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Assessing The Nurses' Knowledge and Practices Related with Early Diagnosis of Breast Cancer

Hemşirelerin Meme Kanserinin Erken Tanısına Yönelik Bilgi ve Uygulamalarının Değerlendirilmesi

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ABSTRACT

Aim: To examine nurses' knowledge, behaviors, and practices about breast cancer.

Material and Methods: The universe of this descriptive and cross-sectional study consists of 535 nurses working at Fırat University Hospital in Elazıg-Turkey and 495 of them were contacted. Study data were obtained using a survey form aiming to determine the sociodemographic characteristics, knowledge, and behaviors of nurses about breast cancer and early diagnosis methods. Data were examined using numbers, mean values, percentages, and the Chi-Square test.

Results: The mean age of participants was 29.46±7.27 years, 88.7% were female, and 46.7% were single. Although 65.6% of nurses perform breast self-examination (BSE), only 15.9% were regularly implementing this method. The percentage of those having complete command of BSE was 52.2%, whereas the percentage of those having no knowledge was 12.3%. The ratio of having clinical breast examination (CBE) by physician was 15.4%. The ratio of having mammography was 53.6%. Advancing age, considering the knowledge on breast cancer sufficient, and following the scientific publications on breast cancer were found to have a statistically significant effect on implementation of early diagnosis methods ($p<0.05$).

Conclusion: Since nurses are healthcare professionals, it was determined that they do not have sufficient knowledge of BSE and the percentage of implementing early diagnosis methods for breast cancer was low. Interventions should be made to support the nurses' knowledge and behaviors related with breast cancer and early diagnosis methods with educational instruments and to determine and minimize the factors preventing the implementation of protective health behaviors.

Keywords: Nurse, breast cancer, early diagnosis.

ÖZET

Amaç: Araştırma hemşirelerin meme kanserine yönelik bilgi, davranış ve uygulamalarını incelemek amacıyla yapılmıştır.

Yöntem: Tanımlayıcı ve kesitsel tipte olan bu çalışmanın evrenini, Elazığ ili Fırat Üniversitesi Hastanesi'nde görev yapan 535 hemşire oluşturmuş, bunların 495'ine ulaşılmıştır. Araştırma verileri; hemşirelerin sosyo-demografik özelliklerini, meme kanseri ve erken tanı yöntemleri hakkında bilgi ve davranışlarını belirlemeye yönelik soruların yer aldığı bir anket formunun dağıtılıp sonra geri toplanmasıyla elde edilmiştir. Elde edilen veriler sayı, ortalama, yüzde ve ki-kare testi ile değerlendirilmiştir.

Bulgular: Araştırmaya alınan hemşirelerin yaş ortalaması 29,46±7,27 yıl olup, %88,7'si kadın ve %46,7'si bekar idi. Hemşirelerin %65,6'sı kendi kendine meme muayenesi (KKMM)'ni yapmakla birlikte, %15,9'u bu yöntemi düzenli olarak uygulamaktadır. Hemşirelerden KKMM'nin uygun tekniğini tam bilenlerin oranı %52,2 iken hiç bilmeyenlerin oranı %12,3'tür. Hemşirelerin, bir hekim tarafından klinik meme muayenesi (KMM) yaptırma oranı %15,4'tir. Hemşirelerin mamografi çektirme oranı %53,6'dır. Çalışmada hemşirelerin yaşının artması, meme kanseri konusundaki bilgilerini yeterli görmesi, meme kanseri hakkında bilimsel yayınları takip etmesi ile erken tanı yöntemlerini uygulama üzerinde anlamlı bir etki bulunmuştur ($p<0,05$).

Sonuç: Hemşirelerin, sağlık çalışanı olduğu düşünüldüğünde, KKMM hakkında yeterli bilgiye sahip olmadıkları ve meme kanseri erken tanı yöntemlerini uygulama oranlarının düşük olduğu tespit edilmiştir. Hemşirelerin, meme kanseri ve erken tanı yöntemleri hakkında bilgi ve davranışlarının eğitimle desteklenmesi, yapılacak çalışmalarla istenen koruyucu sağlık davranışlarını gerçekleştirmeyi engelleyen faktörlerin belirlenerek azaltılması yönünde girişimler yapılmalıdır.

Anahtar kelimeler: Hemşire, meme kanseri, erken tanı.

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INTRODUCTION

The individual's difficulties in recognizing and expressing Breast cancer is a type of cancer, which is the most frequently diagnosed cancer in Turkey and in the world and has a high mortality level (Siegel et al., 2019). In GLOBOCAN 2018 data published by International Agency for Research on Cancer (IARC), it was reported that breast cancer constitutes 25% of all the cancer cases throughout the world and is responsible for 15% of deaths caused by cancer (Bray et al., 2018). In Turkey, the incidence of breast cancer is 40.7 out of 100,000 and annually 15,000 women get breast cancer (Özkan et al., 2018).

