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Assessment of Breast Cancer Risk and Belief in Breast Cancer Screening Among the Primary Healthcare Nurses

Fatma Başalan İz[1] · **Adile Tümer**[2]

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Abstract Breast cancer is the most frequently diagnosed cancer in women. Early detection of breast cancer is known to increase survival rates significantly after diagnosis. This research was carried out to determine the level of breast cancer risk among primary healthcare nurses and their belief in breast cancer screening. In this descriptive research, the data were collected in face-to-face interviews with the participants. The researchers contacted all primary healthcare nurses currently working in the province. The data collection tools included a questionnaire form on sociodemographic characteristics, breast cancer risk assessment form, and Champion's Health Belief Model Scale (CHBMS) for breast cancer screening. In data analysis, descriptive statistics, *t* test, and analysis of variance (ANOVA) were used. The mean age of nurses was 35 ± 3.6. The mean score for the breast cancer risk assessment form was calculated as 82.9 ± 18.7. The subscale scores for the CHBMS for breast cancer screening were as follows: susceptibility 7.3 ± 1.8, seriousness 19.5 ± 4.1, benefits of breast self-exam 15.5 ± 2.6, barriers to breast self-exam 15.1 ± 2.8, self-efficacy 40.3 ± 7.0, and motivation 19.5 ± 4.1. The risk of breast cancer was found to be low in the study group. The analysis of the subscale scores for the CHBMS for breast cancer screening revealed that nurses had a below-average susceptibility perception, a somewhat lower perception of seriousness, an above-average mean score for perceived benefits, a moderate barrier perception, a relatively high perceived self-efficacy, and motivation above average.

Keywords Breast cancer · Health behavior · Risk assessment

✉ Fatma Başalan İz
fbasalan@gmail.com

Adile Tümer
tadile@mu.edu.tr

[1] Public Health Nursing Department, Faculty of Medical Sciences, Süleyman Demirel University, Isparta, Turkey

[2] Nursing Department, Muğla School of Health Sciences, Muğla Sıtkı Koçman University, Muğla, Turkey

Introduction

Today, breast cancer remains the leading cause of cancer-related deaths in women [1]. If diagnosed at an early stage, most breast cancers can be cured or controlled. Screening mammography appears to be a very effective and highly valuable diagnostic tool that significantly decreases the rate of breast cancer mortality [2].

The most important element in the fight against breast cancer, early detection, involves combined efforts, including identification of women at higher risk, careful monitoring of such high-risk groups, and adoption of widespread cancer screening strategies. The factors known to indicate higher risk for breast cancer are being a woman, older age (over the age of 50), family history of breast cancer, younger age at menarche, late menopause, nulliparity (never being pregnant) or having a first baby after the age 30, heavy drinking (consuming over one glass of alcoholic beverage per day), and a diet rich in fat [3]. The Ministry of Health in our country has recently been promoting the utilization of the Breast Cancer Risk Assessment Form to identify high-risk groups in Turkey [4]. Even though the recent risk assessment studies have found a relatively lower risk for breast cancer in Turkey [5], it still remains a serious disease with life-threatening complications [1]. For this reason, carrying out extensive studies to specify the current risk level of the population is of vital importance.

Turkey has been implementing a new Health Transformation Program, which includes a series of reforms. The most prominent features of this program include provision of easy access to healthy life programs, reduction of mother-infant mortality, tackling the risk factors for infectious diseases and chronic diseases to improve individuals' ability to control their own health, and adoption of preventive medicine approach at the center of healthcare system. Toward the end of 2010, Turkey initiated the implementation of the Family Medicine Program throughout the country [6].

In our country, the nurses, midwives, and health clerks working under the direction of family doctors at primary health centers are called family healthcare staff. A member of the family healthcare staff should collaborate with the family doctor to provide protective, therapeutic, and rehabilitative services, as well as keeping health records and statistics regarding the relevant services [7].

A number of researchers have been utilizing the health belief model to predict individual health behaviors, to design and implement successful health screening programs [8–11]. The health belief model attempts to explain the relationship between an individual's health beliefs and behaviors. This model identifies the factors that may be motivating or demotivating an individual to perform certain health-related actions, as well as the circumstances particularly effective in exhibiting health behaviors [12].

