



Original Research / Özgün Araştırma

# Female healthcare workers and breast cancer screening

## Kadın Sağlık Çalışanları ve Meme Kanseri Taraması

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### ABSTRACT

**Aim/Background:** Breast cancer is the common type of cancer all around the world. In this study, we aimed to evaluate female healthcare professionals' knowledge, attitudes, behaviours and beliefs about breast cancer and breast cancer screening methods. **Methods:** This study was conducted in a training and research hospital. Female healthcare professionals were included in the study. The data were collected by questionnaires filled out through face to face interviews. SPSS for Win. Ver. 15.0 was used for the analysis. **Results:** The study included 525 participants, 52.4% (n=275) of them were midwives/nurses, 31.2% (n=164) were doctors, and 16.4% (n=86) were other allied health personnel. The doctors were found more knowledgeable than the others about signs and symptoms of breast cancer (p=0.001). The sensitivity subscale scores according to Breast Cancer Health Belief Model Scale were higher in the participants whose first-degree relatives had a history of breast cancer (p=0.001). **Conclusion:** Early diagnosis of breast cancer can be possible by the implementation of screening programs effectively. For this purpose, it is necessary to encourage healthcare professionals to be sensitive to the subject as well as increasing the awareness of breast cancer in the community.

**Keywords:** Breast cancer screening, breast cancer, healthcare professionals, Breast Cancer Health Belief Model Scale

### ÖZET

**Giriş ve Amaç:** Meme kanseri tüm dünyada yaygın olarak görülen bir kanser türüdür. Bu çalışmada kadın sağlık çalışanlarının meme kanseri ve meme kanseri tarama metodlarıyla ilgili bilgi, tutum, davranış ve sağlık inançlarını değerlendirmeyi hedefledik. **Yöntem:** Bu çalışma bir eğitim ve araştırma hastanesinde yürütülmüştür. Veriler yüz yüze görüşme tekniği kullanılarak doldurulan anket formları aracılığıyla toplanmıştır. Araştırmadan elde edilen verilerin analizinde SPSS for Win. Ver. 15.0 (Statistical Package for Social Sciences Inc., Chicago, ILL., USA) paket programı kullanılmıştır. **Bulgular:** Çalışmaya dahil edilen 525 sağlık çalışanının %52,4 (n=275)'ünü ebe/hemşire, %31,2 (n=164)'sini doktor ve %16,4 (n=86)'ünü diğer yardımcı sağlık personeli oluşturmaktadır. Meme kanseri belirtilerini bilme durumuna bakıldığında, doktorların diğerlerine göre meme kanseri belirtilerini daha iyi bildikleri saptanmıştır, bu sonuç istatistiksel olarak da anlamlıdır ( $\chi^2= 101,512$ ; p=0,001). Birinci derece akrabalarında meme kanseri öyküsü olanların, olmayanlara göre Meme Kanseri Sağlık İnanç Modeli Ölçeği (MKSİMÖ) duyarlılık alt boyutundan aldıkları puan ortalaması daha yüksek olarak bulunmuştur (p=0,001). **Sonuç:** Meme kanserinde erken tanı, tarama programlarının etkin bir şekilde yürütülmesiyle yakalanabilir. Bunun için de toplumda meme kanseri farkındalığının artırılmasının yanında sağlık çalışanlarının konuya hassasiyetle eğilmelerinin sağlanması gerekmektedir.

**Anahtar kelimeler:** Meme kanseri taraması, meme kanseri, sağlık çalışanları, Meme Kanseri Sağlık İnanç Modeli Ölçeği

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## INTRODUCTION

Cancer is a major health problem, which is one of the most common causes of death in the world. According to research results of International Agency for Research on Cancer (IARC), breast cancer is the most common disease among female cancer types and it constitutes 25% of all cancers in women, with 1.67 million new cases. Breast cancer is the most common cause of cancer deaths in women in developing countries, (324,000 deaths, 14.3%), whereas it is the second most common cause of death after lung cancer in developed countries (198,000 deaths, 15.4%).<sup>1</sup> Approximately one in eight women are faced with the risk of developing invasive breast cancer in their life time, in United States of America (USA). Among US women in 2017, there will be an estimated 252,710 new cases of invasive breast cancer, 63,410 new cases of breast carcinoma in situ, and 40,610 breast cancer deaths.<sup>2</sup>

