Özgün Çalışma / Original Article

DOES BEING A HEALTH WORKER HAVE AN EFFECT ON BREAST CANCER AWARENESS?

SAĞLIK ÇALIŞANI OLMANIN MEME KANSERİ FARKINDALIĞI ÜZERİNDE ETKİSİ VAR MI?

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ABSTRACT

AIM: The purpose of this study to measure the breast cancer knowledge levels of women health workers and to investigate the factors that determine the beliefs, attitudes, and behaviors against screening methods.

MATERIAL AND METHODS: This study was conducted on 850 volunteer participant women over 21 years old, health educated, uneducated, and other members of the community. Ethical committee approval and informed consent form were obtained. Sociodemographic data form, Champion Health Belief Model for Breast Cancer, The Comprehensive Breast Cancer Knowledge Test were used to compare the groups. Statistical analyses were performed using the IBM SPSS Statistics for Windows, Version 21.0

RESULTS: There was no difference in the frequency of breast self-examination and clinical breast examination between the groups (p>0.05). There were statistically significant differences in age, knowledge level, and education level between the groups (p<0.05). There was a statistically significant difference between the education level of the health workers and community members (p=0.029). The median scores for each subscale of the Champion Health Belief Model for Breast Cancer were not statistically different between the groups. Self-efficacy was found the only predictive factor on the breast self-examination practice (p=0.00, OR:1.188). The most predictive factor was education level on the breast cancer knowledge level (p=0.00, r=0.315). Only 36.5% of the participants had a high knowledge level.

CONCLUSION: The breast cancer knowledge level, the behavior of breast self-examination and clinical breast examination are not more different in health workers than the other members of the society.

Keywords: Breast cancer, early diagnosis, screening, health belief model

ÖZET

AMAÇ: Bu çalışmanın amacı, kadın sağlık çalışanlarının meme kanseri bilgi düzeylerini ölçmek ve tarama yöntemlerine yönelik inanç, tutum ve davranışları belirleyen faktörleri araştırmaktır.

GEREÇ VE YÖNTEMLER: Bu çalışma sağlık eğitimi almış, sağlık eğitimi almamış ve toplumdaki diğer kadınlardan oluşan 21 yaş üstü, 850 gönüllü üzerinde gerçekleştirilmiştir. Etik kurul onayı ve aydınlatılmış onam formu alınmıştır. Grupları karşılaştırmak için Sosyodemografik veri formu, Meme Kanseri İçin Şampiyon Sağlık İnanç Modeli ve Kapsamlı Meme Kanseri Bilgi Testi kullanılmıştır. İstatistiksel analizler IBM SPSS Statistics for Windows, Sürüm 21.0 kullanılarak yapıldı.

BULGULAR: Kendi kendine meme muayenesi ve klinik meme muayenesi sıklığı açısından gruplar arasında fark yoktu (p> 0.05). Yaş, bilgi düzeyi ve eğitim düzeyinde gruplar arasında istatistiksel olarak anlamlı bir fark vardı (p <0.05). Sağlık çalışanlarının ve toplum üyelerinin eğitim düzeyleri arasında istatistiki olarak anlamlı bir fark vardı (p=0.029). Gruplar arasında Meme Kanseri Şampiyon Sağlık İnanç Modelinin alt ölçeklerinin ortanca skorları arasında istatistiksel olarak fark yoktu. Kendi kendine meme muayenesi pratiğinde tek belirleyici faktör özyeterlilik bulundu (p=0.00, OR: 1.188). Meme kanseri bilgi düzeyinde en belirleyici faktör ise eğitim düzeyiydi (p=0.00, r=0.315). Katılımcıların sadece % 36.5'inin bilgi düzeyi yüksekti.

SONUÇ: Meme kanseri bilgi düzeyi, kendi kendine meme muayenesi ve klinik meme muayenesi davranış şekli sağlık çalışanlarında toplumdan daha farklı değildir.

Anahtar Kelimeler: Meme kanseri, erken tanı, tarama, sağlık inanç modeli.

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INTRODUCTION

Breast cancer (BC) is the most common cancer type in women, in Turkey, as well as all over the world and constitutes 23-25% of cancers in women (1,2). Breast cancer early diagnosis and screening methods are breast self-examination (BSE), clinical breast examination (CBE), and radiological imaging methods (3-6).

The health belief model, which was first developed by the American public health researchers in the 1950s to increase the effectiveness of health education, was made available by Rosenstock in 1966 (7). The health belief model, which has undergone various changes over time, has been adapted to breast cancer by Champion et al. and made available in the clinical course (8). The health belief model of Champion has been translated into various languages and its use has been proven in various cultures (9-12). According to this model, beliefs and attitudes are determined and health education to be given or treatment methods to be applied are made more suitable for that person. The reliability and validity of this model for Turkish women were first tested by two different study groups in Turkey and was proven to be used in the evaluation of beliefs in breast cancer and screening method (13, 14).