Family healthcare staff are responsible for the protection of the health and treatment of the community that they serve. While carrying out primary healthcare services, the family healthcare staff also provide consultation and education services. For example, they explain mothers when to introduce solid foods when they bring their baby for vaccination. They also give information about the expected motor development of the baby according to each month. When an elderly person comes to have some drugs prescribed, they explain them how to use the drug or provide information about how to arrange disease-specific nutrition. When an adolescent comes, they evaluate him or her in terms of growth and development and give him/her relevant advice. They employ risk management approaches while performing these tasks. We observed that the persons in the study group provided education or counseling in various topics. However (although breast cancer is the most common type of cancer among women), during the follow-up of women aged 15–49, either incomplete or no breast self-examination education/counseling is provided. This observation was the starting point of the research. Therefore, in this research, we aimed to determine the level of breast cancer risk among primary healthcare nurses performing a series of preventive services and their belief in breast cancer screenings.

Methods

Study Design and Sampling Method

This study was designed as a descriptive research. The research data were collected between 1 July and 15 September 2011 at Isparta, a moderate-size city in the southwest of Turkey. The research was carried out through face-to-face interviews with the nurses working at family health centers (FHCs). The target population of our study was the nurses working at these FHCs ($n = 65$). At the time of the survey, there were 52 FHCs in the city center. A total of 65 nurses were working in those centers. Without doing a sampling to select participants from the population, we collected data from all nurses willing to participate in the study. All of the nurses agreed to participate in the study. The 100 % participation in any study might sound a bit alarming or suspicious; however, none of the participants was pressurized or forced to participate in this research. The candidates were simply explained the aim and significance of the study. They were also shown the relevant permissions approving the conduct of the research, and they were simply asked whether they would like to take part in this study. The sample group willingly agreed to participate in a study approved by both the ethics committee and the host institution. The only problem was the difficulty to find a moment when the nurses were available, as they were extremely busy during working hours. They needed to allocate some time for the interviews, so we waited for those who were busy working to spare time for us, and thus, we were able to reach and survey the entire sample.

Data Collection Tools

Questionnaire

The questionnaire included questions about participant's age, marital status, height, weight, any history of breast disease, current presence of breast conditions, use of birth control pills, smoking, alcohol consumption, physical activity level, consumption of fruit and vegetables rich in fiber, regular breast self-exams, and their belief in the effectiveness of regular breast self-exams (BSEs).

Breast Cancer Risk Assessment Form

Originally developed by the American Cancer Society, the "Breast Cancer Risk Assessment Form" is recommended by the Turkish Ministry of Health for risk assessment and, thus, early detection of breast cancer among women. This form contains 21 items structured under six different sections. These items inquire about the participant's age, family and personal history of breast cancer, childbearing age, menstrual history, and body type. Each answer for the respective risk

factor is graded by assigning points, and a total score is calculated to determine the risk level, which is expressed as follows: low risk (200 points and below), moderate risk (201–300 points), high risk (301–400 points), and highest risk (more than 400 points) [4, 13].

CHBMS for Breast Cancer Screening

This scale, also known as Champion's Health Belief Scale, was developed by Dr. Victoria Lee Champion in 1993. This instrument is chiefly based on the health belief model (HBM) that investigates factors associated with health behaviors and attitudes toward breast cancer and screening for early detection. The CHBMS for breast cancer screening has been translated into Turkish language and culturally adapted for use in Turkish population by several researchers [10, 14–16]. In this study, we used the Turkish language version of the CHBMS (CHMBS-TR), adapted by Gözüm and Aydın (2004). This version of the scale contains 52 Likert-type items under six subscales addressing the domains of perceived susceptibility, perceived severity, benefits of BSE, barriers to BSE, self-efficacy, and health motivation. The participants are asked to rate each item on a five-point response scale, with 1 being "strongly disagree", 2 "disagree", 3 "neutral", 4 "agree," and 5 "strongly agree." Instead of using an aggregate score, the total scores of individual subscales were evaluated. The highest scores achievable at each subscale were as follows: 3–15 for perceived susceptibility, 6–30 for perceived severity, 4–20 for benefits of BSE, 8–40 for barriers to BSE, 10–50 for confidence/self-efficacy, and 5–25 for motivation. Apart from the subscale of barriers to BSE, where a higher score meant more perceived barriers to BSE, higher scores for all subscales represented a greater degree of positive views and attitudes toward healthcare [16, 17].

