

Assessment of results of the mammography screenings among women older than 40 years in a residential area

Introduction

Being the most frequent malignant tumor among women in the world; breast cancer constitutes approximately 30% of women's cancers.^{1,2} The average incidence of breast cancer is 38-40 in one hundred thousand in the world, 66-67 in one hundred thousand in Europe, and about 40 in one hundred thousand in Turkey.^{3,4} The fact that breast cancer is encountered frequently, could be diagnosed and treated in early stages in today's conditions increases the importance required to be attached to this issue.⁵ Early diagnosis and treatment have a vital importance in preventing and decreasing the deaths induced by breast cancer. Thus, the most common approach that is known and applied in the world is screening programs. These programs aim to raise awareness in individuals regarding cancer, make them understand the importance of early diagnosis, and administer convenient treatment.^{6,7} The early diagnosis suggestions of the American Cancer Society for breast cancer include breast self examination (BSE) every month as from the age of 20 years, clinical breast examination (CBE) in at least every 3 years between the ages of 20-39 years, and both CBE and mammography every year as from the age of 40 years.³ According to the national breast cancer screening standards in Turkey; women are recommended to have breast self examination every month as from the age of 20 years, CBE in every 2 years between the ages of 20-40 years and every year between the ages of 40-69 years, and mammography in every two years between the ages of 40-69 years.⁴ On the other hand, women have a lower rate of displaying early diagnosis behaviors of breast cancer. The studies conducted in Turkey have reported that women have insufficient early diagnosis behaviors of breast cancer. As a result of a study, it was determined that while women aged 20 and older regularly had regularly BSE at the rate of 23.4%, women aged 40 and older had mammography at the rate of 3.2%.⁸

Reasons behind why women do not have early diagnosis behaviors of breast cancer involve some factors such as negligence towards screenings, forgetfulness, lack of knowledge, low educational level, time limitation, insufficient income status, inaccessibility to healthcare services, lack of health insurance, failure of getting an appointment, shame for examination/denominational beliefs, no support from family, no advice from the medical personnel, and belief of fatalism.⁹ On the other hand, factors like fear regarding screening methods, diagnosis of breast cancer, and losing breasts are important in terms of determining the early diagnosis behaviors of women.^{10,11}

Breast cancer continues to threaten life despite the advancements in health sciences, development of early diagnosis methods, and the increasing sensitivity of society on this issue³. Thus, every community is required to reveal the risks of breast cancer, determine the risk groups, and extend its screening programs.^{12,13} Breast cancer could be treated and it has a very high rate of survival when it is diagnosed in early period, which makes the role of healthcare professionals and especially the nurses more important.¹⁴ Important responsibilities of nurses involve participating in breast cancer

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screening programs, enabling women to regularly display screening behaviors (mammography, CBE and BSE), developing and extending early diagnosis studies, and having an active role in participation in programs.¹⁴⁻¹⁶

It is also important for nurses to motivate and support women for increasing early diagnosis behaviors.^{17,18} This cross-sectional study was conducted for the purpose of determining the breast cancer risk levels of women older than 40 in a residential area, gaining the habit of having mammography, which is among the early screening programs, directing them for mammography, and assessing the results of mammography.

Materials and methods

Study population

The study was conducted in the province of Kırşehir between 1 February and 1 June 2014 in cooperation with the General Secretariat of Public Hospitals Association, Public Health Branch Office. The population of the study consisted of female patients older than 40, who were hospitalized in the services of Ahi Evran University Research and Training Hospital between these dates, and their relatives. In this cross-sectional study, it was aimed to reach the entire population; however, size of the sample was not determined. Meanwhile, 409 women who agreed to participate in the study were reached. Before the study, an ethics committee and an institutional permission as well as forms of informed consents from the participants were received.

Study design

In the study, the data were collected by using data collection form, which was prepared by the researcher upon review of the relevant literature^{1,7,16,19,20} and breast cancer risk assessment form. The data collection form consists of 23 questions (10 questions regarding the socio-demographic characteristics of participants, 4 questions regarding their reproductive health and obstetrical histories,

and 9 questions determining their breast cancer knowledge levels and screening behaviors). The Breast Cancer Risk Assessment Form, which was developed by the American Cancer Society for determining the breast cancer risk in women and suggested by the Republic of Turkey Ministry of Health for evaluating the risks of breast cancer, was used. The form consists of 6 parts and 21 items involving the characteristics like age, family history of breast cancer, personal history of breast cancer, child-bearing-age, menstrual history and body structure (calculating the body mass index; $<18.5 \text{ kg/m}^2$ is classified as slim, $18.5\text{-}24.9 \text{ kg/m}^2$ as normal, $>24.9 \text{ kg/m}^2$ as fat). Based on total score, risk levels are determined as low (200 points and below), moderate (201-300 points), high (301-400 points) and the highest (above 400 points) by scoring appropriately the answers given to risk factors in this form.

