

## RESEARCH ARTICLE

# 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

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### Abstract

**Background:** Breast cancer (BC) is one of the most common cancer affecting women worldwide. Although a great deal of progress has been made in the health sciences, early diagnosis, and increasing community awareness, breast cancer remains a life-threatening illness. In order to reduce this threat, breast cancer screening needs to be implemented in all communities where possible. **Objective:** The purpose of this study was to examine health beliefs, attitudes and behaviors about breast cancer and breast self-examination of Turkish women. **Methods:** Data were collected from a sample of 656 women, using an adapted Turkish version of Champion's Health Belief Model Scale (CHBMS), between January and May 2011, in Ordu province of Turkey. **Results:** The results showed that 67.7% of women had knowledge about and 55.8% performed BSE, however 60.6% of those who indicated they practiced BSE reported they did so at irregular intervals. CHBMS subscales scores of women according to women's age, education level, occupation, family income and education level of the women's mothers, family history of breast cancer, friend and an acquaintance with breast cancer, knowledge about breast cancer, BSE and mammography were significantly different. **Conclusion:** Knowledge of women about the risks and benefits of early detection of breast cancer positively affect their health beliefs, attitudes, and behaviors. Health care professionals can develop effective breast health programs and can help women to gain good health behavior and to maintain health.

**Keywords:** Breast cancer - champion health belief model - early detection - self-breast examination - Turkey

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### Introduction

Breast cancer (BC) is the most common type of cancer in women in worldwide, both in the developing and developed world, accounting for 23% (1.38 million) of the total new cancer cases and 14% (458,400) of the total cancer deaths in 2008 (Jamal et al., 2011). About half the breast cancer cases and 60% of the deaths are estimated to occur in economically developing countries (Jamal et al., 2011). Özmen (2011) reported that although global breast cancer incidence rates have increased by approximately 0.5% annually since 1990, breast cancer rates in Turkey, Japan, Singapore, and Korea have doubled or tripled in past 40 years. In Turkey, the incidence of breast cancer among women has increased, according to the Ministry of Health BC incidence among women is 35.47 per 100.000 (Ministry of Health, 2005). Although a great deal of progress has been made in the health sciences, early diagnosis, and increasing community awareness, breast cancer remains a life-threatening illness (Eti and Gürkan, 2007). In order to reduce this threat, breast cancer screening need to be implemented in all communities

where possible. Furthermore, attention needs to be paid to the local traditional and cultural belief systems to determine how these might hinder early diagnosis in the women of the community.

Breast self-examination (BSE), clinical breast examination, and mammography is used as screening methods of early detection of breast cancer and BSE is recommended that women start in their 20s (American Cancer Society, 2012). Numerous studies report that women who practice BSE have higher change of early detection, treatment options and increased survival rate (Feldmen et al., 1981; Foster and Costanze, 1984). Various reports have indicated that women are not clearly aware of what they need to do to protect themselves from breast cancer or even how to check themselves and be proactive in taking care of their breast health (Jarvandi et al., 2002; Al-Naggar et al., 2011; Köşgeroğlu et al., 2011). Studies revealed that 29-63% of American women in different groups regularly do breast self-examination (BSE) (Salazar, 1994; Phillips and Wilbur, 1995). In Turkey, regularly the BSE rate in women has been reported as 5.5% (Nahçıvan and Seçkinli, 2003) and 10.2% (Erbay

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et al., 2006). Erbay et al. (2006) reported that the level of knowledge about breast cancer was significantly associated with the BSE and mammography practice.

The great disparity in women's BSE rates suggests the existence of many causes that affect attitudes and behavior of women. These include individual cultural beliefs, health/disease-concepts, and family and environmental influences. In order to educate and encourage women in ways to protect their overall health and to detect breast cancer as early as possible, it is very important to do so within the context of women's existing cultural beliefs and values (Nahçıvan and Seçkinli, 2003).

Breast cancer is an important health issue in the lives of women and their families, and it is responsible for many social, psychological and economic losses. Early detection of breast cancer can possible with BSE, a simple and economical diagnostic tool which women can practice in privacy and which should be performed regularly and properly. At the same time, as additional support to BSE, women should be regularly seen and advised by their physicians.

The purpose of this study was to examine health beliefs, attitudes and behaviors about breast cancer and breast self-examination of Turkish women.

