Examination of factors affecting women?s barrier perception to participate in breast cancer screenings in a region affiliated with a family health center in Turkey

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Background/aim: This study was conducted in order to determine the factors related to women's barrier perception to participate in breast cancer screenings in a region affiliated with a family health center.

Materials and methods: The study was a cross-sectional study. The sample group of the study consisted of 300 women. Descriptive statistics, t test, and Mann–Whitney U test were performed for the analysis of the data.

Results: Breast self-examination (BSE) and mammography barrier perception mean score of those who were illiterate in terms of educational status, and BSE and mammography barrier perception mean score of those who were single in terms of marital status were determined to be significantly higher (P < 0.05). No significant difference was found between BSE and mammography barrier perception mean scores of those who had no health insurance and lived in a district or a village (P > 0.05).

Conclusions: Demographic factors as well as factors such as women's knowledge on early diagnosis of breast cancer and previous experiences in participation in early diagnosis behaviors of breast cancer could affect the barrier perception.

Key words: Breast cancer, mammography, breast self-examination, breast cancer barrier perception

1. Introduction

Breast cancer is the most frequent type of cancer among women in both developed and developing countries around the world (1). It constitutes 23% of all cancer cases and 14% of cancer deaths. Nearly half of breast cancers and 60% of deaths are estimated to be seen in developing countries (2). While its average incidence in the world is 38–40 per hundred thousand, this rate is 66–67 per hundred thousand in Europe and around 40 per hundred thousand in Turkey (1,3).

It is important to be careful about the symptoms in the breast in order to diagnose breast cancer at the early stage and have treatment possibilities (4). It is required to pay attention to the use of screening methods such as breast self-examination (BSE), mammography, and, when necessary, ultrasonography in order to increase the possibility of diagnosing the symptoms at the early stage (5–9).

Previous studies revealed that the rates of BSE and mammography are not at the desired level (10–17). There are numerous factors delaying and obstructing individuals' participation in screenings. The health belief model offers

a useful framework for clarifying these factors (18). The barrier perception, which is a significant component of the health belief model, is the perception of various barriers at the individual and communal levels to form preventive behaviors (19). The perceived barrier appears to be a significant factor for breast cancer early diagnosis behaviors (20,21).

There are many factors preventing women from engaging in BSE and undergoing mammography. It is reported that one of the most important barriers experienced in screening programs in Muslim communities is lack of knowledge (20,22). Previous studies often stated barriers such as lack of knowledge on early diagnosis, disregard, the fear of having a lump, lack of complaints, and not believing in its necessity as the cause of not performing BSE (20,23,24). Factors such as embarrassment, not having health insurance, fear (losing the breast, being diagnosed with cancer, the fear that mammography may be harmful, and fear of death), having a male doctor, and transportation difficulties are indicated as the causes of not having mammography (20,24–26). In a study conducted with Jordanian women, it was

stated that numerous factors such as fear, misperception, embarrassment, and cultural characteristics negatively affected the participation of women in breast cancer screenings. It was also determined that the women did not have awareness about breast cancer and its screening and the women requested information about this subject (27). Studies conducted with Jordanian and Palestinian migrant women have also emphasized that lack of knowledge (28), cultural beliefs, and stigmatization (29) are important factors for participation in screenings.

Previous studies determined that the barrier perception and educational status were correlated to breast cancer (30,31). There are studies suggesting that marital status has no effect on breast cancer early diagnosis behaviors (32,33). Additionally, it has been determined that while single women have a higher mammography barrier perception, women with no family history of breast cancer have a lower mammography barrier perception (34).

It is important to determine these barriers in order for women to realize and sustain the breast cancer early diagnosis behaviors. For this reason, healthcare personnel (especially nurses and physicians) have an important duty in determining the barriers.

Therefore, the purpose of this study was to determine the factors related to women's barrier perception to participate in breast cancer screenings in a region affiliated with a family health center.

