



Health Beliefs of Women Attending Mammography Unit and Related Factors

Mamografi Ünitesine Gelen Kadınların Sağlık İnançları ve İlişkili Faktörler

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Abstract

Aim: This study was done to evaluate the perceptions of health beliefs and related factors of women attending a mammography unit for mammograms.

Material and Method: The descriptive study was performed with 181 women applying to the mammography unit of a university hospital in Konya, Turkey between 15 March and 20 June 2013. Data were collected with the "Individual Information Form" and "Health Belief Model Scale for Breast Cancer". The data were collected via face-to-face interviews and summarized as number, percentage, mean and standard deviation. To compare the data, independent sample t test, one-way ANOVA, Kruskal-Wallis test, and Mann-Whitney U test were used. In order to conduct the study, permission from the ethics committee, institutional permission and verbal permissions from the participants were obtained.

Results: The average age of the participants was 34.78±8.37. Of women, 68.5% were primary school graduates, and 64.6% were found out to perform breast self-examination (BSE). In the study, the mean scores of the Health Belief Model Scale for Breast Cancer sub-dimensions were compared with some characteristics of the participants (education level, using birth control pill, BSE practicing status, and presence of breast cancer in the family). According to, there was founded a statistically significant difference between women's education level (health motivation, BSE benefits and barriers), using birth control pills (sensitivity), BSE practicing status (health motivation, BSE barriers and self-efficacy, mammography benefits and barriers), and presence of breast cancer in their families (sensitivity, health motivation, BSE benefits) with the scale sub-dimensions (p<0.05).

Conclusion: According to these results, it may be suggested to increase awareness training in order to spread the screenings for early diagnosis of breast cancer, taking into account the individual characteristics of women.

Keywords: Breast cancer, mammography, perception of health belief, Health Belief Model

Öz

Amaç: Bu çalışma mamografi ünitesine mamografi yaptırmak için gelen kadınların sağlık inanç algılarını ve ilişkili faktörleri değerlendirmek amacıyla yapıldı.

Gereç ve Yöntem: Tanımlayıcı tipteki bu çalışma, 15 Mart-20 Haziran 2013 tarihleri arasında Konya'da bir üniversite hastanesinin mamografi ünitesine başvuran 181 kadın ile gerçekleştirildi. Veriler, "Birey Bilgi Formu" ve "Meme Kanseri Sağlık İnanç Modeli Ölçeği" kullanılarak toplandı. Veriler yüz yüze görüşmelerle toplandı ve sayı, yüzde, ortalama ve standart sapma olarak özetlendi. Verileri karşılaştırmak için t, F, Mann Whitney U ve Kruskal Wallis testleri kullanıldı. Çalışmanın yapılabilmesi için etik kurul izni, kurum izni ve katılımcılardan sözel izinleri alındı.

Bulgular: Katılımcıların yaş ortalaması 34,78±8,37 idi. Kadınların % 68,5'i ilkököl mezunuydu ve % 64,6'sının kendi kendine meme muayenesi (KKMM) yaptığını belirlendi. Çalışmada katılımcıların bazı özelliklerine (eğitim düzeyi, doğum kontrol hapı kullanma, KKMM yapma durumu ve ailede meme kanseri varlığı) ile Meme Kanseri Sağlık İnanç Modeli Ölçeğinin alt boyutlarının puan ortalamaları karşılaştırıldı. Buna göre kadınların eğitim düzeyi (sağlık motivasyonu, Kendi Kendine Meme Muayenesi (KKMM) yararları ve engelleri), doğum kontrol hapı kullanma durumları (duyarlılık, KKMM uygulama durumları (sağlık motivasyonu, KKMM engelleri ve öz-yeterlik, mamografi yararları ve engelleri) ve ailelerinde meme kanseri varlığı (duyarlılık, sağlık motivasyonu, KKMM faydaları) ile ölçek alt boyutları arasında istatistiksel olarak anlamlı fark bulundu (p <0.05).

Sonuç: Bu sonuçlara göre, kadınların bireysel özellikleri dikkate alınarak meme kanserini erken tanılamaya yönelik taramaların yaygınlaştırılması için bilinçlendirme eğitiminin artırılması önerilebilir.