Another topic that determines health protection and development behaviors is the level of knowledge of the person. Based on this, a comprehensive breast cancer knowledge test was developed by Stager in 1993 (15). This test was used to determine a women's general knowledge about breast cancer and treatment methods, and the relationship between breast cancer knowledge level and the usage of screening methods. The reliability and validity of this test for Turkish women was studied in a thesis by Basak (16).

The purpose of this study to measure the breast cancer knowledge levels of women working in the health sector (nurse, cleaning staff, patient counselor) and non-health sector community (living in the other area of the society), and to investigate the factors that determine the beliefs, attitudes, and behaviors against screening methods. We also aimed to investigate whether there is a difference on the knowledge level and belief of screening methods between the health care professionals and the normal society. In this study, it was planned to use the "Champion Health Belief Model for Breast Cancer" questionnaire, which has been proven in the literature, and "The Comprehensive Breast Cancer Knowledge Test" by Stager. Previous studies have always focused on a certain part of the society. However, there is no study that both forms are used on persons who are health care professionals or non-healthcare community.

MATERIAL AND METHOD

Study Design

This study was conducted on 850 volunteer participant women over 21 years old, with a health education such as nurse, anesthesia technician, laboratory technician, pharmacist; individuals who work in a hospital but do not have health education such as patient counselor, support services staff and other members of the community with no restrictions to outreach the health facilities but not related to the health sector. Informed consent forms were obtained from each individual participating in the study. Doctors and medical students who received a higher level of education on breast cancer and pregnant women were excluded from the study to mitigate the risk of affecting the outcomes. Other assistant personnel working at the hospital (patient counselor, cleaning staff, etc.) were planned to be treated as a separate group from other individuals of the society, since they did not receive a specific health education but were provided with in-service training or easier access to health-related information. This study was approved by Yüksek Ihtisas University Faculty of Medicine Ethics Committee (date: 19/06/2020 decision number: 2020/05/01). All procedures/data collection was done according to the Declaration of Helsinki.

Data Collection

The survey was distributed over the internet or in printed form and was filled electronically or by hand. After the participants were informed about the content and purpose of the study, they were asked to fill in the questionnaire consisting of 3 sections: Sociodemographic data form, The Comprehensive Breast Cancer Knowledge Test, Champion Health Belief Model for Breast Cancer Scale (CHMBS).

Sociodemographic Data Form

The form consisted of questions about the age, education level, income level of the participants, trace of the history of breast cancer, the awareness and frequency of BSE and CBE, how they learned about breast cancer, and their opinions about breast cancer.

Champion Health Belief Model for Breast Cancer

The form consists of 6 parts: perceived sensitivity of BC (questions 1-3), perceived seriousness of BC (questions 4-10), benefits of BSE (questions 11-14), BSE barriers (questions 15-25), self-efficacy in BSE (questions 26-35) and health motivation (questions 36-42). In this form, which consists of 42 items, there are answers such as "I absolutely disagree", "I disagree", "Indecisive", "I agree", "I strongly agree". The answers were scored from 1 to 5 according to the Likert scale. High scores demonstrate positive opinions and attitudes towards health for all the subscales except the subscale of BSE barriers, where higher scores indicate negative opinions (18).

Accordingly, the participants of the survey were divided into three groups: health professionals, hospital workers without health education, and non-health sector community members.

The Comprehensive Breast Cancer Knowledge Test

This form consists of 20 questions related to breast cancer. There are two options in answer: right and

wrong. The participants were asked to choose one of these two answers for each question.

Statistical Analysis

Statistical analyses were performed using the IBM SPSS Statistics for Windows, Version 21.0 (IBM Corp., Armonk, NY, USA). Any correct answer was given a score of one point; otherwise, a score of zero was given for the evaluation of The Comprehensive Breast Cancer Knowledge Test. The participants were divided into three groups, showing their level of knowledge: low knowledge who had a score of less than 50% of the maximum score, moderate knowledge if score was 50 to 75%, and high knowledge if score was above 75% of the maximum score. Quantitative variables were expressed as mean and standard deviation and categorical variables as absolute numbers and percentages. The variables were investigated using visual (histograms, probability plots) and analytical methods (Kolmogorov-Smirnov test) to determine whether they are normally distributed. Continuous data between two independent groups were analyzed using the Mann Whitney U test. The difference in more than two groups was analyzed with the Kruskal Wallis variance analysis. In case of the significant difference, Mann Whitney U test and Bonferroni correction was performed to adjust for multiple comparisons. Pearson Chi square and Spearman correlation test was used to evaluate any association between pairs of categorical variables. Chi-square test/Monte Carlo exact test and Fisher's exact test were used to test for associations between sample characteristics and knowledge level. A multiple regression analysis was used to evaluate the predictive factors on the BSE practice, CBE practice and the breast cancer knowledge level. A p value of <0.05 was considered statistically significant.