In Turkey, breast cancer (40.6%) is the most common cancer in women, the incidence of breast cancer is 40.7 per 100 thousand and approximately 15,000 women come down with it every year.<sup>3</sup> Early diagnosis is important for treatment of the disease, quality of life and life expectancy, in breast cancer, as well as for many other types of cancer. Breast cancer screening methods such as Breast Self-Examination (BSE), clinical breast examination (CBE) and mammography facilitate early diagnosis, and they are defined as health improving facilities.<sup>4,5</sup>

Breast cancer screening programs vary between countries and consensuses. The World Health Organization (WHO) recommends mammography for women aged 50-69, once every 1-2 years and does not recommend BSE and CBE.<sup>6</sup> In Canada and England, BSE and CBE are not included in routine screening program, while mammography screening is recommended for women aged 50-74, in every 2-3 years in Canada and for women between ages 50-70, once in 3 years, in England.<sup>7</sup> American Cancer Society recommends that the benefits and limitations of BSE should be introduced to every asymptomatic woman from 20 years old and they should be warned to admit to healthcare professionals if they observe abnormal changes. BSE increases awareness of breast cancer, therefore healthcare professionals are recommended to control and train women who want to perform BSE about the right technique. Regarding CBE and mammography; these are recommended once every three years as part of a periodic health examination after 20 years of age, and once in a year after 40 years of age.<sup>8-10</sup> According to the national standards for breast cancer screening issued by the Turkish Ministry of Health:

- Between the ages of 20-40: BSE monthly
- Between the ages of 40-49: BSE monthly, CBE once in a year, for individuals with a history of breast cancer in first-degree relatives, mammography once in two years
- Between the ages of 50-69: BCE monthly, CBE once in a year and mammography once in two years.<sup>7</sup>

The most important criteria for community-based cancer screening is to execute a program that covers 70% of the target population. However, currently, the coverage ratio of breast cancer screening in Turkey is between 20-30% with the sum of opportunistic hospitals performing screening and admissions to community-based programs. For this reason, studies to integrate the family physicians into the program have been carried on by Ministry of Health.<sup>11</sup>

The success of the screening program is directly associated with knowledge, attitudes, behaviours and health beliefs of healthcare professionals. In general, the healthcare professionals' knowledge about risk factors for the development of breast cancer, high-risk individuals, signs and symptoms leading to the diagnosis of breast cancer is important in the early diagnosis of breast cancer. Thus, a decrease in breast cancer mortality, improving the quality of life and saving first the breasts and then lives of women may be possible by virtue of early diagnosis. Health care professionals first themselves should be knowledgeable about risk factors, signs and screening methods, in order to be useful to the community.<sup>12</sup>

Although a variety of models have been used to define the effectiveness of the methods of early diagnosis of breast cancer, Health Belief Model (HBM) is often used in formulating the theoretical framework of BSE and other breast cancer screening studies, because beliefs are active on health behaviours HBM is a model investigating what motivates individuals to do or avoid actions related to their healthcare.<sup>13,14</sup>

The aim of this study is to evaluate knowledge, attitudes, behaviours and health beliefs of female healthcare professionals about breast cancer, BSE, CBE and mammography.

## METHODS

### Sample Selection

This hospital-based cross-sectional study was conducted in a training and research hospital in Ankara- the capital city of Turkey-between 26 June and 15 July 2012. A total of 525 volunteers from

900 female health workers were included in the study. Inclusion criteria were working actively in the hospital at the time of the study and being a female healthcare professional. The participation rate was 58.33%.

