported that it has a share of 15% in all cancer-related deaths in women (1). In Turkey, it is stated that the share of breast cancer among the 10 most common cancers is 23.4% (13). For that reason, groups that are under risk should be prioritized by taking into account the economic burden that would be brought by handling the entire society at once in countries with limited resources (28).

According to the literature, the risk factors for breast cancer include the following: having a significant breast disease, family disposition, genetic factors, pregnancy at an early age, ovary activity, endocrine factors, early-onset menstrual cycle, late menopause, childbirth at a young age, not having given birth and short lactation period (24,29,30). In our study, the breast cancer risk level for all women was found to be low with ARS at  $125.34 \pm 46.274$  (Table 2). In some studies performed, 91.8% (31), 94.4% (32), 98.5% (15) and 81% (33) of women were found to be in the low risk group. The fact that the majority of women had low breast cancer risk according to the specified research findings is similar to our research finding. It is considered that the low level of breast cancer risk found in our study was influenced by the following factors: the young age of women, most of them not being in menopause and the majority of women currently breastfeeding (Table 3).

Female sex and ageing are important risk factors for breast cancer (34). As a matter of fact, the breast cancer risk of a woman aged 20 is 0.05% while this rate goes up to 1.49% at the age of 40 and to 3.45% at the age of 60 (35). The average age of women in our study was  $39.03 \pm 14.979$  and the risk score increases in parallel with age. In the studies performed, it has been identified that breast cancer risk increases in parallel with age (15,36). Our study finding is in keeping with the literature and other studies (37,38). In the studies performed, it is specified that genetic factors have play a role with an extent of

5-10% in breast cancer (35,39-43). In our study, those who had history of breast cancer in their mother or sister were identified to have moderate risk levels (Table 2). It can be said that all of the women in the study were in the low-risk group for development of breast cancer since they did not have any personal history of breast cancer.

It is known that hormones, especially oestrogen hormones influencing the breast tissue for a long time results in increased breast cancer risk. Early menarche, late menopause, not having given birth or having given birth for the first time after the age of 30 prolong the period during which oestrogens influence the breast tissue (44,45). Therefore, early menarche, childbirth before the age of 30, breastfeeding and early menopause reduce the risk for breast cancer (39). In our study, women who gave birth after the age of 30 were found to have a low risk for breast cancer (Table 2). McCredie et al. identified that childbirth before the age of 30 reduced the relative risk for breast cancer to around  $RR=1.8$  (41). Furthermore, 97.8% of women in our study had their first childbirth before the age of 30 and the knowledge score of these women for breast cancer was found to be higher than women who had their first childbirth after the age of 30 with the difference between the two having been found to be statistically significant ( $p<0.05$ ) (Table 3). Childbirth before the age of 30 in the majority of women might have played a role in that.

Age of menarche and regular ovulatory cycles are other factors that influence the risk for breast cancer. A study that was conducted specifies that every year of delay menarche reduces the risk for breast cancer by 20% per annum (46). In our study, 91.4% of women had their first menstruation at the ages of 12-14 and they were found to have a low risk for breast cancer. Our result is similar to those obtained in studies conducted on this subject (15,32).

Being overweight is one of the important health problems in Turkey. In a study, it was determined that being overweight increased the risk for breast cancer (47). In our study, 76.7% of women had not entered menopause (Table 3) and 70% were overweight. However, their breast cancer risk levels were found low since they were young. This result might have been influenced by the fact that the majority of women were housewives, did not traditionally have the habit of doing sports and had a high-carb diet.

It is known that breastfeeding reduces the risk for breast cancer (15,45,48) and women who do not breastfeed have a higher risk for breast cancer (45,48). It was identified in our study that 95.5% of women breastfed their children (Table 3). Therefore, the breast cancer risk in our group was low with respect to breastfeeding. This result was found to support the results of other studies performed (15,45,49).

Women having enough knowledge of breast cancer may also reduce breast cancer risk. In our study, the total Average Knowledge Score (AKS) of women about the methods for early diagnosis of breast cancer was  $7.99 \pm 3.591$  and their knowledge of breast cancer was found to be at moderate level. Furthermore, a significant correlation was identified between having a higher educational status, having some form of social security and the knowledge score for breast cancer ( $p<0.05$ ) (Table 1). A study that was conducted emphasizes that women have insufficient knowledge about breast cancer and did not adequately perform BSE (50). These results indicate that women have a requirement for knowledge about the methods for early diagnosis of breast cancer.

The most effective means to protect/improve health and reduce morbidity and mortality in breast cancer is the use of methods for early

diagnosis and screening. BSE, one of the methods for early diagnosis, has a significant importance in early diagnosis of breast cancer. In the studies performed, it was identified that breast cancer could be diagnosed at an earlier stage in women that performed BSE compared to those who did not (51-53). Our study identified that 74.4% of women did not perform BSE, 66.1% did not know about BSE and 72.8% of those who performed BSE did it wrong (Table 4). According to the research report on improvement of health in Turkey, it was identified that 65.1% of individuals above the age of 18 had not performed BSE at all to date (13). Fındık et al. (2004) identified in their study that 58% of women did not perform BSE at all and 52.9% of those who performed it occasionally did it wrong (30). Similarly, in another study, it was identified that 81.3% of women did not know how to perform BSE (50). In the study by Seçginli and Nahcivan (2006), the share of those performing BSE regularly on a monthly basis was stated to be 17% (54). In the recent study conducted by Gölbaşı (2007), it was determined that more than half of the women (63.4%) did not perform BSE at all within the past year (13). These results point out to the fact that women do not have sufficient knowledge and skills regarding BSE for early diagnosis of breast cancer and they need education on this matter. On the other hand, our study found that 89.6% of women did not undergo mammography and 88.6% did not have their breast examination done by healthcare professionals (Table 4). In study found that 71.5% of women did not undergo mammography and 34.9% of them did not no information about the frequency of mammography however, they did not have breast examination done by healthcare professionals (55). Another study identified that 71.5% of women did not undergo mammography at all and that 34.9% of them did not have any knowledge about the frequency of undergoing mammography. In the same study, 37.4% of them stated that never underwent any breast examination to date (17). These study results are similar to our research findings and illustrate the requirement to implement educational programs targeted at raising the awareness of women about breast cancer.

In conclusion, our study identified that women in our sample had low risk levels; they had moderate level of knowledge regarding the methods for early diagnosis and treatment of breast cancer and were insufficient in performing the methods for early diagnosis and screening. For that reason, it is recommended that healthcare professionals identify the risk groups for breast cancer among women and raise the awareness of women regarding breast cancer. This way, it will be ensured that women assume the responsibility for their own health and take part in the process of early diagnosis and treatment.

**Ethics Committee Approval:** Ethics committee approval was received for this study.

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

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