Even though the incidence of breast cancer has increased, the morbidity and mortality rates are reduced with early diagnosis and treatment and the quality of life is improved. Seventeen percent of the cases are observed to be younger than 40 years. The 5-year life expectancy of the cases diagnosed in this period is 97.9%. Moreover, using the breast cancer screening methods, 63.7% of breast cancer cases can be detected in an early localized period. For this reason, the lack of knowledge on breast cancer might delay the diagnosis. It is very important for women to detect the symptoms of breast cancer by making use of routine examinations. Thus, it is necessary to raise awareness of breast cancer among women (Özkan et al., 2018; Özmen, 2013). In breast cancer, early diagnosis and treatment are possible with screening programs (Özkan et al., 2018). It was reported for breast cancer that the life expectancy has prolonged and the survival rate increased with early diagnosis methods in developed countries (ACS, 2021).

Although the effect of breast self-examination (BSE) on decreasing the mortality of cancer is debated, this method is recommended for raising awareness of breast cancer among women (Özmen, 2013). It is known that, when performed together with BSE, clinical breast examination (CBE) is useful in increasing the awareness of breast cancer (Kaymakçı, 2011). Mammography is an important screening method that reduces the mortality in breast cancer by 30%. Mammography allows early detection of tumors that have no clinical symptom and the rate of early diagnosis is 80-90% (Taşkın, 2014).

In conclusion, since they are constantly in contact with women in healthcare facilities such as hospitals and the facilities offering preventive healthcare services, it is important for nurses to know and implement early diagnosis methods.

The present study was carried out in order to investigate the knowledge and behaviors of nurses, who work at Fırat University Hospital in Elazıg province, related with breast cancer. The results to be achieved on this subject are believed to shed light on regulating the protective healthcare services through public health approaches and determining the situation of nurses constituting a special group in terms of health approach.

MATERIAL and METHOD

Study design and subjects

The universe of this descriptive and cross-sectional study consists of nurses working at Fırat University Hospital in Elazıg. Before the sampling, it was aimed to access the entire universe and, at the date of field study, 495 of 535 nurses actively working were contacted. The nurses, who were not willing to participate, who were not accessed in three visits, and who were not in the facility but on leave, were not involved in the study.

Data Collection

Reviewing the literature, the data were collected using a survey form consisting of two sections. In the first section, there was a set of items examining the sociodemographic characteristics of nurses and if they had the risk factors of breast cancer (23 questions). In the second section, on the other hand, there were items aiming to determine their knowledge and behaviors related with breast cancer and early diagnosis methods (34 questions). The study group's level of the knowledge of the appropriate method of BSE was questioned using the items about the accurate upright posture, the accurate lying position, and the accurate hand method. Those correctly answering all three questions were considered "knowing accurately", those correctly answering one or two questions were considered "having lack of knowledge", and those correctly answering none of them were considered "not knowing". While measuring the frequency of BSE in study group, the nurses answering "yes" to the question "Do you perform BSE" were considered "performing BSE on regular basis" if they answered "every month" to the question "How frequently do you perform". However, if they answered "occasionally" or "when I deem necessary", they were considered "performing BSE irregularly". Before the collection of data, a preliminary application was performed with 10 nurses, who have similar characteristics, in order to test the understandability of items in the survey form. After the preliminary application, the survey items were modified and given their final form. The results obtained from the preliminary application were not used in statistical analyses. The survey forms were delivered by visiting them in their business places and the nurses were asked to fill out the forms if they volunteered for participating in.

Ethical Approval and Permissions

Before the study, the ethical approval was obtained from the Non-Interventional Research Ethical Committee of Fırat University (Decision No: 13.10.2015/18/01), whereas the necessary administrative permissions were obtained from the Chief Physician of Fırat University Hospital. Field study was carried out between November 2015 and January 2016. The study was based on the principle of voluntariness, research and publishing ethics appropriately treated. The purpose of the study was explained to the participants and their informed consents was taken orally.

Statistical Analysis

The data obtained were statistically examined using the software package IBM SPSS Statistics v.22.0 (IBM Corp.; Armonk, NY, USA). Mean ± standard deviation, minimum and maximum values for continuous variables in statistical analysis; Numbers and percentages was used for nominal variables. Conformity of continuous variables to normal distribution was determined by examining Shapiro-Wilk test, normal distribution graphics, skewness and kurtosis coefficient values together. The significance of the difference in terms of categorical variables was investigated with the chi-square test. The p-value below 0.05 was considered significant for all analyzes.

RESULTS

The mean age of participating nurses was calculated to be 29.46 ± 7.27 years (min: 17, max: 51) and women constitute 88.7% (n: 439) of participants. Of the nurses in study group, 57.0% (n: 282) were working in internal clinics and 37.6% (n: 186) had 10 years or more in service (Table 1).