### Data Collection

Data were collected through a questionnaire prepared in accordance with the literature. The first part of the questionnaire consists of questions about the socio-demographic characteristics and knowledge about breast cancer and screening methods. The second part included Breast Cancer Health Belief Model Scale (BCHBMS). BCHBMS was introduced by Champion (1984) and based on the health belief model on faith for the early diagnosis of breast cancer.<sup>15</sup> In this study, the Turkish version of BCHBMS was used.<sup>16</sup> BCHBMS consists of 8 subscales and 52 items including "sensitivity", "caring/seriousness" and "health motivation", about individual's judgment related to the overall health and breast cancer; "obstacles", "benefits", "self-efficacy" about BSE; and "benefits" and "obstacles" about mammography. Higher scores indicate an increase in sensitivity and caring, higher perception of benefits, higher perception of obstacles. The model explains how the behaviours of individuals to protect themselves from diseases and deficiencies were characterized and affected. The questionnaire was applied by face to face interview technique. Approval of Ethics Committee for Non-Drug Clinical Trials of Yildirim Beyazıt University School of Medicine was obtained.

### Statistical Analysis

The data were analyzed by using SPSS for Win. ver. 15.0 software package (Statistical Package for Social Sciences Inc., Chicago, Ill., USA). Appropriate data were presented as descriptive statistics (number, percent); the data specified by measurement were presented as mean  $\pm$  standard deviation and median (min-max). Mann-Whitney U test was used for defining differences between the groups, tests of compliance with the normal distribution, and non-parametric tests after the assessment as well as descriptive statistics. A value of  $p < 0.05$  was accepted statistically significant. Validity and reliability analysis of the BCHBMS questions were performed and Cronbach's alpha values were calculated.

### RESULTS

A total of 525 female healthcare professionals participated in the study. The median age of the

participants was 31 years (min: 18, max: 59), and 37.5% (n=197) of the participants were between 20-29 years of age. Regarding professions, 52.4% (n=275) of them were midwives/nurses, 31.2% (n=164) were doctors, and 16.4% (n=86) were other allied healthcare personnel (Emergency medical technician, laboratory technician, radiology technician, anesthesia technician, dental technician, child development specialist, medical biologist, dietician, physiotherapist and pharmacist). The median duration of working in the profession was found to be 8 years (min. 2 months; max. 38 years).

The participants were asked which of the symptoms of breast cancer they knew. Knowing 3 symptoms were classified as "low level", 6 symptoms "moderate", and knowing all of the 9 symptoms were classified as "high level". The most well-known three symptoms were growth in neighbouring lymph nodes 82.7% (n=434), an asymmetric collapse of breast 81.9% (n=430) and a mass in the breast 77.5% (n=407), respectively. The least well-known symptom was an abnormal swelling of the arm 61% (n=320). Distributions of the level of knowledge of the symptoms of breast cancer according to the professions are shown in Table 1.

We found that 86% of the doctors, 53.1% of the nurses/midwives and 27.9% of the other allied healthcare professionals knew the symptoms of breast cancer at "high level". In addition, we found that the doctors knew the symptoms of breast cancer better, compared to other healthcare professionals. This difference was statistically significant. ( $X^2=101.512$ ;  $p=0.001$ )

The most well-known risk factors associated with breast cancer were "a family history of breast cancer" (99.2%), "exposure to radiation" (94.1%), and "smoking" (94.1%). The least known risk factors were menopause after 50 years of age (40.8%), "menstruation before 12 years of age" (50.1%), and "history of benign breast disease" (52.2%), respectively.

Ninety-four point one percent of (n=494) the participants stated that BSE is essential, whereas 67.6% (n=355) of them answered the question whether they perform BSE positively. Regarding the participants who stated that they perform BSE (n=355); 44.2% (n=157) said "I'm doing once in a month", 39.2% (n=139) said "I'm doing whenever I recall", 9.9% (n=35) said "I am a doing once in six months", 3.9% (n=14) said "I'm doing once in a week", and 2.8% (n=10) said "I'm doing once in a year". Forty percent of the doctors (n=44), 49.2% (n=96) of the midwives/nurses and 34% (n=17) of other allied health personnel stated that they perform BSE once in a month. The ratio of those

who perform BSE once in a month and on the 5<sup>th</sup>-7<sup>th</sup> days of menstruation (at the right time after 40 and frequency) was 21.4% (n=76). The distribution of performing BSE and undergoing mammography

years age according to the professions are shown in Table 2.