2. Materials and methods

2.1. Sample
The study was a cross-sectional study conducted in the region affiliated with a Family Health Center between April 2014 and July 2014. While the population of the study consisted of 718 women in the age group of 40–60 years living in the region affiliated with the family health center, the sample group consisted of 300 women. The WHO's 30 cluster sampling technique was used during the sample selection, and totally 300 people were contacted, with 10 people in every cluster. As the starting point, 30 streets were identified by using a simple random method, and the starting point on every selected street was the third house after the beginning of the street and continued on the right until 10 people were contacted (35). Women aged between 40 and 60 who were not diagnosed with breast cancer and could speak a sufficient level of Turkish to communicate with the researcher were included in the study. The data were collected by face-to-face interviews. Table 1 illustrates the demographic characteristics of individuals.

2.2. Data collection
A personal information form and the barrier perception subscale of Health Belief Model Scale for Breast Cancer Screening, adapted to Turkish by Gözüm and Aydın, were used to collect the data. Forms used in the study were filled out in approximately 10–15 min.

The personal information form has 15 questions related to demographic characteristics such as "age, educational level, and marital status" and information about breast diseases such as "if they had had any previous breast examination and if there are family members diagnosed with breast cancer".

The Health Belief Model Scale was developed by Champion in 1984, and revised in 1993, 1997, and 1999 (36–38). It was adapted to Turkish by Gözüm and Aydın. The scale consists of a total of 52 items. There is no overall total score. The separate total score of each subscale is used. The scale is a Likert-type tool, scored between 1 and 5. Scoring of the scale ranges from 1 point, "I absolutely disagree", to 5 points, "I absolutely agree". Highness of the score received from subscales signifies a higher perception related to that subscale. In our study, the 8-item BSE barrier perception subscale and the 11-item mammography barrier perception subscale of the scale were used (39).

2.3. Dependent and independent variables
The dependent variable of the study was the barrier perception. The independent variables were age, educational level, marital status, health insurance, place of residence, having a previous breast problem, having a previous breast examination, having a previous mammography, having relatives diagnosed with breast cancer, considering to participate in screenings in the future, and finding the breast examination embarrassing.

2.4. Analysis of the data
The data were assessed by using SPSS 16.0. Descriptive statistics and t test were used to analyze the data.

2.5 Research ethics
In order to conduct the study, permission was received from the Ethics Committee of Harran University Medical Faculty and from the participants. IRB No: 74059997.050.01.04/119.

3. Results
The age of participants ranged between 40 and 60 years and their average age was 49.17 ± 6.69. When some characteristics of the women were examined, it was observed that 72.7% were illiterate, 85.3% were married, 88.3% had health insurance, and 97.3% resided in the city center. It was determined that 23.7% of women experienced previous breast problems and 3.7% of them had a lump. While 68.0% of women did not perform BSE, 70.3% had not undergone a mammography before. When the status of women in terms of the screening methods was examined, it was found that 76.7% of participants did not consider performing BSE and 69.3% did not consider having mammography in the future. While 18.3% of

Table 1. Factors affecting the barrier perception to participate in breast cancer screenings.