Table 1. Descriptive characteristics of nurses

Characteristics	n	%
Gender (n:495)		
Female	439	88.7
Male	56	11.3
Age Groups (n:495)		
17-29 years	285	57.6
30-39 years	152	30.7
40 years and more	58	11.7
Educational status (n:495)		
Medical vocational high school	228	46.1
Associate degree	78	15.8
Graduate degree	170	34.3
Doctorate/Postgraduate	19	3.8
Marital status (n:495)		
Married	221	44.6
Single	246	49.7
Widow	4	0.9
Divorced	24	4.8
Clinic (n:495)		
Internal clinic	282	57.0
Surgical clinic	213	43.0
Years in service (n:495)		
3 years and shorter	158	31.9
4-6 years	91	18.4
7-9 years	60	12.1
10 years and longer	186	37.6

*Single nurses were not taken into analyses.

Nurses' mean age of the first menarche was determined to be 12.7±1.4 (min: 9, max: 17) years. The mean age of marriage in the study universe was 23.0±2.4 years. Among the participants having child(ren), the percentage of breastfeeding for a minimum of 1 year was 85.8%. The percentage of nurses having breast cancer history in immediate relatives was found to be 10.9% (n: 54).

Most of the participating nurses stated the risk factor for breast cancer to be "breast cancer history among close relatives" with the percentage of 90.7% (n: 449), whereas "doing no exercise/ the sedentary lifestyle" was found to be the least frequently stated factor with the percentage of 13.3% (n: 66). It was determined that 95.8% of participating nurses reported mass in the breast as a breast cancer symptom necessitating the physician visit, followed by nipple bloody discharge with 93.1% and growth of lymph nodes adjacent to the breast. As an early diagnosis of breast cancer, BSE was being performed on regular basis by 15.9% (n: 70) of nurses every month, irregularly by 49.7% (n: 218), and never by 34.4% (n: 151). The knowledge of nurses on breast cancer and BSE and the distribution of implementing BSE are presented in Table 2.

The mean number of answered items among 15 items incorporating the breast cancer risk factors was 6.9±2.3. In the same section, the mean number of answered items among 9 items related with breast cancer symptoms was 4.7±3.7. In both sections, the nurses cumulatively gave the right answers to almost half of the items.

The rate of accurately knowing the right method of BSE among all the participants (regardless of gender) was found to be 49.3% (n: 244), whereas those not knowing it at all was 15.2% (n: 75). Among the female participants knowing the right method of BSE, the rate of implementing BSE on regular basis was found to be significantly high ($p<0.01$). Moreover, the rate of accurately knowing the right method of BSE increased with increasing years of service and advancing age $p<0.01$).

Table 3 shows the rates of performing the early diagnosis methods by various characteristics of participating nurses. When compared to those considering their knowledge on breast cancer insufficient, the percentage of performing early diagnosis methods was found to be significantly higher among the nurses thinking that they have sufficient information about breast cancer ($p<0.05$).

The distribution of participating nurses' status of performing the breast cancer early diagnosis methods together is presented in Table 4. Almost one-third of participants were found to use none of the early diagnosis methods.

DISCUSSION

Among the participating nurses, the rate of breastfeeding was reported to be 85.8%. This rate was found to be 96.1% by Karakuş (Karakuş, 2008) and 96.3% by Yılmaz et al (Yılmaz et al, 2010). These findings were in parallel with those achieved in the present study. It was shown that breastfeeding, especially in premenopausal period and continued for a long time, caused a slight but significant decrease in the risk of breast cancer (Collaborative Group on Hormonal Factors in Breast Cancer, 2002).

Table 2. Nurses' knowledge on breast cancer and BSE and distribution of BSE application

Distribution of the status of knowing risk factors for breast cancer (n:495)*	**n**	**%**
Breast cancer history among close relatives	449	90.7
Having no delivery history	418	84.4
Not breastfeeding or breastfeeding for a short time	376	76.0
Radiation exposure	345	69.7
First delivery at the age older than 30 years	289	58.4
Cancer in a breast	260	52.5
Aging	242	48.9
Receiving hormone replacement treatment	235	47.5
Late menopause (>55 years of age)	218	44.0
Early menarche (<12 years of age)	177	35.8
Use of oral contraceptive	131	26.5
Alcohol usage	131	26.5
Fatness and fatty diet	127	25.7
Benign breast disease	76	15.4
No exercise/sedentary lifestyle	66	13.3
Distribution of the status of knowing breast cancer symptoms (n:495)*		
Mass in breast	474	95.8
Nipple bloody discharge	461	93.1
Growth in adjacent lymph nodes	327	66.1
Abnormal growth in one of the breasts	236	47.7
Nipple retraction	232	46.9
Wrinkle in breast tissue	183	37.0
Abnormal swelling in the upper arm	183	37.0
Change of breast color	162	32.7
Abnormal sagging in one of the breasts in comparison to the other	152	30.7
Distribution of BSE implementation (n:439)**		
Doing		
Regularly	70	15.9
Irregularly	218	49.7
Not doing	151	34.4
Distribution of status of knowing the right method of BSE (n:495)		
The right upright BSE posture	318	64.2
The right lying BSE posture	350	70.7
Suitable hand method in implementing BSE	349	70.5
Distribution of status of knowing the right time of BSE (n:495)		
Age of starting	221	44.6
Frequency of implementing	387	78.2
In which period of the month	138	27.9
When to implement in postmenopausal period	425	85.9
Distribution of the reasons for not implementing BSE (n:151)***		
Forgetfulness	55	36.4
Time constraint	38	25.2
Negligence	34	22.5
Thinking that early for implementing	24	15.9