<b>Table 1. Distribution of breast cancer symptoms knowledge levels according to professions</b>						
<b>Professions (n=525)</b>	<b>The knowledge of the breastcancer symptoms (n=525)</b>					
	<b>Low Level</b>		<b>Moderate</b>		<b>High Level</b>	
	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>
Doctors	1	0.6	22	13.4	141	86
Nurses/Midwives	39	14.2	90	32.7	146	53.1
The other allied healthcare personnels*	29	33.7	33	38.4	24	27.9
<b><math>\chi^2= 101,512</math>      <b>p=0,001</b></b>						

\*Emergency medical technician, laboratory technician, radiology technician, anaesthesia technician, dental technician, child development specialist, medical biologist, dietician, physiotherapist and pharmacist

<b>Table 2. Distribution of performing BSE and undergoing mammography after 40 years of age according to professions</b>				
<b>Professions (n=525)</b>	<b>Not performing BSE</b>		<b>Performing BSE</b>	
	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>
	Doctors	54	32.9	110
Nurses/Midwives	80	29.1	195	70.9
The other allied healthcare personnels*	36	41.9	50	58.1
<b><math>\chi^2= 4,911</math>      <b>p=0,086</b></b>				
<b>Professions (n=121)</b>	<b>Not undergoing mammography</b>		<b>Undergoing mammography</b>	
	<b>n</b>	<b>(%)</b>	<b>n</b>	<b>(%)</b>
	Doctors	10	26.3	28
Nurses/Midwives	30	49.2	31	50.8
The other allied healthcare personnels*	11	50	11	50
<b><math>\chi^2= 5,700</math>      <b>p=0,058</b></b>				

\*Emergency medical technician, laboratory technician, radiology technician, anaesthesia technician, dental technician, child development specialist, medical biologist, dietician, physiotherapist and pharmacist

There were no significant differences between health care professionals in terms of performing

BSE and undergoing mammography after 40 years age. It is found that 73.7% of physicians underwent

mammography. Although this difference between professions was not considered statistically significant, the physicians seem to undergo mammography considerably more than other professions.

According to our results, 77.5% (n=275) of those who perform BSE have been informing their environment and patients about having the breast examination, while 54.1% of those who do not perform BSE (n=92) did not provide information. This finding suggests that performing BSE is effective in healthcare professionals' informing their environment and patients ( $X^2=52.050$ ,  $p=0.001$ ). Regarding those who perform BSE (n=355), 47.9% (n=170) of them stated that they had learned BSE from health care professionals, and % 37.2 (n=132) of them stated that they received BSE training.

Regarding admission to healthcare professionals, 6.5% of the participants stated that they regularly visit a doctor for CBE and 15.2% of them reported irregular visits. Overall 78.3% of the participants stated that they did not admit to physicians for CBE; we found that 81.7% of physicians (n=134), 76% (n=209) of midwives/nurses and 79.1% (n=68) of other allied health care professionals did not admit a physician for CBE. There were no statistically significant differences between professions whether or not undergoing CBE ( $X^2=2.006$ ;  $p=0.367$ ). We found that 67.2% of the participants have been encouraging their acquaintances and patients to undergo CBE, and 71.2% (n=374) of the participants did not know the age of starting CBE.

The physicians gave more correct answers to questions "which imaging methods are used for early diagnosis of breast cancer" ( $X^2=38.177$ ,  $p=0.001$ ), and "from what age should mammography started and how often it should be repeated for breast cancer screening" (78%, n=128) ( $\chi^2=81.428$ ,  $p=0.001$ ) than the other healthcare professionals participating in the study. In addition, 15% of the participants underwent mammography once in their lives.