Data Analysis

The research data were analyzed using descriptive statistics. When examining the relationship between dependent and independent variables, we used parametric tests of t test and one-way analysis of variance (ANOVA). A p value less than 0.05 ($p < 0.05$) was considered to indicate the existence of a correlation. Statistical analyses were performed on Statistical Package for Social Sciences (SPSS) software package for Windows version 11.5.

Ethical Considerations

Prior to initiation of any research protocols, a written approval was obtained from the Scientific Research Ethics Committee and from the host institution in the city of Isparta. Besides, a verbal consent was obtained from each participant.

Results

As for the sample size, 65 persons working in 52 different FHCs may seem a small sample. However, these people provide services to a relatively large population. Given that there were 52 FHCs at that time in the city where our research was carried out, our research's strength to represent Turkey is 0.208 %.

The mean age of the participants was 35.3 ± 3.6 (ranging from 26 to 46), and all of them were women, with 97 % married (Table 1). Table 2 shows the participants' scores in the breast cancer risk-assessment, along with their mean scores for each subscale of the CHBMS. According to this table, the mean score for breast cancer risk was 82.9 ± 18.7. The subscale scores for the CHBMS were as follows: susceptibility 7.3 ± 1.8, seriousness 19.5 ± 4.1, benefits of BSE 15.5 ± 2.6, barriers to BSE 15.1 ± 2.8, self-efficacy 40.3 ± 7.0, and health motivation 19.5 ± 4.1 (Table 2).

The participants with advanced age, alcohol consumption, and those categorized as overweight based on their body mass index had significantly higher mean score for breast cancer risk ($p < 0.05$).

Evaluation of the relationship between the variables presented in Table 1 and subscales of the CHBMS revealed that the participants using birth control pills for 5 years or longer had significantly higher scores for the domains of perceived susceptibility and self-efficacy. Those smoking 11 cigarettes or more a day had greater scores for the subscales of barriers to BSE and perceived self-efficacy. The nurses reporting no diets rich in dietary fiber, fruit, and vegetables were found to score higher in the subscale of barriers to BSE. On the other hand, those regularly consuming foods rich in fiber scored higher in health motivation domain. All of the above-stated relationships were statistically significant ($p < 0.05$).

Discussion

It is a rather challenging process to calculate the absolute risk of breast cancer in women. An assessment for breast cancer risk allows identification of healthy women with higher risk of developing breast cancer throughout their lives. However, compiling the correct risk factors is of vital importance in assessing the true risk for cancer in healthy women [18]. Although some research has been carried out to assess the risk level of breast cancer in our country [5, 19], we may assert that far too little attention has been paid to this issue.

The nurses participating in our study had a mean age of 35.3 ± 3.6, ranging from 26 to 46 years. Age is the strongest independent risk factor for breast cancer, as the risk of developing this disease significantly increases with age [19]. Our research also found a statistically significant correlation between the mean age of participants and their risk for breast

Table 1 Certain sociodemographic variables and lifestyle behaviors of nurses

Variables	Number	Percent
Age (years)		
Under 30	3	4.5
30–40	57	87.9
41–50	5	7.6
Marital status		
Married	63	97
Divorced	2	3
BMI		
Normal	40	60.6
Overweight	25	39.4
Do you have any history of breast disease?		
Yes	5	7.6
No	60	92.4
Do you currently have a breast related problem?		
Yes	4	6.1
No	61	93.9
Did you use birth control pills (5 or more years)?		
Yes	9	13.6
No	56	86.4
Do you smoke (11 or more cigarettes per day)?		
Yes	9	13.6
No	56	86.4
Do you drink alcoholic beverages (three to five times per week)?		
Yes	1	1.5
No	64	98.5
Do you consider yourself physically active?		
Yes	49	75.8
No	16	24.2
Is your diet rich in fruits, vegetables, and fiber foods?		
Yes	63	95.5
No	3	4.5
Do you do regular breast self-exams?		
Yes	35	54.5
No	30	45.5
Do you believe that regular breast self-exam is necessary?		
Yes	62	95.5
No	3	4.5
Total	65	100

cancer. While the mean score for breast cancer risk was 53.3 among those under the age of 30, it increased to 128 for those aged 41–50. Although this risk score was way below 200 points according to the Breast Cancer Risk Assessment, which indicated a low risk, the importance of age factor was reflected by these risk scores. Eroğlu et al. (2010) calculated the risk of breast cancer as 0.04 % in women under 30 years of age ($n=2$) and 2.42 % in women aged between 41 and 50 ($n=121$). Tümer and Baybek (2010) calculated the score for breast cancer risk as 108.21 points among women under the age of 30 and 155.83 in those between 41 and 50 years of age. In a study by Baysal and Polat (2012), it was found that 89.9 % of the participants had low risk for breast cancer [5, 13, 19].