*A single participant gave multiple answers. **Male nurses were not taken into analysis. ***Only those not implementing BSE were assessed. BSE: Breast Self-Examination

It was determined that 65.6% of participating nurses were performing BSE but the rate of those performing this method once every month was found to be 15.9% (Table 2). In other studies carried out on the healthcare professionals in Turkey, it was reported that the rate of performing BSE varied between 39.8% and 52.2%, whereas the percentage of those performing BSE every month ranged between 6.2% and 30.4% (Açıkgöz et al, 2015; Akarsu-Alsaç, 2019; Aydoğdu-Karapelit, 2017). In a similar study carried out in another country, Segni et al. (Segni et al, 2016) examined the cases of 368 university students and reported the rate of performing BSE to be 44.2%. In their study on 175 nursing students, Krepia et al. (Krepia et al, 2017) determined that only 10.0% of students periodically performed BSE. Considering the results of studies carried out on women not working in healthcare services, it was found that the rate of performing BSE was at a lower level in comparison to the healthcare professionals (Güzel-Bayraktar, 2019; Altunkan et al, 2008). Nurses' higher rate of performing BSE in comparison to the normal population might be because this

group gains information during their vocational education and their trainings while working and because they are more sensitive to breast cancer examination practices.

Examining the timing and interval of performing BSE, it was determined in this study that 44.6% of nurses accurately know the age of beginning, whereas 78.1% of nurses know the interval and 27.9% know in which period of the month to perform BSE (***Table 2***). In a study carried out by Aydoğdu and Karapelit (Aydoğdu-Karapelit, 2017) on the midwifery students in a university, the participants accurately know the age to begin performing BSE by 66.7%, the interval of performing BSE by 61.1%, and in which part of the month to perform BSE by 50.6%. In a study carried out by Güzel and Bayraktar (Güzel-Bayraktar, 2019) on women, the authors reported the rates of right answers to the questions about age to begin performing BSE and interval of BSE to be 41.8% and 49.2%. Given the studies in literature, the rates of accurately knowing the timing and interval of performing BSE among healthcare professionals were found to be higher when compared to the general population but still are not at the desired level. Considering the trainings that healthcare professionals have before their graduation and in-service trainings they have during their active duty, it can be seen that these ratios are not sufficient. Increasing the knowledge on screening methods among nurses, who are supposed to be an exact source of information for the women in society in which they serve, might increase the levels of knowledge and practice among other women in the society.

Table 3. Distribution of nurses' status of implementing BSE, CBE, and mammography

Variables [α]	Implementing BSE (n:439)				CBE (n:422) [β]			Mammography (n:56) [µ]		
	Once every month n (%)	Irregularly n (%)	Never n (%)	p	Yes n (%)	No n (%)	p	Yes n (%)	No n (%)	p
Age groups							*			
17-29	31 (12.4)	112 (44.6)	108(43.0)	*	5 (2.1)	229 (97.9)		Only those aged 40 years and older were taken into analysis.		
30-39	22 (16.7)	77 (58.3)	33 (25.0)		29 (22.0)	103 (78.0)				
40 years and older	17 (30.4)	29 (51.8)	10 (17.9)		31 (55.4)	25 (44.6)				
Educational status										**
Medical vocational high school/ Undergraduate	38 (14.3)	125 (47.2)	102(38.5)	NS	36 (14.5)	213 (85.5)	NS	24 (63.2)	14 (38.8)	
Graduate/Postgraduate	32 (18.4)	93 (53.4)	49 (28.2)		29 (16.8)	144 (83.2)		6 (33.3)	12 (66.7)	
Marital status							*			
Married	37 (18.5)	114 (57.0)	49 (24.5)	*	50 (25.0)	150 (75.0)		25 (52.1)	23 (47.9)	NS
Non-married	33 (13.8)	104 (43.5)	102(42.7)		15 (6.8)	207 (93.2)		5 (62.5)	3 (37.5)	
Breast disease							*			
Yes	20 (26.0)	43 (55.8)	14 (18.2)	*	25 (32.9)	51 (67.1)		8 (61.5)	5 (38.5)	NS
No	50 (13.8)	175 (48.3)	137(37.8)		40 (11.6)	306 (88.4)		22 (51.2)	21 (48.8)	
Familial history of breast cancer							*			
Yes	12 (24.5)	24 (49.0)	13 (26.5)	NS	13 (27.7)	34 (72.3)		5 (62.5)	3 (37.5)	NS
No	58 (14.9)	194 (49.7)	138(35.4)		52 (13.9)	323 (86.1)		25 (52.1)	23 (47.9)	
In-service training background							*			**
Yes	40 (25.2)	85 (53.5)	34 (21.4)	*	33 (21.7)	119 (78.3)		19 (65.5)	10 (34.5)	
No	30 (10.7)	133 (47.5)	117(41.8)		32 (11.9)	238 (88.1)		11 (40.7)	16 (59.3)	
Deeming one's knowledge on breast cancer				*			*			**
Sufficient	28 (47.5)	25 (42.3)	6 (10.2)		17 (29.3)	41 (70.7)		9 (56.3)	7 (43.8)	
Moderate	36 (15.3)	143 (60.6)	57 (24.2)		38 (16.7)	189 (83.3)		19 (65.5)	10 (34.5)	
Insufficient	6 (4.2)	50 (34.7)	88 (61.1)		10 (7.3)	127 (92.7)		2 (18.2)	9 (81.8)	
Following the scientific advancements related with breast cancer							*			**
Yes, always	2 (50.0)	1 (25.0)	1 (25.0)	*	2 (50.0)	2 (50.0)		-	-	
Sometimes	45 (21.8)	118 (57.3)	43 (20.9)		39 (19.6)	160 (80.4)		22 (64.7)	12 (35.3)	
Never	23 (10.1)	99 (43.2)	107(46.7)		24 (11.0)	195 (89.0)		8 (36.4)	14 (63.6)	