## Materials and Methods

This cross-sectional study was carried out with women who were admitted for health problems to the outpatient gynecology clinic of Maternity-Gynecology and Children's Hospital in Ordu, Turkey. Totally, 25,512 women admitted to the outpatient gynecology clinic of hospital between January and May of 2011. Literate women were invited to participate in the study and volunteer participants recruited with convenience sampling method for the study. Informed and verbal consent to participate in the study was obtained from 656 women. The researchers guaranteed participants that their identities and answers would be kept confidential. Since Ordu University does not currently have an Ethics Committee, the study protocol was approved by the Institutional Review Board of the hospital.

The research data was collected using a self-report questionnaire form and the adapted Turkish version of Champion Health Belief Model Scale (CHBMS) (Karayurt and Dramalı, 2007). The scale and questionnaire form can be completed in approximately 15 minutes. The questionnaire form included the women's age, education level, current marital status, occupation, perceived income level, family history of breast cancer, personal experience with breast cancer, former knowledge about breast cancer and BSE. The frequency of BSE was determined by asking women how often they had performed BSE during the previous year.

### Instrument

Adapted Turkish version of the Champions's Health Belief Model Scale (CHBMS) has been used in several studies as a theoretical framework to study BSE and other breast cancer detection behaviors. The scale was developed by Champion in 1984 and revised in 1993, 1997,

and 1999. Validity and reliability for the Turkish version of the scale was done by Karayurt and Dramalı (2007). The model is useful in identifying the factors that are associated with women's beliefs about breast cancer and breast cancer screening behaviors. The CHBMS consists of 6 concepts and 42 items: 1. Perceived susceptibility to an illness (3 items), 2. Perceived seriousness of the illness (7 items), 3. Perceived benefits of certain actions (4 items), 4. Perceived barriers for the action (11 items), 5. Confidence in ones's ability (10 items), and 6. Health motivation (7 items). Each item has a score ranging from 1 to 5: "I disagree strongly" (1 point), "I disagree" (2 points), "I am not sure" (3 points), "I agree" (4 points), "I agree strongly" (5 points). The score of each subscale is considered separately and is not merged into a single total score of all the subscales of the scale. Women who had low scores in the barrier subscale and high scores in the other subscales also held positive beliefs and attitudes about breast cancer and BSE practice. Karayurt and Dramalı (2007) determined that the Cronbach Alpha coefficients of the subscales ranged from 0.58-0.89. For the present study, the scales's Cronbach Alpha internal consistency coefficients ranged from 0.76-0.91.

Descriptive statistics were used to present the socio-demographic characteristics. Univariate analysis was used to evaluate the significance of factors related to breast cancer and breast self-examination according to adapted Turkish version of the CHBMS (including t test and One Way ANOVA). A p value <0.05 was considered statistically significant.

## Results

Thirty-four percent of women participating in this study were between the ages of 21-30 (range 18-88 years, age mean 35); 76.4% of them were married; 35.7% had a primary school education; 64% were housewives, 93.8% had social security; 72.9% perceived their family income as average; and 53.5% of the women lived in a city (Table 1).

It was found that correlation between women's age and barrier subscale score of Turkish version of the CHBMS ( $r=0.086$ ,  $p=0.028$ ). The mean scores of subdimensions of Turkish version of the CHBMS including benefit ( $p=0.004$ ), confidence ( $p=0.000$ ), and health motivation ( $p=0.000$ ) according to women's education status were different, and the differences were statistically significant. The mean score differences of subdimensions of Turkish version of the CHBMS including susceptibility ( $p=0.035$ ), barriers ( $p=0.006$ ), confidence ( $p=0.000$ ), and health motivation ( $p=0.010$ ) according to women's occupation were different, and the differences were statistically significant. Also, the mean score of barriers from subdimensions of Turkish version of the CHBMS regarding income of women ( $p=0.032$ ) were different, and the differences were. The confidence score based on the education level of the women's mothers was different, and different statistically significant ( $p=0.035$ ).

The mean scores of subdimensions of Turkish version of the CHBMS were as follows: the sensitivity subscale of women was  $7.53\pm 2.48$ ; the seriousness subscale of

women was  $21.20 \pm 5.52$ ; the benefit subscale of women was  $14.96 \pm 3.82$ ; the barrier subscale of women was  $26.99 \pm 6.70$ ; the confidence subscale of women was  $31.98 \pm 6.70$ ; and the health motivation subscale of women was  $25.05 \pm 5.60$  (Table 2).

In our study, 39.2% of women stated they were "partially" informed about breast cancer; 80.3% of them had no breast problems; 76.5% of the women had no breast cancer in their family history; and 54.1% of them had no breast cancer in their circle of friends and acquaintances. The study found that 67.7% of women had knowledge about BSE, and 55.8% of women performed BSE. However, 60.6% of the women who indicated they practiced BSE reported they did so at irregular intervals, and 67.9% of them performed BSE because of the fear of developing breast cancer. It was found that 72.7% of women had thus far not had a breast exam by a physician. Knowledge of mammography as an early diagnostic method for breast cancer was held by 77.9% of women, and 65.5% of women had received a doctor's recommendation to undergo a mammography exam.