Anahtar Kelimeler: Meme kanseri, mamografi, sağlık inanç algısı, Sağlık İnanç Modeli



INTRODUCTION

Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death among females worldwide, with an estimated 1.7 million cases and 521,900 deaths in 2012.^[1] The American Cancer Society (ACS) reported that 266,120 women will be diagnosed with breast cancer in 2018 and approximately 40,920 women will lose their lives due to breast cancer.^[2] In a study evaluating of 195 countries, age-standardized incidence rate of breast cancer has been identified as 45.6/100,000 and the age-standardized death rate was 14.6/100,000.^[3] According to GLOBOCAN 2018 data of the International Cancer Research Agency, it is estimated that in both sexes in worldwide breast cancer will be ranked second (11.6%, 2,089 million) in the newly diagnosed cancer cases and fifth (6.6%, 27,000) in cancer-related deaths.^[4] In the data from Turkey Cancer Statistics for the year 2015 breast cancer takes first place (43.8 per hundred thousand) in the standardized prevalence calculation according to age.^[5] According to Turkish Statistical Institute 2017 statistics, deaths due to breast cancer constitute 2.12% (N = 4043) among all cause-related deaths (N= 190,657) and breast cancer is the first among well-and-malignant tumor-related deaths.^[6]

In the community, breast cancer awareness and screening programs are of great importance since breast cancer is the most common cancer type in women, and also due to its increasing frequency^[7] and due to the fact that it is one of those cancers that can be early detected through screening. Breast cancer typically produces no symptoms when the tumor is small and most easily treated, which is why screening is important for early detection.^[2] The most effective way to extend life and reduce the mortality rate in breast cancer is early diagnosis. Breast Self-Examination (BSE), Clinical Breast Examination (CBE) and mammography are the methods used in the early diagnosis of breast cancer. There are different opinions and practices about the application age of early diagnosis methods for breast cancer and which method to apply in each age group. While the ACS proposes mammography each year after the age of 40 years^[8], the Canadian Cancer Society (CCS) notes that the risks and benefits of mammography for women aged between 40–49 years should be discussed and recommends a mammogram every two years for women aged between 50–69 years.^[9] In Turkey, the Ministry of Health's National Cancer Program proposes a mammogram every two years for women aged between 50–69 years.^[10]

The frequency of application of early detection methods for breast cancer varies depending on many factors. These factors may be socio-demographic characteristics, culture, and variables associated with breast cancer and health beliefs.^[11] The Health Belief Model (HBM) is a psychosocial model used to describe health behavior. The model was developed in the 1950s in order to explain the need of medical screening programs presented by the US Public Health Service. The primary four concepts in the HBM effecting on preventive health behaviors are (1) perceived susceptibility (perceived vulnerability to a disease or the risks of contracting it), (2) seriousness (perceived

severity of the consequences of contracting a disease), (3) benefits (positive results of steps taken to avoid contracting the condition), and (4) barriers (perceived negative aspects of undertaking health behaviors). In 1988, Becker and Rosentock added the concept of health motivation (a general concern for maintaining health) and self-efficacy (the confidence in one's ability to take action) to the model.^[12,13]

Although breast cancer is still one of the important public health problems today, it can be identified early with an early screening program. Determining the health beliefs of women in the high risk group for breast cancer can increase their participation in early screening programs.

MATERIAL AND METHOD

This study was conducted to determine the factors affecting the health beliefs of women admitted to the mammography unit. This descriptive study was carried out with women admitted to a mammography unit of a university hospital between 15 March and 20 June 2013 in Konya, Turkey. The population of the study is formed by women admitted to the mammography unit of the radiology department of a university hospital to have a mammogram. The analysis suggested for relational research was used to identify the determining factors used in the calculation of the sample size. The sample number was found as 173 by considering the number of independent variables (n=10), and by using the parameters of .05 significance value, 95% power and .15 effect size. A greater number of individuals have been reached by considering that data loss can be occur and the research was carried out with 181 participants. The women, who were graduated at least from elementary school, underwent mammography for the first time, were not diagnosed with breast cancer and agreed to participate in the study, and were included in the research sample.