[α] Males were not taken into analysis, [β] Nurses aged older than 20 years were analyzed, [µ] Nurses aged 40 years and older were analyzed, NS.: Not Significant, BSE: Breast Self-Examination, CBE: Clinical Breast Examination, *p<0.01, **p<0.05

In the present study, it was determined that the rate of regularly performing BSE among female nurses increased with the advancing age (p<0.001) (Table 3). In their study on female faculty members, Ekici and Utkualp (Ekici-Utkualp, 2007) reported the rate of performing BSE to be 10.0% for those younger than 20 years and 16.2% for those aged 30 years and older. Despite these studies, in a study carried out by Aker et al. (Aker et al, 2015) on the general population in Samsun and a study carried out by Alpteker and Avcı (Alpteker-Avcı, 2010) on the women living in a rural area of Bolu province, it was observed that the rate of BSE decreased with the advancing age. The reason for the age to be found as an effective factor in the present study might because the nurses constituted the study group and the nurses become more sensitive with the advancing age.

The rate of performing BSE on regular basis increased with the increasing educational status of participating nurses (p>0.05) (Table 3). Similar studies in literature reported that the rate of performing BSE increased with increasing educational status (Dişçigil at el, 2007; Başak, 2016) and these findings are in corroboration with the results of the present study. The difference between performing and not performing BSE in parallel with the increasing educational status might be because of the increase in individuals' awareness of medical knowledge and behaviors.

Table 4. Nurses' status of implementing breast cancer early diagnosis methods together

Implementation of early diagnosis methods	Share in all the nurses	Share in suitable age groups
Only BSE	222/439	222/439
BSE + CBE	35/439	34/422
CBE + mammography	2/439	1/56
BSE + CBE +mammography	26/439	23/56
None	145/439	33/56

BSE: Breast Self-Examination, CBE: Clinical Breast Examination

In the present study, the rate of performing BSE on regular basis was found to be higher among those having breast disease history when compared to those having none (p<0.01). In the studies carried out by Uncu and Bilgin (Uncu-Bilgin, 2011) on healthcare professionals in Malatya and by Özer et al. (Özer et al, 2009) on women in the general population in Kahramanmaraş, it was reported that the rate of performing BSE on regular basis was significantly higher among the women having breast disease history when compared to women having no previous breast disease. However, this difference was found to be statistically non-significant (p>0.05). It can be stated that the threat perception of these individuals might play an effective role in the status of performing BSE and, thus, nurses paid more importance to the BSE.

In the present study, the rate of performing BSE on regular basis among the nurses having in-service training about breast cancer and early diagnosis methods was found to be 25.2%, whereas the same rate was calculated to be 10.7% among those having no in-service training (p<0.001). This finding is in corroboration with the results of other studies reporting a direct relationship between in-service training on breast cancer and performing BSE (Güzel-Bayraktar, 2019; Uzun et al, 2004). Given these findings, it can be seen that behavioral changes, one of the objectives of in-service training on breast health, could be achieved. Furthermore, for the nurses having an important role in medical education, it is very important to expand their knowledge on breast cancer and other public healthcare practices and to be a source of information for society.