The data were collected by the researcher in the hospital environment by using the face-to-face interview technique. The data collection lasted for approximately 20 minutes for each woman. Appointments were received for women, who completed the data collection form and breast cancer risk assessment form, from Kırşehir Early Diagnosis, Screening, and Training Center (KEDSTC) and they were accompanied for having mammography on certain days and hours. Mammography results were evaluated with the doctor of KEDSTC for each woman and women for whom pathology was

determined were referred to general surgical outpatient clinics of hospitals in Kayseri or Ankara based on their preference.

Statistical analysis

The data were analyzed by using the SPSS 16.0 (Statistical Package of Social Sciences) packaged software. As the descriptive statistics; number and percentage (%) were used for variables determined via counting, and mean \pm standard deviation ($\bar{x} \pm \text{sd}$) was used for variables determined via measurement. The convenience of variables, which were determined or calculated through measurement, for normal distribution was numerically examined by using the single-sample Kolmogorov-Smirnov test. While the Mann-Whitney U test was used for determining the difference between the two groups, the Kruskal Wallis test was used for comparing three and more groups. The statistical significance was accepted as $p < 0.05$.

Results

The women who participated in the study had an age average of 50.0 ± 7.32 and were mostly in the age group of 40-49 years (48.6%). It was determined that 68.0% of the women were primary school graduates, 91.2% were married, 73.1% had a nuclear family, 91.4% had social security, 90.0% were housewives, 69.7% had a middle income, and 85.1% resided in urban areas (Table 1).

Table 1 Distribution of the women according to some socio-demographic characteristic

Socio-demographic characteristics	Number (n)	Percentage (%)
Age ($\bar{x} \pm \text{ss} = 50.0 \pm 7.32$)		
40-49 ages	199	48.6
50-59 ages	160	39.1
60 ages and via	50	12.3
Educational status		
Illiterate	34	8.3
Literate	42	10.3
Primary education	278	68
High school	43	10.5
University	12	2.9
Marital status		
Single	36	8.8
Married	373	91.2
Family type		
Nuclear family	299	73.1
Extended family	99	24.2
Broken families	11	2.7
Social security		
Available	374	91.4
Not present	35	8.6
Profession		
Officer	13	3.2
Housewife	368	90
Teacher	25	6.1
Retired	3	0.7
Income status		
Very good	5	1.2
Good	105	25.7
Middle	285	69.7
Bad	12	2.9
Very bad	2	0.5
Living place		
City / urban areas	348	85.1
Village / countryside	61	14.9
Total	409	100

While 80.7% of the women stated that breast cancer could be diagnosed in early period, 37.4% stated that the most efficient method in early diagnosis was mammography. It was determined that 46.9% of the women did not regularly have BSE, 37.9% had mammography before; 50.9% of those who had mammography had it 6 months before, 37.3% had it at the medical advice, and 32.4% of those who did not have mammography were afraid of the diagnosis of cancer (Table 2).

57.5% of the women went through the menopause. 83.2% of them had no family history of breast cancer, and 98.2% had no personal history of breast cancer. It was determined that 83.6% of the women had their first delivery before the age of 30 years, and 59.6% had an

age of menarche as 12-14 years. Regarding the body structure; 69.2% had a normal weight. 90.4% of the women were observed to have a lower risk level according to the breast cancer risk assessment form. As a result of the mammography screenings of women; while normal breast tissues were determined in 42.5% and nodular lumps were determined in 21.8% (Table 3).

Breast cancer risk score was significantly higher in women who had personal history of breast cancer and a history of breast cancer in their mothers, had no children, menstruated before the age of 11, had a fat body structure, were in the high risk group according to the breast cancer risk assessment form, and had nodular and axillary lymph nodes according to mammography ($p<0.05$) (Table 4).