Consistent with the age-related data in the current literature, our research also found that the risk of breast cancer increased with age. In addition, the mean lower score for breast cancer risk in our study might be associated with the fact that majority of our participants were young individuals (about 60 nurses below the age of 40).

It has been reported that there is a strong correlation between daily alcohol intake and breast cancer risk [5]. In our study, one person reporting alcohol consumption three to five times per week had a breast cancer risk score of 40, while the remaining 64 women, who consumed no alcoholic beverages, had a mean risk score of 83.5 ± 18.04. The higher mean score found in the participants with no alcohol consumption might have been due to the small number of women reporting alcohol consumption.

While obesity doubles the risk of breast cancer in postmenopausal women, the incidence is lower in premenopausal obese women, but greater in the slim. However, there have been publications not supporting this effect of obesity [13]. In our research, the mean breast cancer risk score of the women categorized as overweight based on their body mass index (BMI) ($n=25$) was 93 ± 21.21, whereas it was found as 76.6 ± 13.8 for those with normal body type. Although this result indicates lower risk for breast cancer in the women surveyed, it may also suggest that the risk of breast cancer increases with obesity. Besides, even though BMI calculations classified 25 women as overweight, self-assessment showed that only seven women perceived themselves as overweight, which appears to have a significant implication.

Perceived Susceptibility

In realization of the expected health behaviors, an individual's self-perception about the issues concerning disease prevention and maintaining health is of great significance. Perceived susceptibility refers to an individual's subjective assessment of his/her vulnerability or risk of contracting a disease or facing a negative health outcome. As people's perceived susceptibility increases, they become more likely to engage in a desired health behavior [20]. The concept of perceived susceptibility has been utilized by a number of studies into breast cancer screening, where it is mainly used to measure a participant's own perception of his/her vulnerability or likelihood of developing a disease [21].

The highest score that can be achieved in this subscale of the CHBMS for breast cancer screening is 15. In our study, the mean score for this subscale was calculated as 7.3 ± 1.8, which

Table 2 Breast cancer risk assessment and health beliefs scale of breast cancer screening assessment in nurses