Another method used in early diagnosis of breast cancer is the CBE. The rate of having CBE among the female nurses participating in the present study was found to be 15.4%. In similar studies carried out in Turkey, the rate of those having CBE at least once in their lifetime ranged between 2.6% and 8.1% (Açıkgöz et al, 2015; Başak, 2016; Gençtürk, 2013). Examining the results of studies carried out in other countries, Chong et al. (Chong et al, 2002) carried out a study on nurses in Singapore and reported that 53.6% of nurses had CBE in the last year. Moreover, in their study, Sadler et al. (Sadler et al, 2001) reported the rate of CBE in the last year to be 54.8%. Comparing the results of the present study and those of similar studies carried out in different regions of Turkey, it can be seen that the rate of having CBE is higher but not at the desired level. This might be because of cultural differences between provinces and differences between opinions about CBE. However, given the fact that the study group consisted of healthcare professionals, these results draw attention. It should be investigated whether the reason for not having CBE is the obstacles arising from cultural differences or the subjective limitations because of healthcare professionals not believing in CBE.

Among the participating nurses, the rate of having CBE was observed to increase with the advancing age (p<0.001). In a study carried out by Açıkgöz et al. (Açıkgöz et al, 2015) on female employees in a university, it was revealed that the rate of having CBE significantly increased with the advancing age. Kabataş et al. (Kabataş et al, 2010) also reported similar results in their studies on female teachers in İzmir province. Given the similar studies, it can be stated that the results reported are in parallel with those reported in this study. However, in the literature, there also are two studies reporting that the rate of having CBE decreased with advancing age. In a study carried out on the women aged 35 years and older in the general population of Konya, Başak (Başak, 2016) concluded that the rate of having CBE decreased with advancing age. Ruffin et al. (Ruffin et al, 2000) reported that, even though not statistically significant, the rate of having CBE was lower among women aged older than 50 years when compared to those aged younger than 50 years. The reason for the difference in the study carried out by Başak (Başak, 2016) might be because the study was carried out in a rural region, as well as the lower socioeconomic arising from beliefs. Extending the breast cancer screening services, allowing the society to easily access such services, making society and healthcare professionals to adopt that age is a risk factor for breast cancer, and the advancing age causing people to be more sensitive and to break certain social biases that might have increased the rate of having examination.

In this study, it was observed that the rate of having CBE statistically non-significantly increased with the increasing educational status of nurses (p>0.05). In the logistic regression model implemented in a previous study carried out by Aker et al. (Aker et al, 2015), different educational statuses were found to have no effect on the women in terms of having CBE. More comprehensive studies should examine if the education raises awareness of breast health.

The rate of having CBE was found to be higher among the participating nurses having breast cancer in their

relatives ($p<0.05$). Similar results were reported in other studies in the literature (Karakuş, 2008; Aker et al, 2015). On the contrary with these studies, in a study carried out by Gençtürk (Gençtürk, 2013) on female healthcare professionals working at a state hospital in İstanbul and a study carried out by Açıkgöz et al. (Açıkgöz et al, 2015) on female personnel working at a hospital in İzmir, it was reported that those having breast cancer history in their relatives had a lower rate of having CBE. Although several studies reported that the rate of having CBE was found to be higher among those with breast cancer history in their relatives, there also are reporting lower rates of having CBE. However, it is expected for those, who have positive familial history, to feel themselves at risk and to have a high motivation for implementing early diagnosis methods.

In the present study, examining the status of having mammography, it was determined that 53.6% of female nurses aged older than 40 years had a mammography at least once in their lifetime. In studies carried out in Turkey on different age and profession groups in different regions with different developmental statuses, the rate of having mammography for a minimum of one time ranged between 15.6% and 39.0% (Uncu-Bilgin, 2011; Yılmaz et al, 2013). In various studies carried out in different countries, the rate of having mammography ranged between 64.0% and 75.9% (Paskett et al, 2004; Davis et al, 2005). The results of the present study are generally higher than those reported by the studies carried out in our country. This might be because the studies have been carried out on different age groups and with different samples. American Cancer Society (ACS) recommends having a mammography every year after the 40th year of age for women in the moderate risk group (ACS, 2021). In our country, however, the Ministry of Health recommends having mammography at the age and interval to be specified by physicians for the women older than 40 years and in the risky group, and once every two years for women aged between 40 and 69 years.

Within the scope of this study, it was observed that the rates of having mammography increased with the increasing educational status of participating nurses ($p<0.05$). Different results on the relationship between educational status and having mammography were reported in similar national studies. Several studies (Açıkgöz et al, 2015; Dişçigil et al, 2007) reported no relationship between educational status and having mammography, whereas some others (Özaydın et al, 2009; Yıldırım-Özaydın, 2014) reported that the rate of having mammography increased with increasing educational status. It can be stated that the results vary depending on the region and sociocultural, educational, and age groups. Although it was observed in the present study that the rate of having mammography increased with increasing educational status, it was also revealed that the rate of having mammography was not at the desired level at any educational status. Although the sensitivities of women in the general population and female healthcare professionals towards breast cancer differ, interventions should be made in order to increase the level of awareness to a sufficient and desired level and to ease the access to mammography.