			BSE barrier perception mean score	Statistical value	Mammography barrier perception mean score	Statistical value
Variables	n	%	X ± SD		X ± SD	
Educational status						
Illiterate	217	72.7	19.43 ± 5.969	t = 3.250	29.61 ± 9.210	t = 0.204
Literate–primary school	83	27.3	15.88 ± 6.187	P = 0.003	29.28 ± 5.933	P = .002
Marital status						
Married	256	85.3	18.01 ± 6.381	t = −1.790	29.15 ± 8.492	t = −0.622
Single	44	14.7	19.86 ± 6.086	P = 0.069	30.02 ± 9.069	P = 0.555
Health insurance						
Yes	265	88.3	18.15 ± 6.401	t = −0.992	29.12 ± 8.734	t = −0.864
No	35	11.7	19.28 ± 6.056	P = 0.306	30.45 ± 7.204	P = 0.322
Place of residence						
City center	292	97.3	18.23 ± 6.337	U = 896.50	29.39 ± 8.503	U = 900.00
District center and village	8	2.7	20.00 ± 7.483	P = 0.258	25.00 ± 10.47	P = 0.266
Having previous breast-related problems						
Yes	71	23.7	16.64 ± 7.081	t = −2,501	26.80 ± 9.878	t = −2.820
No	229	76.3	18.79 ± 6.050	P = .023	30.04 ± 7.990	P = 0.003
Performed BSE previously						
Yes	69	32.0	11.42 ± 4.833	t = −12.63	24.63 ± 7.847	t = −5.361
No	231	68.0	20.33 ± 5.231	P = 0.000	30.66 ± 8.298	P = 0.000
Having previous mammography						
Yes	89	29.7	16.75 ± 6.869	t = −2.735	21.13 ± 8.589	t = −3.581
No	211	70.3	18.92 ± 6.037	P = .010	32.71 ± 5.802	P = 0.000
Having previous clinical breast examinations						
Yes	96	32.0	16.45 ± 6.903	t = −3.470	22.11 ± 8.861	t = −2.118
No	204	68.0	19.14 ± 5.916	P = 0.001	32.65 ± 5.976	P = 0.000
Considering performing BSE in the future						
Yes	70	23.3	11.38 ± 4.798	t = −12.915	24.52 ± 7.799	t = −5.556
No	230	76.7	20.38 ± 5.191	P = 0.000	30.72 ± 8.279	P = 0.000
Considering having clinical breast examination in the future						
Yes	87	29.0	15.36 ± 6.794	t = −5.297	23.03 ± 8.907	t = −9.106
No	213	71.0	19.47 ± 5.784	P = 0.004	31.83 ± 6.989	P = 0.000
Considering having mammography in the future						
Yes	92	30.7	15.75 ± 6.799	t = −4.749	23.08 ± 8.845	t = −9.482
No	208	69.3	19.40 ± 5.834	P = 0.000	32.01 ± 6.863	P = 0.000
Finding mammography embarrassing						
Yes	55	18.3	18.52 ± 6.585	t = 0.314	30.56 ± 8.933	t = 1.230
No	245	81.7	18.22 ± 6.324	P = 0.760	28.99 ± 8.478	P = 0.238
Having family history of breast cancer						
Yes	26	8.7	15.61 ± 6.627	U = 2659.50	26.76 ± 8.932	U = 2861.50
No	274	91.3	18.53 ± 6.290	P = 0.031	29.51 ± 8.512	P = 0.096

women considered having a mammography embarrassing, 8.7% had a family history of breast cancer.

When the scores obtained by women from the barrier perception subscale of the health belief model scale were examined, it was determined that their BSE barrier perception mean score was 18.28 ± 6.36 and their mammography barrier perception mean score was 29.28 ± 8.56.

When variables of the study were analyzed (Table 1), BSE barrier perception mean score of those who were illiterate in terms of educational status was higher compared to those who were literate and the difference between them was statistically significant (P < 0.05). Mammography barrier perception mean score of those who were illiterate was also higher compared to those who were literate and the difference between them was statistically significant (P < 0.05). As educational status of the women increased, their BSE and mammography barrier perception mean scores decreased.

When barrier perception mean scores of the women were compared in terms of their marital status, BSE and mammography barrier perception mean scores were higher in those who were single and there was no statistically significant difference between them (P > 0.05). The fact that the women were married decreased both BSE and mammography barrier perception mean scores.

No significant difference was found between BSE and mammography barrier perception mean scores of those who did not have health insurance and resided in a district or village (P > 0.05). The fact that the women had social security decreased both BSE and mammography barrier perception mean scores.

BSE and mammography barrier perception mean scores of women who did not experience any previous breast-related problem, who did not perform breast examinations, who did not have mammography, and who did not have clinical breast examinations were higher (P < 0.05). BSE and mammography barrier perception mean scores did not change in terms of women's status on finding mammography embarrassing (P > 0.05). When the women were examined in terms of having family members with a breast cancer history, it was found that BSE barrier perception mean scores of those with no family history of breast cancer were significantly higher (P < 0.05). Mammography barrier perception mean scores of those with no family history of breast cancer were higher than those of women who had a family history of breast cancer and no statistically significant difference was found between them (P > 0.05).

The fact that the women had a previous breast problem, performed BSE, had mammography, had clinical breast examination, considered performing BSE and undergoing CBE and mammography in the future,

and had a family history of breast cancer decreased both BSE and mammography barrier perception mean scores. Additionally, finding mammography embarrassing by the women increased both BSE and mammography barrier perception mean scores.