Cronbach's alpha values of the average scores obtained from the subscales of BCHBMS were found ranging between 0.686-0.895 and this scale was accepted as highly reliable. Average scores of BCHBMS subscales according to the presence of a history of breast cancer in first-degree relatives, performing BSE, undergoing BCE and mammography are shown in Table 3.

The mean scores obtained from BCHBMS sensitivity subscale were found to be higher in those with a history of breast cancer in first degree relatives, than those without ( $p=0.001$ ). Health motivation, BSE benefits, and BSE self-efficacy scores of those performing BSE than who do not perform BSE ( $p=0.030$ ,  $p=0.001$ ,  $p=0.001$  respectively). Again BSE obstacles scores of those who perform BSE were lower than those do not perform BSE ( $p=0.001$ ). BHSBMS mammography obstacles scores of those who had not undergone mammography found to be higher were than that of those who underwent mammography ( $p = 0.027$ ).

## DISCUSSION

Early diagnosis and treatment of breast cancer may be possible by following appropriate cancer screening programs. Healthcare professionals have a key role in the success of a screening program. In order to improve healthcare professionals' level of knowledge, attitudes, behaviours and health beliefs about screening breast cancer, an evaluation of the current situation is required. In order to investigate and evaluate the knowledge level of breast cancer, we asked some questions about symptoms and risk factors of breast cancer; the most well-known symptoms of breast cancer were growth in neighbouring lymph nodes, asymmetric collapse in one breast, and breast mass, respectively. Similarly, Sim and colleagues found that the most well-known symptoms were breast masses and nipple changes. Twenty-nine percent of the participants were able to state one symptom, while 32% of the participants were able to state two symptoms.<sup>17</sup> In our study, 59.2% (n=311) of the participants were able to state nine symptoms associated with breast cancer. This high ratio may be attributed to that the participants in our study were health care professionals and a list of symptoms was introduced to the participants to choose from in it. In the same study, 39% of the participants did not know "positive family history" among risk factors, whereas in our study, this risk factor was the most well-known risk factor (99.2%). This result may also be attributed to the same causes; nonetheless, almost all of our participants' knowledge ability about this risk factor is a gratifying situation. Akpınar et. al<sup>18</sup>. in their study "positive family history" was the most well-known risk factor, this was similar to our results.

Regarding the behaviour related to breast cancer screening methods, Demirkıran et al reported that Turkish women's rates of performing breast cancer screening methods are lower than that of women in Western countries.<sup>19</sup> In Turkey, the rate of women health workers who perform breast self-

**Table 3. Comparison of average scores of BCHBMS subscales with “History of Breast Cancer in the first degree relatives”, “performing BSE”, “undergoing CBE” and “mammography”**

Groups of Subscale (n=516)	History of breast cancer in the first degree relatives			Performing BSE			Undergoing CBE			Undergoing mammography		
	No	Yes	Value of p	No	Yes	Value of p	No	Yes	Value of p	No	Yes	Value of p
Sensitivity	7,3±2,3	8,5±2,1	<b>0,001</b>	7,7±2,4	7,3±2,3	0,074	7,4±2,3	7,2±2,3	0,324	7,4±2,4	7,3±2,3	0,477
Caring / Seriousness	19,9±5,2	20,5±4,6	0,482	20,1±5,5	19,9±4,9	0,462	19±5,1	20,2±5,0	0,497	19,9±5,2	19,9±4,6	0,884
Health Motivation	20,1±4,2	20,7±3,7	0,314	19,7±4,1	20,3±4,2	<b>0,030</b>	20,0±4,2	20,3±4,0	0,527	20,1±4,1	20,3±4,8	0,241
Benefits of BSE	15,9±3,5	16,5±2,9	0,357	15,0±3,7	16,4±3,2	<b>0,001</b>	15,8±3,4	16,1±3,3	0,272	15,9±3,4	16,0±3,6	0,447
Obstacles of BSE	17,1±5,6	17,9±4,4	0,123	19,9±5,5	15,9±5,0	<b>0,001</b>	16,9±5,3	18,2±5,8	0,058	17,1±5,5	17,6±5,6	0,387
Self-efficacy of BSE	36,3±7,0	36,7±7,8	0,949	32,9±7,2	37,9±6,4	<b>0,001</b>	36,2±7,1	36,4±7,0	0,993	36,1±7,2	37,9±6,2	0,072
Benefits of Mammography	17,6±3,4	17,4±2,6	0,723	17,6±3,1	17,5±3,4	0,994	17,6±3,2	17,2±3,5	0,204	17,5±3,3	17,9±3,6	0,171
Obstacles of Mammography	25,9±7,2	25,7±5,9	0,96	27,7±7,3	24,9±6,8	<b>0,001</b>	25,8±6,9	25,6±7,3	0,593	26,1±6,9	24,3±7,4	<b>0,027</b>