Risk factors	Breast cancer risk assessment		Health beliefs scale of breast cancer screening					
Age (years)	*n*	$\bar{x}$	Susceptibility	Seriousness	Benefits of breast self-examination	Barriers of breast self-examination	Self-efficacy	Motivation
Under 30	3	53.3 ± 11.5	8.3 ± 1.1	19.3 ± 1.5	14.6 ± 0.5	14.3 ± 1.5	42.3 ± 3.2	20.3 ± 2.5
30–40	57	80.52 ± 12.1	7.2 ± 1.8	18.5 ± 4.0	15.7 ± 2.3	15.2 ± 2.7	40.4 ± 7.4	19.5 ± 4.4
41–50	5	128.0 ± 18.7	7.6 ± 3.1	15.4 ± 4.0	14.2 ± 5.2	14.2 ± 4.9	38.4 ± 2.6	19.4 ± 0.8
Family history of breast cancer								
No breast cancer in the family	64	82.1 ± 17.8	7.3 ± 1.8	18.3 ± 4.0	15.6 ± 2.5	15.1 ± 2.8	40.3 ± 7.1	19.5 ± 4.1
An aunt or grandmother with breast cancer	1	130.0 ± 18.7	11.0	20.0	9.0	16.0	40.0	20.0
Personal history of breast cancer								
No breast cancer	65	82.9 ± 18.7	7.3 ± 1.8	18.3 ± 4.0	15.5 ± 2.6	15.1 ± 2.8	40.3 ± 7.0	19.5 ± 4.1
Has breast cancer								
Childbearing age								
First baby before the age of 30	65	82.9 ± 18.7	7.3 ± 1.8	18.3 ± 4.0	15.5 ± 2.6	15.1 ± 2.8	40.3 ± 7.0	19.5 ± 4.1
First baby after the age of 30								
No children								
Menstrual history								
Aged 15 or over at menarche	13	66.1 ± 8.6	7.0 ± 1.9	17.3 ± 4.1	15.9 ± 1.4	13.9 ± 2.5	36.6 ± 7.4	18.1 ± 4.4
Aged 12–14 years at menarche	52	87.1 ± 18.2	7.4 ± 1.8	18.5 ± 4.0	15.4 ± 2.8	15.4 ± 2.8	41.2 ± 6.7	19.9 ± 4.0
Body type								
Slim	7	69.2 ± 22.8	5.8 ± 1.7	17.8 ± 5.0	15.4 ± 3.1	15.1 ± 3.05	41.4 ± 19.6	17.4 ± 5.5
Buxom/normal	51	80.8 ± 14.3	7.4 ± 1.7	18.2 ± 3.8	15.6 ± 2.2	15.2 ± 2.8	40.3 ± 3.9	19.6 ± 4.0
Overweight	7	111.4 ± 17	8.1 ± 2.7	19.4 ± 5.3	15.1 ± 4.7	14.4 ± 3.0	39.7 ± 4.2	20.7 ± 2.9
Min-max	65	40-150	3-12	5-25	5-20	8-20	13-50	5-25
Mean		82.9 ± 18.7	7.3 ± 1.8	19.5 ± 4.1	15.5 ± 2.6	15.1 ± 2.8	40.3 ± 7.0	19.5 ± 4.1

may imply that our participants had lower perceived susceptibility than the normal level. However, a study group consisting of primary healthcare nurses might also be expected to have higher perception of susceptibility. In their study with academicians, Çeber et al. (2009) found that mean score for perceived susceptibility among their participants was 6.96 [22]. Gözüm et al. (2010) found that the women receiving peer education had a mean score of 7.5 for perceived susceptibility [17]. Yılmaz et al. (2011) calculated this score as 6.89 in academicians and 7.59 in housewives [23]. Erbil et al. (2012) identified this as 7.53 in their study [24].

Perceived Severity

The concept of perceived severity refers to the extent an individual believes that the consequences of certain disease or health problem are serious. Although it predominantly involves medical information or experience, perceived severity (or seriousness) may also stem from the individual's beliefs concerning the difficulties and negative consequences of a disease [20]. Perceived severity about breast cancer is not measured in the research based on the health belief model for breast cancer screening behaviors, since it is naturally presumed that all women would regard breast cancer as a severe condition [25].

The highest possible score achievable in the subscale of perceived severity under the CHBMS is 30. In our research, the mean score for this subscale was calculated as 19.5 ± 4.1. In their study with academicians, Çeber et al. (2009) found that the mean score for perceived severity was 21.37 [22]. Gözüm et al. (2010) found that their participants had a mean score of 21.5 for perceived severity [17]. Yılmaz et al. (2011) calculated this score as 21.5 in academicians and 23.6 in housewives [23]. Erbil et al. (2012) found a score of 21.20 in their study [24]. We may suggest that perceived severity scores of our participants were relatively low, as compared with the results from similar studies conducted in our country.

Perceived Benefits

The concept of perceived benefits is described as the degree that a person perceives a behavior change beneficial, and the extent of his/her belief in engaging in certain health actions would help prevent a disease to occur [20]. An individual should be motivated through the comfort that a certain health behaviors would provide, in order to engage in such health actions. In this regard, studies into breast cancer screening assess perceived benefits by measuring the extent of a participant's confidence in the fact that early detection and diagnosis of breast cancer could ensure better health [21].

The highest possible score attainable in the subscale of benefits of BSE under the CHBMS is 20. In our study, this subscale score was calculated as 15.5 ± 2.6. In their study, Çeber et al. (2009) found that the mean score for perceived benefits of BSE was 19.86 [22]. Gözüm et al. (2010) found that their participants had a mean score of 16.7 [17]. Yılmaz et al. (2011) calculated this score as 16.5 in academicians and 15.2 in housewives [23]. Erbil et al. (2012) found a score of 14.96 in their study [24]. We may suggest that our participants' mean score for perceived benefits was above the medium level, although it was lower than those found by other studies.