Table 2 illustrates answers given by individuals to the barrier perception scale. While answering the questions "If you have had a breast examination performed by a healthcare worker, you do not need to perform BSE", "If you have routine mammography, you do not need to perform BSE", "I am afraid of having mammography because something malignant could be found in my breast", "I am afraid of having mammography because I do not know what will be done", and "I do not know where and how to go to have mammography" the women gave the answer "I absolutely agree" at a higher rate. While answering the questions "Having mammography is very distressing", "Having mammography takes too much time", "Having mammography causes too much pain", "The personnel performing mammography treat women with contempt", and "Having mammography will cause me to be exposed to unnecessary radiation" they mostly gave the answer "I am indecisive". The answer "I absolutely disagree" was the most common answer given for all of the other items.

4. Discussion

The barrier perception is directly related to participation in screenings in exhibiting preventive health behaviors (19). In the present study, the low rates of BSE and mammography barrier perception are a desired result. As is stated in the health belief model, a low barrier perception is an important determinant in realizing preventive health behaviors (38). When the variables of this study were examined, BSE barrier perception and mammography barrier perception mean scores of those who were illiterate were higher compared to those who were literate, and the difference between them was significant (Table 1). Similar results were obtained in the studies by Durmuş and Hauman et al. (30,31). In another study, it was determined that as educational level increased, mammography barrier perception increased (34). The fact that individuals are literate and individuals have higher educational levels ensures to have knowledge on breast cancer screenings and to use social sources more efficiently. Therefore, lower barrier perceptions might have been determined among individuals with high educational levels in this study. In addition, this can also be explained by the factors such as individuals' having increasing awareness with higher educational levels, information accessibility, and self-confidence.

In our study, no significant difference was found between barrier perception mean scores in terms of marital status (Table 1). Similarly, in the study conducted by

Table 2. Distribution of perceived barriers (n = 300).

Perceived barriers	The most common answer	n	%
I find BSE boring	I absolutely disagree	130	43.3
BSE takes too much time	I absolutely disagree	130	43.3
It is difficult to remember to have a breast examination	I absolutely disagree	126	42.0
I do not have the space to ensure sufficient privacy for breast examination	I absolutely disagree	167	55.7
If you have had a breast examination performed by a healthcare worker, you do not need to perform BSE	I absolutely agree	128	42.7
If you have routine mammography, you do not need to perform BSE	I absolutely agree	131	43.7
I think my breasts are too big to perform BSE by myself	I absolutely disagree	224	74.7
I have more important problems than performing BSE	I absolutely disagree	193	64.3
I am afraid of having mammography because something malignant could be found in my breast	I absolutely agree	149	49.7
I am afraid of having mammography because I do not know what will be done	I absolutely agree	140	46.7
I do not know where and how to go to have mammography	I absolutely agree	166	55.3
Having mammography is very distressing	I am indecisive	197	65.7
Having mammography takes too much time	I am indecisive	198	66.0
Having mammography causes too much pain	I am indecisive	197	65.7
The personnel performing mammography treat women with contempt	I am indecisive	199	66.3
Having mammography will cause me to be exposed to unnecessary radiation	I am indecisive	197	65.7
I cannot remember to make an application to have mammography	I absolutely disagree	142	47.3
I have more important problems than mammography	I absolutely disagree	191	63.7
I am not old enough to need mammography at required intervals	I absolutely disagree	204	68.0

Karabaş on female instructors and in the study conducted by Yılmaz to determine awareness and sensitivity among women regarding breast cancer screenings, no significant correlation was determined between marital status and BSE and mammography barrier perception mean scores (32,33). In a study conducted by Kim and Kim, mammography barrier perception in women who were not married was higher (34).

In the present study, women with no health insurance were observed to have higher rates of BSE and mammography barrier perception (Table 1). The absence of health insurance is encountered as an important barrier in participating in breast cancer screenings. Studies support this result (20,40).

BSE and mammography barrier perception mean scores of those who had not had any previous breast examination were higher than those who had had previous breast examinations in the study and the difference between them was statistically significant (Table 1). Another study revealed that barrier perception mean score of nurses who performed BSE was higher compared to those who did not (41). In the study conducted by Yılmaz, it was found that barrier perception mean scores of individuals who had BSE were higher compared to those who did not (33). Similar results were obtained in other studies as well (34,42). In their study, Altunkan et al. also determined that women having BSE had lower barrier perception (43). In the present study, BSE and mammography barrier perception mean scores of those who had had previous mammography were higher than those who had not had mammography and a statistically significant difference was found between them (Table 1). In the study conducted by Durmuş, BSE and mammography barrier perception mean scores of female healthcare personnel who had had mammography were higher than those who had not had mammography and there was a statistically significant difference between them (30). Another study demonstrated that barrier perception mean scores of women who had not had mammography were higher (31). The fact that barrier perception of women performing BSE and undergoing mammography in the study was low could be associated with their previous experiences. Having positive previous experiences and knowing the process are important in terms of the sustainability of the behavior. Thus, low barrier perception of women experiencing the behavior before is an expected result.