RESULTS

A total of 850 participants with a mean age of 39.5 (18-78) years were included in the analysis. 44% of them were over 40 years. About a third of the participants had heard of breast cancer from the media (31.4%). Of the participants, 68.2% had bachelor's or master's degree. %77.9 had middle income level, 20.2% had a positive family history in terms of breast cancer. 94.8% of the participants were aware of BSE, and 78.4 % were implementing it at least once a year. Even if 84.2% of the participants were aware of CBE, only % 57.6 was going to clinics at least once a year. There was no difference in the frequency of BSE and CBE between those who were health professionals or not (p>0.05). The characteristics of the participants are summarized in **Table 1**. There were statistically significant differences in age, knowledge level, and education level (p<0.05). The mean age of the community members was significantly higher than the others (p<0.001). There was no difference between the community members and health workers according to the level of knowledge (p>0.05). The difference was between the hospital workers and the community members (p=0.006). There was a significant difference between the education level of the health workers and community members (p=0.029). The number of university graduates in health workers was lower than the community members. The median scores on each subscale of the CHMBS were not statistically different in all groups.

Factors that influence BSE and CBE practice are summarized in **Table 2.** The belief of self-efficacy was found the only predictive factor on the BSE practice (p=0.00, OR:1.188). It was seen that age, health motivation and family history influenced the CBE practice (OR:1.087, OR:1.120, OR:2.145, respectively, p<0.05). Factors that influence the breast cancer knowledge level is summarized in **Table 3.**

Table 1: Participant characteristics

	Health professional (n=160)	Hospital worker (n=48)	Other individuals (n=642)	Total participants (n=850)	P value
Age (years) (mean)	33.84	33.9	41.33	39.51	0.000*
Knowledge level (total score)	13.2	11.9	13.81	13.59	0.016*
Education level (university or upper) (%)	57.5	58.3	71.7	68.2	0.029*
Family history (+/-) (%)	40/120 (25)	4/44 (8.3)	128/514 (19.9)	92/850 (20.2)	0.198
Aware of BSE (%)	97.5	87.5	94.7	94.8	0.187
Aware of CBE	93.8	100	83.2	84.2	0.014
BSE (%)	83.8	79.1	76.9	78.4	0.416
CBE (%)	46.3	66.7	59.8	57.6	0.521
CHMBS scores					
Sensitivity (median)	8	8.5	7	8	0.356
Seriousness (median)	20	22	21	21	0.396
Benefits of BSE (median)	16	16	16	16	0.074
Barriers to BSE (median)	26	25	24	24	0.100
Self-efficacy (median)	36	33	34	34	0.452
Health motivation (median)	26.5	27.5	28	28	0.121

BSE: Breast Self Examination, CBE: Clinical Breast examination, *CHMBS:* Champion Health Belief Model for Breast Cancer

Table 2: Factor analysis that affect breast self-examination and clinical breast examination

	BSE	BSE	CBE	CBE
	P value	OR (95 % C.I)	P value	OR (95 % C.I)
Sensitivity	0.255	1.086 (0.942-1.253)	0.080	1.106 (0.988-1239)
Seriousness	0.326	0.973 (0.921-1.028)	0.210	1.029 (0.984-1.077)
Benefits of BSE	0.955	0.997 (0.899-1.115)	0.664	0.981 (0.901-1.069)
Barriers to BSE	0.000	0.879 (0.833-0.930)	0.000	0.909 (0.866-0.953)
Self-efficacy	0.000*	1.121 (1.065-1.177)	0.720	0.992 (0.952-1.034)
Health motivation	0.650	1.016 (0.952-1.086)	0.000*	1.120 (1.053-1.191)
Health workers	0.058	2.089 (0.958-4.552)	0.678	0.880 (0.480-1.613)
Education level	0.988	1.084 (0.611-1.924)	0.420	0.804 (0.474-1.366)
Knowledge level	0.264	1.067 (0.952-1.197)	0.492	0.967 (0.880-1.063)
Family history	0.134	0.601 (0.308-1.170)	0.013*	2.145 (1.171-3.929)
Age	0.691	1.006 (0.978-1.034)	0.000*	1.087 (1.060-1.115)

BSE: Breast self-examination, CBE: Clinical breast examination, OR (95% C.I): Odds ratio 95% confidence interval.
*: P value statistically significant