In the present study, the rate of having mammography was found to be significantly higher among nurses having in-service training in comparison to those having no in-service training ($p<0.05$). In many of previous studies, it was determined that women have insufficient knowledge on the early diagnosis of breast cancer and the examination methods started to be implemented more after the training (Paskett et al, 2004; Yıldırım-Özaydın, 2014). It was emphasized that the awareness of women having training has arisen and it has resulted in the early diagnosis methods to be implemented more (Yılmaz et al, 2013). The present study is in corroboration with those reporting that positive improvements in gaining the early diagnosis behaviors have been achieved after the occupational and in-service trainings offered to healthcare professionals.

Limitations of the Study

In this study, the use of early diagnosis methods by nurses was examined based only on the verbal statements of nurses but the records were not examined. Moreover, the causality regarding not using the methods was not questioned.

CONCLUSION and RECOMMENDATIONS

In conclusion, the knowledge of participants on breast cancer is not at a sufficient level. One-third of nurses were found to implement none of the early diagnosis methods. Moreover, approx. half of the questions about breast cancer were answered accurately. Given these findings;

-As the healthcare professionals working for both their own health and for the society, nurses should expand their knowledge on breast cancer and early diagnosis methods and, in order to develop positive health behavior changes, regular in-service trainings should be planned,

-Appropriate interventions should be made by investigating the factors inhibiting the implementation of breast cancer early diagnosis methods in studies involving larger sample groups from other healthcare professionals.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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REFERENCES

Açıkgöz A, Çehreli R, Ellidokuz H (2015). Hastanede çalışan kadınların meme kanseri konusunda erken tanı yöntemlerine yönelik bilgi ve davranışlarının belirlenmesi, uygulanan planlı eğitimin etkinliğinin incelenmesi. Meme Sağlığı Dergisi, 11:31-8.

Akarsu, H.R, Alsaç, Y.S (2019). Hemşirelik öğrencilerinin kendi kendine meme muayenesini bilme ve uygulama durumlarının belirlenmesi. Bozok Tıp Dergisi, 9(3):115-21.

Aker S, Öz H, Tunçel EK (2015). Samsun'da yaşayan kadınların meme kanseri erken tanı yöntemleri ile ilgili uygulamaları ve bu uygulamaları etkileyen faktörlerin değerlendirilmesi. J Breast Health, 11:115-22.

Alpteker H, Avcı A (2010). Kırsal alandaki kadınların meme kanseri bilgisi ve kendi kendine meme muayenesi uygulama durumlarının belirlenmesi. The Journal of Breast Health, 6:74-9.

Altunkan H, Akın B, Ege E (2008). 20-60 Yaş arası kadınların kendi kendine meme muayenesi uygulama davranışları ve farkındalık düzeyleri. Meme Sağlığı Dergisi, 4:84-91.

American Cancer Society, (2021). Available from: http://www.cancer.org/healthy/findcancerearly/screeningguidelines/American Cancer Society Guidelines for the early detection of cancer, (20.04.2021).

Aydoğdu SGM, Karapelit Z (2017) . Ebelik öğrencilerinin kendi kendine meme muayenesi ile ilgili bilgi ve tutumlarının belirlenmesi. Androl Bul, 19(3):78−85.

Başak F (2016). Konya ili, Bozkır ilçesinde meme kanseri tarama ile ilgili bilgi ve davranışların değerlendirilmesi, kesitsel anket çalışması. Bezmialem Science, 1:19-24.

Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A (2018). Global Cancer Statistics 2018: GLOBOCAN Estimates of İncidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA: A Cancer Journal For Clinicians, 68(6):394-424.

Chong PN, Krishman M, Hong CY, Swah TS (2002). Knowledge and practice of breast cancer screening amongst public health nurses in Singapore. Singapore Med J, 43:509-16.

Collaborative Group on Hormonal Factors in Breast Cancer (2002). Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50302 women with breast cancer and 96973 women without the disease. Lancet, 360:187-95.

Davis C, Emerson JS, Husaini BA (2005). Breast cancer screening among African American women: adherence to current recommendations. J Health Care Poor Underserved, 16:308-14.

Dişcigil G, Şensoy N, Tekin N, Söylemez A (2007). Meme sağlığı: Ege Bölgesi'nde yaşayan bir grup kadının bilgi, davranış ve uygulamaları. Marmara Medical Journal, 20:29-36.

Ekici E, Utkualp N (2007). Kadın öğretim elemanlarının meme kanserine yönelik davranışları. Meme Sağlığı Dergisi, 3:136-9.

Gençtürk N (2013). Kadın sağlık profesyonellerinin meme kanseri erken tanı yöntemlerini bilme ve uygulama durumları. The Journal of Breast Health, 9:5-9.