The mean scores of benefit ( $p=0.000$ ), barrier ( $p=0.000$ ), confidence ( $p=0.000$ ), and health motivation ( $p=0.000$ ) subscales of women who had knowledge about

**Table 1. Distribution of Socio-Demographic Characteristics of Women (n=656)**

Socio-Demographic Characteristics		n	%
Age (years)	≤20	44	6.7
	21-30	223	34.0
	31-40	192	29.3
	≥41	197	30.0
	Marital status	Married	501
	Single	120	18.3
	Divorced	35	5.3
Education status	Primary School	234	35.7
	Middle school	107	16.3
	High school	209	31.9
	University	106	16.1
Profession	Housewife	420	64.0
	Officer	76	11.6
	Worker	69	10.5
	Retired	91	13.9
Social security	Yes	615	93.8
	No	41	6.2
Family Income	High	128	19.5
	Middle	478	72.9
	Low	50	7.6
Place of residence	Village	144	22.0
	District	161	24.5
	Country	351	53.5

**Table 2. The Subscale Scores of the CHBMS of Women (n=656)**

Subscales of the CHBMS	Item number	Taken min-max scores	Cronbach Alpha values	X	SD
Susceptibility	3	3-15	0.77	7.53	2.48
Seriousness	7	7-35	0.79	21.20	5.52
Benefits	4	4-20	0.87	14.96	3.82
Barrier	11	11-52	0.76	26.99	6.70
Confidence	10	10-50	0.91	31.98	6.70
Health Motivation	7	7-35	0.83	25.05	5.60

**Table 3. The Subscale Scores of the CHBMS According to Characteristics with Breast Cancer of Women and Comparison of These Scores (n= 656)**

Breast Cancer (BC) characteristics	Susceptibility of the CHBMS					
	Susceptibility	Seriousness	Benefit	Barrier	Confidence	Health Motivation
Information about BC						
Yes	7.47	20.82	15.73	24.85	35.58	26.23
No	7.50	21.16	13.49	28.92	27.49	23.43
Sometimes	7.61	21.57	15.13	27.84	31.35	24.92
p <sup>a</sup>	0.797	0.317	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Diagnosed BC in themselves						
Yes	7.78	20.79	14.79	26.82	32.10	25.10
No	7.47	21.29	15.00	27.03	31.96	25.03
p <sup>b</sup>	<b>0.000</b>	0.287	0.925	0.276	0.359	0.703
BC in their family history						
Yes	8.57	21.61	14.93	27.51	32.54	25.20
No	7.21	21.07	14.96	26.84	31.81	25.00
p <sup>b</sup>	<b>0.000</b>	0.287	0.925	0.276	0.359	0.703
BC in their friends and nearby						
Yes	7.75	21.60	15.44	26.24	33.70	25.70
No	7.35	20.86	14.55	27.63	30.53	24.49
p <sup>b</sup>	<b>0.037</b>	0.088	<b>0.003</b>	<b>0.008</b>	<b>0.000</b>	<b>0.006</b>
Information about BSE						
Yes	7.56	21.24	15.60	26.35	34.55	25.84
No	7.49	21.11	13.61	28.33	26.60	23.37
p <sup>b</sup>	0.735	0.778	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
BSE Practice						
Yes	7.51	20.93	15.64	25.63	34.73	25.92
No	7.57	21.54	14.10	28.71	28.52	23.95
p <sup>b</sup>	0.753	0.161	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
BSE frequency (n=457)						
She don't practice						
	7.83	21.83	14.70	28.17	31.91	24.67
Regularly	7.31	20.09	15.85	24.17	37.65	27.02
Irregularly	7.53	21.50	15.68	26.50	33.61	25.46
p <sup>a</sup>	0.400	0.054	0.089	<b>0.000</b>	<b>0.000</b>	<b>0.008</b>
Medical examination related to breast						
Yes	7.80	20.87	15.34	25.65	33.30	25.94
No	7.43	21.32	14.81	27.50	31.49	24.71
p <sup>b</sup>	0.093	0.350	0.119	<b>0.002</b>	<b>0.017</b>	<b>0.012</b>
Information about mammography						
Yes	7.58	21.36	15.55	26.20	33.42	25.70
No	7.44	20.84	13.64	28.77	28.78	23.59
p <sup>b</sup>	0.514	0.266	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