According to this, being a health worker has no effect on the knowledge level p>0.05). The most predictive factor was education level (p=0.00, r=0.315). The barriers to BSE scale was a negative effect on the knowledge level (p=0.004, r=−0.128). There was no difference in scores on each subscale of the CHBMS between the groups (p>0.05) **(Table 1).**

Table 3: Linear regression analysis of factors that affect the breast cancer knowledge level

	P value	r
Sensitivity	0.164	-0.048
Seriousness	0.102	-0.062
Benefits of BSE	0.003*	0.131
Barriers to BSE	0.004*	-0.128
Self-efficacy	0.028*	0.093
Health motivation	0.006*	0.122
Family history	0.020*	0.100
Health workers	0.058	-0.076
Education level	0.000*	0.315
Age	0.000*	0.201

*: P value statistically significant

DISCUSSION

We aimed to evaluate breast cancer knowledge levels and behavioral patterns of individuals from different groups. Particularly, the results of participants between health workers and others were compared. It was observed that a large part of the participants was aware of the BSE and CBE. While the number of individuals performing BSE was determined as high, the number of those who have CBE was slightly lower. Health workers clinical breast examination behaviors were slightly lower than others, but this difference was not statistically significant. Studies have shown that most Turkish women do not perform regular BSE (17, 18). The rate of health workers BSE and CBE behavior were found as 83.8% and 46.3% in our study. These findings were higher than a study by Yılmaz et al. (19). Uncu et al. found the rate of BSE performance as 56.1% in nurses (20). Akpınar et al. observed the rate of CBE as 24.8% in health workers [26]. Both findings were lower than our study as well. Considering the rate of CBE behavior of the total participants, some studies reported a lower rate of CBE behavior than our study findings for Turkish women (22, 23).

Studies were found that undergoing to mammography and CBE were associated (11, 24, 25). In our study we did not investigate the frequency of undergoing mammography and its relationships. While it is expected that sensitivity and knowledge level of the individuals with a family history would be higher than others, no relation was detected. Similarly, family history does not have an effect on the BSE performance but is corelated with the frequency of CBE.

Furthermore, self-efficacy was the only determinant factor on the behavior of BSE. But some studies observed that sensitivity, health motivation, benefits of BSE, barriers to BSE subscales influenced the performing of BSE (26-29). Demirkıran et al. found that the age and profession effect BSE performance (30). Health motivation was the only predictive factor on CBE among CHMBS subscales in our study. However, other studies have found that sensitivity, seriousness, benefits, and barriers of CBE are also effective in addition to health motivation among the CHMBS subscales (11, 24).

The determinant factors for the knowledge level are age, education level, family history, barriers, and benefits of BSE. Contrary to expectations, the level of knowledge in health workers was not different compared to other groups. In a study, it was found that the majority of women working in a hospital was informed about the breast cancer and the level of knowledge would increase

with planned training programs (31).

Self-efficacy is associated with increased confidence in executing a behavior and with an increase in compliance with a given behavior (11). In current study, self-efficacy had the highest score in CHMBS subscales. But it was the lowest score in a study by Yılmaz et al. (19). Previously, it was emphasized that physicians' health motivation and self-efficacy scores were higher than of nurses (32, 33). Based on this, physicians were not included in this study.

Behavior is also influenced by the belief that a certain action will benefit the individual. Regarding health-related beliefs, the associated behaviors imply an individuals' interest in actions that are potentially protective (11). Perceived susceptibility, perceived benefits of and perceived barriers to the action are central components of the CHMBS. Perceived benefits refer to the perception of positive outcomes thought to result from a behavior, while perceived barriers pertain to negative attributes related to the health action. There was no difference in the BSE and CBE performance in this study. Also, no difference was found in the scores of the CHMBS subscale between the groups. This result supports the finding as mentioned above.

Today, although the number of breast cancer incidents have increased, the mortality rate decreases owing to early diagnosis and treatment methods (34). The increase in the use of screening methods depends on the increase in the knowledge of breast cancer in the society, the perception that success will increase with early diagnosis and treatment methods, and of course, the availability of healthcare services. Creating awareness to cancer in the society is only through education. However, we know that this training is not given in university. It is important to raise the awareness of community about breast cancer from all kinds of sources.

CONCLUSION
The breast cancer knowledge level is not higher in health workers than the society. The most predictive factor for the knowledge level is education level. Also, the scores of the CHMBS subscales that determine the persons behavior were not higher in health workers than other members of the society. Hence, the behavior pattern in BSE and CBE are not different in health workers.

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Ethical approval: All procedures performed in studies involving human participants were performed in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed consent: Informed consent form was obtained from all individual participants included in the study.

Author's Contributions: Study conception and design - GBM; Acquisition of data - GBM; Analysis and interpretation of data - GBM; Drafting of manuscript - GBM; Critical revision of manuscript - GBM.

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