Güzel N, Bayraktar N (2019). Kadınların meme kanserinin erken tanısına yönelik farkındalıklarının ve uygulamalarının belirlenmesi. HUHEMFAD-JOHUFON, 6(2):101-10.

Kabataş MS, Kızıl H, Duman D (2010). Bayan öğretmenlerin meme kanseri ve kendi kendine meme muayenesi hakkında bilgi, tutum ve davranışlarının incelenmesi. Meme Sağlığı Dergisi, 4:150-5.

Karakuş F (2008). Malatya il merkezinde bulunan birinci basamak sağlık hizmetlerinde çalışan ebe ve hemşirelerin meme kanseri erken tanı uygulamaları konusunda bilgi, tutum ve davranışları. Yüksek Lisans Tezi. İnönü Üniversitesi, Sağlık Bilimleri Enstitüsü, Malatya.

Kaymakçı Ş (2011). Meme hastalıkları. p: Karadakovan A, Eti Aslan F, editörler. Dahili ve cerrahi hastalıklarda bakım. Geliştirilmiş 2. Baskı, Adana: Nobel Tıp Kitabevi.

Özaydın AN, Güllüoğlu BM, Ünalan PC, Gorpe S, Cabioğlu N, Öner BR, Özmen V (2009). Bahçeşehir'de oturan kadınların meme kanseri bilgi düzeyleri, bilgi kaynaklari ve meme sağlığı ile ilgili uygulamaları. J Breast Health, 5:215-24.

Özer A, Bankaoğlu E, Ekerbiçer HÇ, Hüdayioğlu MR, Özdemir M (2009). Kahramanmaraş'ta yaşayan bir grup kadının kendi kendine meme muayenesi yapma ve mamografi çektirme durumu ile bunları etkileyen faktörler. Toplum Hekimliği Bülteni, 28:14-9.

Özkan S, Keskinkılıç B, Gültekin M, Karaca AS, Öztürk C, Boztaş G, et al (2018). Ulusal Kanser Kontrol Planı 2013-2018. TC. Sağlık Bakanlığı Türkiye Halk Sağlığı Kurumu Yayınları, Ankara.

Özmen V (2013). Türkiye'de Meme Kanseri. Türkiye Klinikleri Journal of General Surgery Special Topics, 6 (2):1-6.

Paskett ED, Tatum C, Rushing J, Michielutte R, Bell R, Foley KL, Bittoni M, Dickinson S (2004). Racial differences in knowledge, attitudes, and cancer screening practices among a triracial rural population. Cancer, 101:2650-9.

Ruffin MT, Gorenflo DW, Woodman B (2000). Predictors of screening for breast, cervical, colorectal and prostatic cancer among community-based primary care practices. JABFP, 13:1-10.

Sadler GR, Dhanjal SK, Shah NB (2001). Asian Indian Women: Knowledge, attitudes and behaviors toward breast cancer early detection. Public Health Nursing, 18:357-75.

Sapountzi-Krepia D, Releiti M, Lavdaniti M, Psyhoqiou M, Choliou M, Xenofontos M, Savva M (2017). Evaluating female nursing students' knowledge and attitudes regarding breast self-examination. Health Care Women Int, 1–10.

Segni MT, Tadesse DM, Amdemichael R, Demissie HF (2016). Breast self-examination: knowledge, attitude, and practice among female health science students at Adama Science and Technology University, Ethiopia. Gynecol Obstet (Sunnyvale), 6:368.

Siegel RL, Miller KD, Jemal A (2019). Cancer statistics 2019. CA Cancer J Clin, 69 (1):7-34.

Taşkın L. Doğum ve Kadın Sağlığı Hemşireliği (2014). 12.Baskı. Ankara: Sistem Ofset Matbaacılık.

Uncu F, Bilgin N (2011). Birinci basamak sağlık hizmetlerinde çalışan ebe ve hemşirelerin meme kanseri erken tanı uygulamaları konusunda bilgi, tutum ve davranışları. Meme Sağlığı Dergisi, 7:167-75.

Uzun Ö, Karabulut N, Karaman Z (2004). Hemşirelik öğrencilerinin kendi kendine meme muayenesi ile ilgili bilgi ve uygulamaları. Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi, 7:33-41.

Yıldırım AD, Özaydın AN (2014). İstanbul Moda'da oturan kadınların meme kanseri ile ilgili bilgileri, bilgi kaynakları ve meme kanseri taramalarına katılımları. J Breast Health, 10:47-56.

Yılmaz D, Bebiş H, Ortabağ T (2013). Determining the awareness of and compliance with breast cancer screening among Turkish Residential Women. Asian Pasific J Cancer Prev, 14:3281-8.

Yılmaz M, Seki Z, Gürler H, Çifçi ES (2010). Bir üniversitede çalışan kadınların meme kanseri risk faktörleri yönünden incelenmesi. DEUHYO ED, 3:65-71.