examination (BSE) every month regularly has been increasing as 25%, 14.7%, 28.6% and 32% through years.<sup>13,20,21,22</sup> Besides these limited studies, according to the latest health statistics published by the Ministry of Health of Turkey, the rate of those who perform BSE every month regularly is reported 10.1%.<sup>3</sup>

We found that the ratio of those who perform BSE once a month on the 5<sup>th</sup> -7<sup>th</sup> days of menstruation (at the right time and frequency) was 21.4%. The relatively high results may be due to our participants' being healthcare professionals. In a study conducted by Mahmoodi et al, it is reported that 6% of female healthcare professionals perform BSE regularly (monthly), 50% of them perform less frequently and %44 of them never perform BSE.<sup>23</sup> Clarke and Sandler in their study conducted with nurses reported that 41% of the nurses perform BSE once in a month.<sup>24</sup> Chong et al. in their study reported that 67% of nurses in Singapore perform BSE once in a month.<sup>25</sup> Lee reported the ratio was 40% in Korea<sup>26</sup> and in another study conducted by Foxall et al. the ratio of African American nurses who perform BSE once in a month was 43% and the ratio of Caucasian nurses was 20%.<sup>27</sup> We found that the overall ratio of the participants who regularly perform BSE every month was 44.2 % (n=157); according to professional groups, %49.2 (n=96) of the nurses, 40% (n=44) of the physicians, and 34% (n=17) of other allied health personnel performed BSE regularly. In our study, the ratios of performing BSE were similar to the international ratios, while higher when compared with other studies in Turkey. These results may be attributed to the recent improvements in efforts aimed at early diagnosis of breast cancer in Turkey.

Studies related alone with BSE training and implementation of BSE as a screening method reported that BSE does not reduce the mortality rate but allows detection of tumours with smaller diameter.<sup>28-30</sup> Attitudes regarding the use of BSE in breast cancer screening vary according to countries. Currently, the women are recommended to perform breast self-examination regularly every month, between 20 and 69 years of age, in Turkey. Considering actual condition, we can say that current rates are not at an adequate level.

In our study, the ratio of breast cancer screening methods other than BSE was found as CBE with a ratio of 21.7%, and mammography with a ratio of 15%, which is the lowest ratio. One reason for the low ratio of mammography in our study may be attributed to the younger population of the study. However, given that the ratio of undergoing mammography after forty years of age was found to be 57.8% in our study, it can be suggested that healthcare professionals do not adequately care

about their health status or they do not have adequate knowledge about it. In the study of Canbulat et al. it is found that 15% of the nurses have been visiting physicians for CBE, regularly.<sup>12</sup> Again, in another study conducted in Turkey, it is found that 28.4% of physicians and 24.1% of nurses and midwives visit physicians for CBE.<sup>18</sup> In the same study the ratio of physicians underwent mammography was found to be 10.4% and the ratio of nurses and midwives was found to be 10.1%.