Perceived Barriers

Perceived barriers refer to the factors preventing engagement in the health-promoting action or undesired outcomes that a person believes such behavior change would cause. In other words, it is an individual's perception of causal agents complicating performance of a specific health protective behavior. If perceived benefit outweighs perceived barriers, the probability of engagement in such health behaviors increases [20]. The highest possible score achievable in the subscale barriers to BSE is 40. In our study, this subscale score was calculated as 15.1 ± 2.8. In their study with academicians, Çeber et al. (2009) found that the mean score for barriers to BSE was 23.61 [22]. Gözüm et al. (2010) found that their participants receiving peer education achieved a mean score of 13.1 for perceived barriers to BSE [17]. Yılmaz et al. (2011) found this score as 22.5 in academicians and 30.6 in housewives [23]. Erbil et al. (2012) found a mean score of 26.99 among their participants [24]. The fact that our participants scored relatively low in this perceived barriers implies that the nurses are more likely to engage in behaviors to protect health.

Perceived Self-Efficacy

The construct of perceived self-efficacy refers to an individual's beliefs in his/her ability to perform activities required to achieve the desired outcome. Self-efficacy beliefs play an important role in initiating and sustaining behavior change [20]. The highest possible score that can be achieved in the subscale of self-efficacy under the CHBMS is 50. In our study, the mean score for this domain was calculated as 40.3 ± 7.0. In their study with academicians, Çeber et al. (2009) found that the mean score for self-efficacy was 32.28 [22]. Gözüm et al. (2010) found that their participants receiving peer education achieved a mean score of 39.2 for perceived self-efficacy [17]. Yılmaz et al. (2011) calculated this score as 37.3 in academicians and 29.8 in housewives [23]. Erbil et al. (2012) found a mean score of 31.98 among their participants [24]. Compared to these findings, our results indicate higher level of perceived self-efficacy among the nurses participating in our research.

Perceived Motivation

Perceived health motivation is the willingness to engage in practices for maintaining and improving health. According to the health belief model, women with higher health motivation tend to have much higher rates of practicing regular BSE, mammography utilization, and clinical breast examination [20]. Within the CHBMS for breast cancer screening, the highest possible score for motivation is 25. In our research, this subscale score was calculated as 19.5 ± 4.1. In their research, Çeber et al. (2009) found that the academicians had a mean score of 26.75 for motivation [22]. Gözüm et al. (2010) found a mean score of 21.0 [17]. Yılmaz et al. (2011) calculated this score as 21.8 in academicians and 20.8 in housewives [23]. Erbil et al. (2012) found a mean score of 25.05 [24]. Our study group's health motivation was above average. Nevertheless, the nurses' perceived motivation was not high if we compare these results with those of other similar studies.

In our study, we used all the data that we collected. We examined the presence of statistically significant relationships and presented the results that we found. The risk of breast cancer was found to be low among our participants. The evaluation of the subscale findings for the Champion's Health Belief Model Scale for breast cancer screening reveals that nurses have a perceived susceptibility that is below-average, a somewhat lower perceived severity (seriousness) as compared to other research findings from our country, an above-average perceived benefits, yet lower than other research results, a relatively high perceived self-efficacy, and a health motivation that is above average, but not higher than those found by similar studies.

Based on the findings of the current research, the following are recommended:

- Raising awareness for the issue, considering the key role that FHC nurses play in educating women about breast health and promoting health behaviors
- Designing and organizing instructional courses to improve skills, knowledge, and attitudes of FHC nurses on breast cancer
- Repeating this study with a larger sample of nurses in different regions

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Compliance with Ethical Standards

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Conflict of Interest No conflict of interest has been declared by the author(s).