A questionnaire and the Champion's Health Belief Model Scale (CHBMS) were used as the data collection instruments for this study. The questionnaire obtained information about the participant's socio-demographic characteristics, and other factors. Socio-demographic variables included age, education status, marital status, and having children. The other factors included menarche age, menstrual irregularity, using birth control pills, menopause status, BSE practicing status, presence of breast cancer in the family and friends. Champion's Health Belief Model Scale was developed in 1984 by Champion based on the HBM and revised in 1993, 1997 and 1999. The original scale consists of a total of 58 questions and eight subscales.^[11,13-15] The beliefs of women regarding breast cancer, BSE and mammography are evaluated in the context of the HBM with this scale.^[12] In this study, the Turkish version of the scale whose validity and reliability were performed by Gozum and Aydin^[16] was used. The Turkish version of the Health Belief Model Scale is a five-point Likert-type scale and consists of six subscales and 52 items including perceived susceptibility (three items), perceived seriousness (six items), health motivation (five items), perceived self-efficacy of BSE (ten items), perceived benefits

of BSE (four items), perceived barriers to BSE (eight items), perceived benefits of mammography (five items) and perceived barriers to mammography (eleven items). Scoring is ranked from 'strongly disagree' 1 point, to 'strongly agree' 5 points. The rise of the points indicates that perceived susceptibility and/or perceived seriousness increased, benefits for the perceived benefits, barriers for the perceived barriers were perceived higher. In the same study, Cronbach's alpha coefficient of the subscales was found to be between .69 and .83.^[16] The Cronbach alpha coefficient obtained in this study was .85 for perceived susceptibility, .87 for perceived seriousness, .93 for health motivation, .91 for perceived self-efficacy of BSE, .89 for perceived benefits of BSE, .83 for perceived barriers to BSE, perceived benefits of mammography .86 and .89 for perceived barriers to mammogr mammography.

SPSS package program was used in the analysis of the data. Data are summarised using the number, percentage, mean and standard deviation. Independent sample t test, one-way ANOVA, Kruskal-Wallis test, and Mann-Whitney U test were used for comparison of variables. p-value less than 0.05 was considered significant.

Ethical consideration

Before collection of study data, written permission from the related hospital and the hospital ethics committee (date/number: 2013/313) and verbal permission of the women participating in the study by explaining the purpose of the research were obtained.

RESULTS

The average age of the women in the study was 34.78±8.37 years, 68.5% of them graduated from primary school, 84.5% of them were married and 84.5% of them had children (**Table 1**). The average age of menarche of women was 13.30±1.44 years, it has been determined that 28.2% of them used birth control pills, 8.8% of them entered menopause, 64.6% of them performed BSE and breast cancer occurred in the families of 16.6% and in the friend's circle of 29.8% of participants (**Table 2**).

Table 1. Socio-demographics characteristics of participants (n=181)

	Mean±SD	min-max
Mean age (year)	34.78±8.37	19–59
	n	%
Education status		
Primary school	124	68.5
High school	25	13.8
University	32	17.7
Marital status		
Married	153	84.5
Other (single, widowed, divorced)	28	15.5
Having children		
Present	153	84.5
Absent	28	15.5

Some characteristics of the participants in the study (level of education, using birth control pill, BSE practicing status, and presence of breast cancer in their family) and the mean score of the Health Belief Model Scale for Breast Cancer were compared. A significant difference was determined between the level of education and subscales of health motivations, perceived self-efficacy of BSE, and perceived benefits of BSE. It was determined that there was a statistically significant difference between the use of birth control pills and the subscales of perceived susceptibility, with the susceptibility of women who were using birth control pills being higher than others. A statistically significant difference was determined between BSE practicing status and subscales of health motivations, perceived self-efficacy of BSE, perceived benefits of BSE, perceived barriers to BSE, perceived benefits of mammography, and perceived barriers to mammography. A statistically significant difference was determined between presence of breast cancer in their families and the mean scores of the subscales of perceived susceptibility, health motivations, and perceived benefits of BSE ($p < .05$) (**Table 3**).