Table 2 Distribution of the women according to their knowledge levels regarding breast cancer early diagnosis methods

Breast cancer is early detection status	Number (n)	Percentage (%)
Knows	330	80.7
Unknowing	2	0.6
Unideaed	77	18.7
Methods that can be used in early diagnosis		
Breast self-examination	115	28.2
Breast examination performed by doctor / nurse		
Breast ultrasound	47	11.4
Mammography	73	17.8
Biopsy	153	37.4
	21	5.2
Total	409	100

Table 3 Distribution of the women's behaviours regarding breast cancer early diagnosis methods

Behaviors	Number (n)	Percentage (%)
State of having BSE		
Having regularly	75	18.4
Not having regularly	192	46.9
Having occasionally	142	34.7
State of having had mammography before		
Have had	153	37.9
Have not had	256	62.1
Last date of having mammography (n=153)		
6 months ago	78	50.9
6 months -1 year ago	18	11.8
More than 1 year ago	57	37.3
Reason of having had mammography before (n=153)		
Having a palpable stiffness/lump on the breast	52	33.9
At the medical advice	57	37.3
For a control examination	30	19.7
Other	14	9.1
Reason of not having had mammography before (n=256)		
Having no knowledge about mammography	42	16.4
Being afraid of the diagnosis of cancer	83	32.4
Having noone to give information/guide on this issue	95	37.1
Other	36	14.1
Total	409	100

Table 4 Distribution of the women according to breast cancer risk factors and risk scores

Risk Factor	Number (n)	Percentage (%)	Breast Cancer Risk Score ($\bar{x} \pm SS$)
State of Going through the Menopause			
Girmiş	235	57.5	159.54±52.74
Girmemiş	174	42.5	126.73±69.98
			t=0.7 p>0.05
Family history of breast cancer			
Non available	340	83.2	141.37±36.21
Mother	8	1.9	262.42±96.36
Sister	19	4.7	252.00±72.50
Father's sister	8	1.9	202.47±60.55
Mother's sister	22	5.4	180.37±53.06
Grandmother	12	2.9	153.97±58.46
			KW=19.9 p < 0.05
Personal history of breast cancer			
Non available	402	98.2	144.78±62.66
Available	7	1.8	282.42±92.44
			t= 1.2 p < 0.01
Childbearing age			
First birth before the age of thirty	342	83.6	142.58±53.06
First birth after the age of thirty	47	11.5	163.96±48.26
No children	20	4.9	184.57±53.25
			KW=17.1 p < 0.05
Menstrual History			
Age of First Menstruation at 15 and above	147	35.9	144.37±43.06
Age of First Menstruation at 12-14	244	59.6	164.50±62.38
Age of First Menstruation at 11 and below	18	4.5	177.32±72.25
			KW=21.3 p < 0.05
Body structure			
Slim	16	3.9	133.64±43.29
Normal	283	69.2	161.50±51.25
Fat	110	26.9	177.28±65.48
			KW=20.6 p < 0.05
Risk level			
Low risk	370	90.4	144.54±53.19
Moderate risk	30	7.4	262.82±80.56
High risk	2	0.5	315.64±72.77
Very high risk	7	1.7	413.31±86.41
			KW=26.4 p < 0.01
Result of mammography			
Normal breast tissue	174	42.5	146.25±51.12
Calcification focuses	64	15.7	151.15±41.97
Palpable lump	12	2.9	263.75±65.83
Nodular lump	89	21.8	315.20±77.97
Axillary lymph node	70	17.1	349.47±73.20
			KW=28.2 p < 0.001
Total	409	100	

According to the results of mammography; while 61.1% of the women were required to go for a control examination one year later at the medical advice, 38.9% were referred toward general surgical outpatient clinics of hospitals in Kayseri or Ankara based on their preference for a more advanced diagnosis.

Discussion

In this study, it was determined that the women had insufficient behaviors regarding the early diagnosis methods of breast cancer. Reasons behind why the women did not display early diagnosis behavior were thought to be associated with their socio-demographic characteristics, knowledge, values and beliefs, as well as the fear of breast cancer.

In a study conducted by Talbert,²¹ it was determined that even though 98.3% of the women knew that both mammography and BSE would decrease the breast cancer mortality, only 44.2% had mammography. In another study, it was observed that 97% of women had no knowledge about mammography and 86% did not have mammography.²² In parallel with literature; our study determined that even though majority of the women (80.7%) had knowledge about the early diagnosis of breast cancer, only a few of them (18.4%) regularly had BSE, and 62.1% had not had mammography before. A great majority of them stated the reason for not having mammography as having no knowledge about mammography and being afraid of the diagnosis of cancer. The fact that the individuals had no knowledge about mammography was thought to be associated with lack of communication with the healthcare personnel.