In the present study, it was determined that women not considering performing BSE and undergoing mammography had higher BSE and mammography barrier perception. Having the intention of realizing a behavior in the future affects positively preventive health behavior (44). Thus, the low barrier perception of women considering performing BSE and undergoing mammography is an expected result.

In the present study, BSE barrier perception mean scores of those who did not have any previous breast-related problem were higher than those who had such problems, and the difference between them was statistically significant (Table 1). In the study conducted by Altunkan, it was determined that barrier perception mean score of participants who had a benign breast disease was higher than those who did not (43). This situation shows that experiencing breast-related problems increases barriers perceived by individuals.

In terms of having a family history breast cancer, BSE barrier perception and mammography barrier perception mean scores of those who did not have a family history of breast cancer were higher in this study (Table 1). A study revealed that mammography barrier perception mean score of women who did not have a family history of breast cancer was low (34). In another study, no correlation was found between having a family history of breast cancer and undergoing mammography (45). Additionally, in the study conducted by Duman et al. on female academics, women with a family history of breast cancer had higher BSE and mammography barrier perceptions (46). On the other hand, in their study, Altunkan et al. stated that a family history of breast cancer had no effect on barrier perception (43). Having a family history of breast cancer increases awareness and reduces barrier perception mean scores of individuals. Therefore, the fact that women who had a family history of breast cancer had low barrier perception mean scores also in this study may be an expected result.

Table 2 illustrates answers given by women to the barrier perception scale. According to the table, for numerous items participants indicated that the questions did not constitute a barrier for them. However, women answered the questions "Having mammography is very distressing", "Having mammography takes too much time", "Having mammography causes too much pain", "The personnel performing mammography scans treat women with contempt", and "Having mammography will cause me to be exposed to unnecessary radiation" mostly with the answer "I am indecisive". The indecisiveness of individuals answering these items makes us think that the barriers stated in the items may be serious barriers for the individuals.

The women answered the questions "If you have had a breast examination performed by a healthcare worker, you do not need to perform BSE", "If you have routine mammography, you do not need to perform BSE", "I am afraid of having mammography because something malignant could be found in my breast", "I am afraid of having mammography because I do not know what will be done", and "I do not know where and how to go to have mammography" with the answer "I absolutely agree" at a higher rate. Answers given to these items make us think that fear is an important factor in participation in breast cancer screenings. Previous studies also specified that fear of breast cancer was related to having mammography (20,34).

5. Conclusion and recommendations

5.1. Conclusions
Consequently, it was determined that factors such as educational status, having previous breast-related problems, having performed BSE and undergone mammography previously, considering performing BSE in the future, and considering having mammography in the future significantly affected BSE and mammography barrier perception.

Additionally, when the scale items are evaluated, fear appears to be an important barrier factor.

5.2. Recommendations
These conclusions reveal the need for training regarding the factors preventing breast cancer early diagnosis behaviors once more. Therefore, it could be recommended to extend training programs on factors preventing early diagnosis behaviors and to maintain their continuity.

As in the literature, fear appears as an important barrier factor. Thus, it could be recommended to assess fear by using a concrete assessment instrument specific to the fear of breast cancer and accordingly to conduct interventional studies.

The obtained results are guiding in preparing training materials that will ensure participation in breast cancer screenings in both clinics/outpatient clinics and primary healthcare institutions. Thus, it could be recommended to use the obtained results in training materials to be prepared in clinics and primary healthcare institutions.

The limitation of the study is that it was conducted in a small sample group and could not be generalized to Şanlıurfa. Therefore, it could be recommended to repeat the study in a broader sample group and also to conduct interventional studies at clinics/outpatient clinics and primary healthcare institutions using the obtained results.

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