<sup>a</sup>One-Way ANOVA, <sup>b</sup>t test, Bold values indicate statistically significant

breast cancer were different, and the differences were statistically significant. The mean score of susceptibility subscale of women who had breast cancer themselves or in their family was higher than the subscales scores of other women, and the difference was statistically significant ( $p=0.000$ ). The mean scores of susceptibility ( $p=0.037$ ), benefit ( $p=0.003$ ), barrier ( $p=0.008$ ), confidence ( $p=0.000$ ), and health motivation ( $p=0.006$ ) subscales of women who had a friend and an acquaintance with breast cancer were different, and the differences were statistically significant. The mean scores of benefit ( $p=0.000$ ), barrier ( $p=0.000$ ) confidence ( $p=0.000$ ), and health motivation ( $p=0.000$ ) subscales of women who had knowledge about BSE and themselves practicing BSE were different, and the differences were statistically significant. The mean scores of barrier ( $p=0.000$ ) confidence ( $p=0.000$ ), and health motivation ( $p=0.008$ ) subscales of women according to BSE frequency were different, and the differences were statistically significant. While the mean score of barrier subscale of women who had a clinical breast examination by a doctor was lower from other women, and the

difference was statistically significant ( $p=0.002$ ); the mean scores of confidence ( $p=0.017$ ) and health motivation ( $p=0.012$ ) subscales of women who had a clinical breast examination by a doctor were higher from other women, differences for all of subscales were statistically significant. The mean scores of benefit ( $p=0.000$ ), barrier ( $p=0.000$ ) confidence ( $p=0.000$ ), and health motivation subscales ( $p=0.000$ ) of women according to information about mammography were different, and the differences were statistically significant (Table 3).

## Discussion

A high rate of breast cancer among women should raise women's concern and awareness of their risk for developing this disease. It is becoming very clear that more information about breast cancer and its prevention needs to be disseminated to the general population to increase their awareness of this important health issue. However, in order for greater awareness to be effectively accomplished, women's attitudes and behaviors about early diagnosis screening programs must first be determined. Thirty-four percent of women who participated in this study were between the ages of 21-30. This is an important limitations of this study, one-third (34%) of women who participated in this study is 21-30 years old which is young age and not a target group for breast cancer. Only 5% of all BCs occur in women under 40 years old, and studies have shown an increase in breast cancer diagnoses after age 40. Köşgeroğlu et al. (2011) revealed that women's level of knowledge about BC decreased as their age increased. This corresponded a previous study (Demirkiran et al., 2011). On the other hand, many studies in Turkey reported contradictory results (Karayurt and Dramalı, 2007). In general, as age increases, the frequency of cancer occurrences increase, and women's interest in obtaining current information about this disease increases. In this study, it was found that correlation between women's age and barrier subscale score of Turkish version of CHBMS ( $r=0.086$ ,  $p=0.028$ ) and not correlated other subscales of Turkish version of CHBMS ( $p>0.05$ ).

In this study, the mean score differences of subscales of the Turkish version CHBMS including benefit ( $p=0.004$ ), confidence ( $p=0.000$ ), and health motivation ( $p=0.000$ ) according to women's education status were found statistically significant. This is consistent with both national and international studies. Educational level plays an important role in the process of integration in the prevention, diagnosis and treatment of BC (Chauhan et al., 2011; Köşgeroğlu et al., 2011). Furthermore, education creates more awareness of these issues. Köşgeroğlu et al. (2011) found that those whose family income was below average also showed a lower than average level of knowledge about BC when compared to individuals with adequate family income level (49.3% and 63.8%, respectively). Yılmaz et al. (2011) revealed that the risk of developing breast cancer was higher in women who are working in academe as teachers than in housewives, and the frequency of BSE, clinical breast examination, and mammography was also higher in academic professional women than housewives. In a Turkish study conducted

by Kum et al. (2004) as income level increased the mean knowledge level about BC also showed an increase. Karayurt and Dramalı (2007) reported the mean scores as follows: sensitivity subscale of women was  $8.0\pm 2.1$ ; the seriousness subscale of women was  $21.5\pm 5.1$ ; the benefit subscale of women was  $19.1\pm 3.8$ ; the barrier subscale of women was  $27.0\pm 5.9$ ; the confidence subscale of women was  $31.2\pm 6.9$ ; and the health motivation subscale of women was  $25.1\pm 5.3$ . Our study found that the sensitivity and benefit subscale scores were lower than Karayurt and Dramalı's (2007) study results, whereas other subscale scores showed no differences.