Table 2. Health and other characteristics of women (n=181)

	Mean±SD	min-max
Mean menarche age (Year)	13.30±1.44	9–19
	n	%
Menstrual irregularity		
Yes	68	37.6
No	113	62.4
Birth control pills use		
Yes	51	28.2
No	130	71.8
Menopause status		
Yes	16	8.8
No	165	91.2
BSE practice		
Performs BSE	117	64.6
Does not perform BSE	64	35.4
Breast cancer in family		
Yes	30	16.6
No	151	83.4
Breast cancer in friends		
Yes	54	29.8
No	127	70.2

BSE=Breast Self-Examination

DISCUSSION

Breast cancer is the most common cancer among women in Turkey as well as all over the world. Delays in diagnosis and treatment reduce the survival rate. BSE and mammography applications of individuals are expressed as early diagnostic or screening behaviours. In this study, the health beliefs and related factors of the women admitted to the mammography unit of a university hospital in Konya city centre were evaluated.

Table 3. Comparison of some characteristics of women with the subscales scores of CHBMS (n=181).

	Perceived susceptibility	Perceived seriousness	Health motivation	Perceived benefits of BSE	Perceived barriers to BSE	Perceived self-efficacy of BSE	Perceived benefits of mammography	Perceived barriers to mammography
	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Education status								
Primary school ^a	7.56±2.93	18.12±5.91	17.44±6.15	13.39±4.44	21.24±6.51	31.00±8.23	16.81±5.13	28.79±8.68
High school ^b	8.52±2.77	17.92±6.93	18.96±6.13	15.44±4.23	22.60±7.84	33.28±7.35	17.44±4.07	29.84±11.86
University ^c	7.28±3.32	21.03±6.51	21.16±4.13	15.50±4.19	17.41±4.59	31.78±9.13	17.63±4.54	25.86±8.41
Test value	KW:3.462	F: 3.018	KW:11.972	KW:10.143	F: 5.742	KW:2.951	KW:3.76	KW:2.576
p	.177	.051	.003	.006	.004	.229	.829	.276
Significant difference			a<c	a<b,c	c<a,b			
Birth control pills use								
Yes	8.41±2.98	19.00±6.67	19.16±5.69	14.16±4.25	20.57±6.93	32.09±8.41	17.19±4.92	29.71±9.61
No	7.34±2.95	18.45±6.07	17.98±6.09	14.00±4.54	20.82±6.47	31.20±8.24	16.02±4.69	27.92±8.97
Test value	U:2644.50	t:5.29	U:2927.00	U:3335.00	t:-.233	U:3125.50	U:3386.00	U:2923.50
p	.033	.597	.218	.949	.816	.549	.822	.216
BSE practice								
Performs BSE	7.66±2.91	19.02±6.19	19.06±5.76	14.42±4.55	20.01±6.49	32.95±7.88	17.59±4.92	27.18±9.38
Does not perform BSE	7.63±3.15	17.86±6.29	16.94±6.19	13.36±4.23	22.11±6.60	28.72±8.34	16.02±4.69	30.69±8.35
Test value	U:3609.50	t:1.197	U: 2838.00	U:3103.50	t:-2.070	U:2491.50	U:3031.00	U:4689.50
p	.687	.233	.007	.055	.040	.000	.034	.005
Breast cancer in family								
Yes	8.87±3.41	20.03±6.68	19.97±5.85	14.65±4.83	21.90±7.57	31.20±8.57	18.33±4.89	26.40±10.77
No	7.40±2.85	18.32±6.12	17.98±5.98	13.79±4.28	20.52±6.38	31.50±8.25	16.78±4.86	28.82±8.79
Test value	U:1700.00	t:1.376	U:1748.50	U:1711.50	t:1.046	U:2294.00	U:1901.50	U:2685.00
p	.030	.171	.047	.033	.297	.912	.164	.108

t= Independent Sample T-Test, F= One-Way Analysis of Variance (ANOVA), KW= Kruskal Wallis Analysis, U= Mann Whitney U Analysis

Socio-demographic and health characteristics may affect the attitudes of individuals directly and the behavior related to health indirectly. In the study, the health motivation scores of women who were university graduates, were higher than women who were primary school graduates; perceived barriers to BSE scores were lower than women who were both primary and high school graduates. However, perceived benefits of BSE scores of women who were primary school graduates, were lower than women who were both high school and university graduates (**Table 3**). It has been determined in a study conducted by Tastan et al.^[17] that health motivation, perceived self-efficacy of BSE, and perceived benefits of BSE scores of women who were university graduates were higher and the perceived barriers to BSE score was lower. It has been determined in another study that there was a statistically significant difference between the educational status and the scores of subscales of benefits, self-efficacy and health motivation.^[18] However, it has been determined in another study that there was not a statistically significant difference between the educational status and the scores of CHBMS.^[19] Level of education plays an important role in the prevention, and treatment of breast cancer.^[20,21] In addition, the increase in the level of education contributes to the individuals to be more sensitive and aware about health-related issues. It can be said that women need health education in order to enable them to take responsibility for BSE and their bodies, especially to protect their health.