It has been shown that health beliefs, attitudes and behaviours of women are effective in their undergoing screening for breast cancer.<sup>22,28,29</sup> According to Sim et al., the women who are sensitive about breast cancer and perceived breast cancer as a serious condition, and with a low perception of obstacle and a high perception of benefit, will go through with more breast cancer screening behaviour.<sup>17,28</sup>

Champion (1993) reported that perception of obstacles plays a significant role in BSE.<sup>30</sup> Educational status and family history of breast cancer are reported to be associated with BSE.<sup>31</sup> In the study of Erbil et al., breast cancer sensitivity of individuals who themselves or their family members were diagnosed with breast cancer found to be significantly higher.<sup>32</sup> Again in the same study, women whose a relative or friend was diagnosed with breast cancer got significantly higher scores from sensitivity, benefits, safety and health motivation subscales than the others, and their perception of obstacles were lower. In our study, the average sensitivity subscale score of those with a history of breast cancer in first-degree relatives was higher than the others, there was no significant difference in other dimensions. Although it is expected that those with higher sensitivity may perform BSE and undergo mammography, we cannot observe this sensitivity to return to behaviours of undergoing screening. Karayurt reported significant differences between the mean scores of sensitivity, benefits, obstacles, health motivation and confidence subscales of the nurses who perform BSE and who don't.<sup>22</sup> Lee found that sensitivity and confidence perceptions are higher and perception of obstacles is lower, in those who perform BSE.<sup>26</sup>

In our study, mean scores of health motivation, the benefits of BSE, and BSE self-efficacy subscales were higher in the group who perform BSE, while mean scores BSE obstacles and mammography obstacles were significantly higher in the group who do not perform BSE. It is important to consider the health belief perceptions of women and particularly to define and reduce the perceptions that interrupt the expected preventive health

behaviours, in the future studies, aiming prevention and early diagnosis of breast cancer.

The knowledge, attitude and behaviour regarding breast cancer, among women who participated in our study, does not only concern them but also pertinent to their patients and relatives who should consult them due to their duties. Furthermore, it is also important that our study group consisting of physicians, nurses, midwives and other allied healthcare professionals facilitates to define the current level of knowledge about breast cancer of women healthcare professionals practising different professions.

Our results show that the ratio of women healthcare professionals who perform breast cancer screening behaviours is low. The data we presented in this study were obtained from women healthcare professionals in a single hospital. It is a limiting factor for this study. More reliable information obtained by multicenter studies is needed to represent the whole country. Although, theoretically, it is expected that every contact with the healthcare system might be an opportunity for individuals to obtain information related to the improvement of health, unfortunately, currently, especially in hospitals, an emphasis is placed on curative services rather than improving health, preventive medicine, and providing consultancy about screening programs. As a result, the ratio of cancer screening among women who admitted to hospitals remains low.

Currently the overall coverage rates of community-based breast cancer screening and screening performed by profiteer hospitals in Turkey range between 20-30%.<sup>11</sup> Reasons for this situation include physician's limited time for services other than treatment services, crowded patient population, physician's staying away from consulting services due to performance-based salary system, patients' failure to request counseling from physicians, patients and healthcare professionals' lack of knowledge. Obviously, the condition cannot be explained only by lack of education; it is necessary to consider affecting factors all together and produce appropriate solutions. First of all, the perception that the purpose of healthcare services is not only to treat diseases but also to promote health in the community need to be established. Indeed, noteworthy efforts have been made in this regard in recent years. Especially publication of relevant information through the media, several meetings and campaigns organized by the Ministry of Health and NGOs, in support of health promotion activities are acceptable in situ applications. However,

programs especially informing the public about cancer screening are not sufficient.

In Turkey, from 2004 on the gradually family practice model has been adopted into the primary health care delivery, and since 2010 the system covered the whole country. Recently, 3 types of cancer screening (cervix, colorectal, breast) programs have been initiated in family medicine units under control of National Cancer Control Program; but there are still problems with application of the program. Considering the conditions in Turkey, risk factors should be identified and a risk model available for Turkey should be developed. For this purpose, cancer screening guidelines should be prepared and introduced by the Ministry of Health and specialist associations.

It is very important for the society that healthcare professionals should have accurate information about breast cancer symptoms, risk factors and screening methods essential for early detection. Proper counselling services can promote awareness of many women and play an important role in early diagnosis of breast cancer. It should be noted that it is not possible to give the right message to the community unless knowledge and motivation of the healthcare professionals are improved.

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