References

1. The Turkish Ministry of Health. (2014) Cancer statistics in Turkey. Available: http://kanser.gov.tr/Dosya/kayitcilik/2009kanseraporu.pdf Accessed Feb 18 2015
2. Ministry of Health of Turkey Cancer Control Department. (2010) National Cancer Control Program 2011–2015 Available: http://en.calameo.com/read/000713529dde4800f9572 Accessed Feb 18 2015
3. Gross RE (2000) Breast cancer: risk factors, screening, and prevention. Semin Oncol Nurs 16(3):176–84
4. National Family Planning Services Guide (NFPSG). (2005) Available: http://www.mersinsaglik.gov.tr/Download%5C97_8_36_rehber-cilt-1.pdf [Accessed Feb 23 2015]
5. Tümer A, Baybek H (2010) The risk level of breast cancer in working women. J Breast Health 6:17–21
6. Turkish Ministry of Health-Turkey Public Health Institution. Available: http://www.ailehekimligi.gov.tr/index.php?option=com_content&view=category&layout=blog&id=54&Itemid=213 [Accessed Feb 23 2015]
7. The Turkish Ministry of Health-Turkey Public Health Institution. Available: http://www.ailehekimligi.gov.tr/index.php?option=com_content&view=category&layout=blog&id=53&Itemid=212 [Accessed Feb 23 2015]
8. The Mikhail BI, Petro-Nustas WI (2001) Transcultural adaptation of champion's health belief model scales. J Nurs Scholarsh 33(2):159–65
9. Karayurt Ö, Dramalı A (2007) Adaptation of Champion's Health Belief Model Scale for Turkish women and evaluation of the selected variables associated with breast self-examination. Cancer Nurs 30(1):69–77
10. Gözüm S, Aydın I (2004) Validation evidence for Turkish adaptation of Champion's Health Belief Model Scales. Cancer Nurs 27(6):491–8
11. Seçkinli S, Nahçivan NÖ (2004) Reliability and validity of the breast cancer screening belief scale among Turkish women. Cancer Nurs 27(4):287–94
12. Ay F (2007) Fundamental concepts, principles and applications of nursing. Medical Publishing, Istanbul, pp 15–27
13. Eroğlu C, Eryılmaz MA, Cıvcık S, Gürbüz Z (2010) Breast cancer risk assessment: 5000 cases. Int J Hematol Oncol 1(20):27–33
14. Nahçivan NÖ, Seçginli S (2003) Attitudes and behaviors towards early diagnosis of breast cancer: the use of the health belief model as a guide. CÜ J Sch Nurs 7(1):33–38
15. Gözüm S, Karayurt Ö, Aydın I (2004) The results related to Turkish version of Champion's Health Belief Model Scales in breast cancer screening. J Res Dev Nurs 1(2):71–82
16. Avcı IA, Gözüm S (2009) Comparison of two different educational methods on teachers' knowledge, beliefs and behaviors regarding breast cancer screening. Eur J Oncol Nurs 13(2):94–101
17. Gözüm S, Karayurt Ö, Kav S, Platin N (2010) Effectiveness of peer education for breast cancer screening and health beliefs in eastern Turkey. Cancer Nurs 33(3):213–20
18. Açıkgöz A, Ergör G (2013) Factors affecting breast cancer risk perception in women and comparison of risk levels to the Gail model. J Breast Health 9:156–162
19. Baysal HY, Polat H (2012) Determination of the breast cancer risk levels and health beliefs of women with and without previous mammography in the eastern part of Turkey. Asian Pac J Cancer Prev 13(10):5213–17
20. Ersin F, Bahar Z (2012) Effects of health promotion models on breast cancer early detection behaviors: a literature review. Dokuz Eylül Univ. Sch Nurs E J 5(1):28–38
21. Yarbrough SS, Braden CJ (2001) Utility of health belief model as a guide for explaining or predicting breast cancer screening behaviors. J Adv Nurs 33(5):677–88
22. Çeber E, Yücel U, Mermer G, Özentürk G (2009) Health beliefs and breast self-examination in a sample of Turkish women academicians in a university. Asian Pac J Cancer Prev 10(2):213–8
23. Yılmaz M, Güler G, Bekar M, Güler N (2011) Risk of breast cancer, health beliefs and screening behaviour among Turkish academic women and housewives. Asian Pac J Cancer Prev 12(3):817–22
24. Erbil N, Bölükbaş N (2012) Beliefs, attitudes, and behavior of Turkish women about breast cancer and breast self-examination according to a Turkish version of the Champion Health Belief Model Scale. Asian Pac J Cancer Prev 13(11):5823–8
25. Austin LT, Ahmad F, McNally MJ, Stewart DE (2002) Breast and cervical cancer screening in Hispanic women: a literature review using the health belief model. Womens Health Issues 12(3):122–8