The mean score of perceived susceptibility in women using birth control pill was higher than the other groups, and the difference was significant ($p<.05$) (**Table 3**). Giving BSE training to women using birth control pill during counseling performed in terms of breast cancer risk for women using birth control pill in this group.

In the study, the mean scores of subscales of health motivation, perceived self-efficacy of BSE, and perceived benefits of mammography of women performing BSE were higher, the mean scores of subscales of the perceived barriers to BSE, and perceived barriers to mammography were lower (Table 3). In analogy with the findings of this study, it has been found in some studies that health motivation^[18,19], and perceived self-efficacy of BSE^[16-18,22] scores were higher; perceived barriers to BSE^[16,17,22] were lower in women performing BSE. In different studies, a positive correlation was found between the performance status of BSE in the past year and subscales of perceived susceptibility^[23], seriousness, health motivation, benefits to BSE^[25], and self-efficacy^[23,25]; a negative correlation was found between status of BSE in the past year and the barriers subscale.^[23,25] In one study, CHBMS scores of women according to whether they apply BSE or not, the difference between the average sub-dimension scores of benefit, barriers, health motivation, and self-confidence was found statistically significant.^[26] In contrast with this study, it was determined in some studies that the scores of perceived susceptibility^[20] and perceived benefits of BSE^[16-18,22] were higher in women

performing BSE. However, it has been determined in another study that there was not a statistically significant difference between BSE practicing status and the scores of CHBMS.^[17] In this study, while the difference between BSE practicing status and the subscales of health motivation, perceived self-efficacy of BSE, perceived barriers to BSE, perceived benefits of mammography, and perceived barriers to mammography are compatible with the structure of the Health Belief Model Scale, no difference between BSE performance status and the subscales of perceived susceptibility, perceived seriousness, and perceived benefits of BSE are incompatible with the structure of the scale. According to the theory of the scale, high points in perceived susceptibility, perceived seriousness, health motivation, perceived self-efficacy of BSE, perceived benefits of BSE, and perceived benefits of mammography; and low points in perceived barriers to BSE and perceived barriers to mammography are expected results for women performing BSE.

It has been determined in women with a family history of breast cancer that the mean scores of subscales of perceived susceptibility, health motivation, and perceived benefits of BSE were higher and that there was no relationship with the other subscales (Table 2). It has been determined in the studies conducted in Turkey that, the scores of perceived susceptibility, perceived self-efficacy of BSE and perceived benefits of BSE^[17,18] and health motivation^[18] were higher and perceived barriers to BSE^[18] subscales scores were lower in women with a family history of breast cancer. In one study, the knowledge of breast cancer and awareness about the screening tests for women with a positive family history in terms of breast cancer was found to be higher.^[27] Familial risk factor is an important factor for breast cancer. In addition, it is thought that the presence of cancer in the family is a situation that contributes to an increase in the susceptibility and motivation of awareness for early screening methods for breast cancer of individuals.

CONCLUSIONS

In line with the findings of this study, it has been determined that some characteristics of participants (educational status, using birth control pill, BSE practicing status, presence of breast cancer in their family) affected one or several subscales of the Health Belief Model Scale for Breast Cancer. Based on these results, enhancing breast cancer awareness and education for early detection methods, identification of risks for breast cancer and dissemination of screening programs can be recommended. Healthcare professionals can play a crucial role in this matter. Across all healthcare services, especially primary care health services, women could be trained on early detection by video, orally, or the use of leaflets which could suggest to the appropriate demographic that they regularly undergo medical screening for breast cancer. This training is likely to increase individuals' self-effectiveness, susceptibility, seriousness and motivation regarding their health. By raising awareness through planned training, barrier perceptions about early screening methods for breast cancer can be overcome.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was approved by Ethics Committee at Necmettin Erbakan University Meram Medical Faculty Non-Interventional Clinical Research Ethic Committee (date/number: 2013/313).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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