The major roles of the nurses include informing the society, accordingly developing terminal behaviors and changing the acquired undesired behaviors for the protection and maintenance of health.¹⁶ The functions of nurses regarding the primary protection in early diagnosis include; determining the risky individuals, informing individuals/families and community and raising their awareness by planning trainings.²³ The interventions that are planned for the primary protection in the early diagnosis of breast cancer are important in reducing the incidence, morbidity, and mortality of breast cancer.²⁴ Health education is among the most important functions of nurses in the primary protection. It is required to train women about the normal anatomy and abnormalities of breast, risk factors of breast cancer, and benefits, limitations, and risks of screening methods.

In our study, it was determined that the women who were afraid of breast cancer did not display early diagnosis behaviors to cope with the fear. Being a barrier for women to display early diagnosis behaviors of breast cancer; fear emerges with the thoughts of encountering with a positive result, losing the breast, facing serious problems due to the diagnosis of cancer, losing control over life, as well as the thoughts about death, pain and ache.^{10,25} In the study conducted by Miller et al.²⁶ on 84 women, they determined a significant correlation between fear of breast cancer and behaviors of having mammography. Aro et al.²⁷ determined that fear, which is one of barriers for women to participate in mammography screenings, negatively affected the early diagnosis behavior at the rate of 21%. Donnelly et al.²⁷ found that high level of fear regarding the breast cancer negatively affected having mammography.

In our study, breast cancer risk score was found to be significantly higher in women who had personal history of breast cancer

and a history of breast cancer in their mothers, had no children, menstruated before the age of 11, had a fat body structure, were in the high risk group according to the breast cancer risk assessment form, and had nodular and axillary lymph nodes according to results of mammography. Determining the risk of breast cancer signifies selecting healthy women who have a high risk of getting this disease in the future. Personal breast cancer risk should be determined by examining the risk factors like the history of BRCA 1/2 that is known as breast cancer susceptibility gene, presence of a first degree relative with breast cancer or ovarian cancer, previous radiotherapy on the thorax area, history of lobular carcinoma and family history, as well as the presence of atypical hyperplasia, which signifies a high risk.^{28,29}

A previous study revealed that the Gail model was a reliable model for calculating the personal risk in terms of the development of breast cancer and determined the risk factors in our society. The significant risk factors for the development of breast cancer were respectively determined as follows; history of breast cancer in first degree relatives, history of breast cancer in second degree relatives, having given no birth, not breastfeeding and age. On the other hand, no significant correlation was determined between the age of menarche, menopausal age, and the cancer risk. However, evaluating only those who had given birth; it was concluded that age and number of first birth and duration of breastfeeding were not the factors increasing the breast cancer risk just like age of menarche and the menopausal age and as a result of this study, it was determined that primary factors determining the breast cancer development risk in the Turkish society were either familial or genetic factors and the breast cancer development risk significantly increased with increasing age; however, hormonal factors did not cause a significant increase of risk in our society, in opposition to literature.³⁰

Even though breast cancer risk assessment gives information about the risk level; it does not give precise information about risk of breast cancer. While mentioning risk of breast cancer, it is required to consider the risk of breast cancer, which would emerge at a certain time, and have screenings according to age, which is the most important independent risk factor, since no risk factor is determined in majority of women with breast cancer.¹⁹ It is indicated that the deaths caused by breast cancer, which kept increasing until 2000, have decreased in countries where the screenings are applied commonly and while the contribution of screenings is 2/3 in this decrease, the effect of developments in therapeutic methods is 1/3.²⁹ While early diagnosis is important in the treatment of breast cancer; numerous studies have showed that screening programs also have a positive contribution to the morbidity and mortality of breast cancer. Thus, asymptomatic women should be screened in terms of breast cancer no matter what risk level they have.

Conclusion

As a result of this study, it was determined that there was a low risk of breast cancer in 90.4% of in women included in the study and nodular lumps in 21.8% based on results of the mammography. 38.9% of the women (n=89) who were observed to have lumps were referred toward general surgical outpatient clinics of hospitals in Kayseri or Ankara based on their preference for a further diagnosis. As the women had insufficient knowledge and behaviors regarding early diagnosis in this study; nurses are required to know their female patients in terms of the risk factors of breast cancer, determine their

risk levels, encourage and follow them to participate in screening programs in accordance with their age groups, and organize group trainings in cooperation with local governments.

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Conflict of interest

The authors declare no conflicts of interest.

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