It was found that 39.2% of women were "partially" informed and 36.9% of them were "completely" informed about breast cancer. The mean scores of benefit ( $p=0.000$ ), barrier ( $p=0.000$ ), confidence ( $p=0.000$ ), and health motivation subscales ( $p=0.000$ ) of women who had knowledge about breast cancer were different from subscale scores of other women, and the differences were statistically significant. Our study results showed that 80.3% of women had no breast problem; 76.5% of them had no history of breast cancer in their family history; and 54.1% knew of no breast cancer history in their friends or acquaintances. The mean scores of susceptibility of women who had breast problems and had breast cancer in their family history were different from the subscale scores of other women and the differences were statistically significant.

The mean scores of susceptibility ( $p=0.037$ ), benefit ( $p=0.003$ ), barrier ( $p=0.008$ ), confidence ( $p=0.000$ ), and health motivation subscales ( $p=0.006$ ) of women who had friends or acquaintances with breast cancer were different than the subscale scores of other women and the differences were statistically significant. Köşgeroğlu et al. (2011) determined that those who had been previously diagnosed with a benign or malignant breast disease had a higher level of knowledge about BC than those who had not experienced such a diagnosis (69.4% and 48.0%, respectively). Furthermore, women with a positive family history had a higher level of knowledge about BC than those having a negative family history (70.9% and 44.5%, respectively) (Köşgeroğlu et al., 2011). Different results have been reported in studies about early diagnosis practices of women who had a family history of breast cancer. Gerçek et al. (2008) reported that the sensitivity subscale score of the CHBMS of university students who had close relatives with breast cancer was higher than for other students. Other study found that early diagnosis practices for breast cancer were no different between women who had a family history of breast cancer and women who did not (Karayurt and Zorukoş, 2008). It has also been noted that the risk perception of women who had a family history of breast cancer was a cause of anxiety, and these women practiced BSE more frequently or they avoided BSE altogether (Karayurt and Zorukoş, 2008).

The study revealed that 67.7% of women had knowledge about BSE and 55.8% of women practiced BSE. However, 60.6% of women who practiced BSE reported that they did so at irregular intervals, and 67.9% of them practiced BSE because of the fear of developing breast cancer. Demirkiran et al. (2011) reported that age,

marital status, and occupation were effective for BSE performance. Karayurt and Dramalı (2007) revealed that women who had a family history of breast cancer practiced BSE. Fry and Dunn (2006) found that the CHBMS scores of women who were informed about BSE were higher than for women who were uninformed. These results are similar to this study.

The mean scores of benefit ( $p=0.000$ ), barrier ( $p=0.000$ ) confidence ( $p=0.000$ ), and health motivation subscales ( $p=0.000$ ) of women who had knowledge about BSE and mammography were different than other women, and the differences were statistically significant. Previous studies have reported that the BSE practice rate of women was between 5.5-47.9 % (Nahçıvan and Seçkinli, 2003; Coşkun Güner et al., 2007; Ekici and Utkuallp, 2007). In order to increase women's rate of BSE, several factors need to be examined. These would include women's cultural beliefs, health/disease perceptions, family and friend support networks, and opinions or feelings regarding the available methods for early diagnosis of breast cancer. However, increasing the rate of BSE is not enough.

There limitations of this study are that the sample for this research was selected via convenience method among only with literate and higher education status women who were admitted for health problems to the outpatient gynecology clinic of Maternity-Gynecology and Children's Hospital. Therefore, the results of the study can only be generalized to the sampling group of this research.

In conclusion, we found that 39.2% of women stated they were "partially" informed about breast cancer; 67.7% of women had knowledge about BSE and 55.8% of women performed BSE. However, 60.6% of the women who indicated they practiced BSE reported they did so at irregular intervals. It was found that correlation between women's age and barrier subscale score of Turkish version of the CHBMS ( $r=0.086$ ,  $p=0.028$ ). It was found that the mean score of subdimensions adapted of Turkish version of the CHBMS according to education status, occupation, income, the education level of the mothers of women were significant different. Also, the mean scores of subdimensions adapted of Turkish version of the CHBMS were higher women who had breast cancer themselves or in their family, a friend and an acquaintance with breast cancer, knowledge about breast cancer, BSE and mammography and different were significant. Education programs were recommended to increase women's awareness about BC screening. Equally important would be the promotion of additional research to acquire a deeper understanding and clarification of Turkish women's attitudes and behaviors regarding breast health. More knowledge of these important issues on the part of the medical community would be a positive step in the promotion of more regular BSE and the early diagnosis of BC.

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