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Reliability and Validity of the Breast Cancer Screening Belief Scale Among Turkish Women

KEY WORDS

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Breast cancer is the second leading cause of cancer deaths in Turkish women, and the use of breast self-examination (BSE) and mammography remains low in Turkey. Therefore, we need to identify the beliefs, influencing BSE and mammography, and a valid and reliable tool to measure constructs. The Champion's health belief model scale (CHBMS) is a valid and reliable tool to measure beliefs about breast cancer, BSE, and mammography in an English culture. The purpose of this study was to assess the psychometric characteristics of a Turkish version of the CHBMS related to breast cancer, BSE, and mammography. A convenience sample of 656 women was recruited from 3 health centers and 2 maternal and child health centers in Istanbul. The CHBMS was translated to Turkish, validated by professional judges, back translated, and tested. Factor analysis yielded 7 factors for BSE: confidence, seriousness, barriers-BSE, health motivation 1 and 2, susceptibility, and benefits-BSE. For mammography scale, 6 factors were identified: seriousness, benefits-mammography, barriers-mammography, health motivation 1 and 2, and susceptibility. All items on each factor were from the same construct. Cronbach alpha reliability coefficients ranged from .75 to .87 for the subscales. The Turkish version of the CHBMS showed adequate reliability and validity for use in Turkish women. It could easily be used to evaluate the health beliefs about breast cancer, BSE, and mammography. Further refinement is required to study Turkish women's health beliefs and breast cancer screening behaviors in various settings.

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Breast cancer is the most prevalent cancer in females in both developed and developing countries.^{1,2} Breast cancer is the most common type of cancer among Turkish women and the second leading cause of cancer death in Turkey. According to the most recent reports of the Turkish cancer registry, approximately 2390 new cases of breast cancer were diagnosed in 1999, and the corresponding distribution of cancer in Turkey is breast cancer (24.1%), stomach cancer (6.99%), and ovarian cancer (5.61%).³

Today, there is no widely accepted primary prevention strategy for breast cancer; therefore, appropriate methods of ensuring early detection and effective treatment are important for its control.⁴ Breast self examination (BSE), mammography, and clinical breast examination through secondary screening measures are believed to be appropriate and effective methods of ensuring early detection of breast cancer. Despite the availability of reliable screening methods for the early detection of breast cancer, research findings indicate that current compliance rates with breast cancer screening practices are low and many factors affect participation in breast cancer screening (5–8). In Turkey, few studies have reported on breast cancer awareness and screening compliance among Turkish women (9–11). It is reported that the rate of performing BSE once a month was 5.5% in one study¹¹ and it was 32.5% in another study.¹⁰ The rate of having recommended mammography was 12.6% in Secginli's study.¹¹

Turkey is a developing country in the middle of Europe and Asia with a population of 67.8 million and a fertility rate of 2.61 per year. Sixty-five percent of the total population is aged between 15 and 64 years.¹²

The emphasis of the healthcare services is on curative rather than preventive and rehabilitative approaches in Turkey. Although there are many healthcare services in the ministry of health that provide preventive and early detection, their availability and accessibility is very low. Cancer is one of the first 5 leading cause of deaths in Turkey. Considering the importance of the problem, a national planned program for the prevention, early diagnosis, and treatment of cancer will contribute to achievement of health for all by the year 2005. One of the proposed targets related to the healthy population is "to reduce mortality due to cancer by 15%, by the year 2005."¹³ One of the necessary prerequisites for this target is the development of primary healthcare, which promotes early diagnosis for reducing mortality rates of cancer. Achievement of this goal depends upon public health education and effective public screening programs in primary healthcare settings. Primary healthcare is provided by the ministry of health through the health centers, and the mother and child healthcare (MCH) centers. According to the results of health services utilization survey conducted in Turkey in 1996,¹⁴ 63.6% of the participants in health centers and MCH centers are in the age group of 15 to 44 years. At these centers, although mostly family planning and immunization services are provided, nurses working in these centers could incorporate interventions for increasing knowledge regarding the benefits of breast cancer screening methods. Furthermore, these centers could be used more effectively in changing and promoting interventions for breast

health. Therefore, nurses have an excellent opportunity to play a valuable role in increasing the utilization of breast cancer screening behaviors.

Understanding the Turkish women's beliefs related to breast cancer screening behaviors will help nurses and other health-care professionals to choose more effective health education programs and potentially increase screening practices. A valid and reliable instrument for determining the beliefs of women in Turkey related to recommend breast cancer screening behaviors has not been reported. The purpose of this study was to test the reliability and validity of the Turkish language version of Champion's Health Belief Model Scales (CHBMS) to measure Turkish women's beliefs about breast cancer, BSE, and mammography. All 8 scales were translated into Turkish, back translated, and tested for content relevance.

■ Health Belief Model

The health belief model (HBM) is used widely in understanding and explaining the factors for low utilization of recommended screening methods.^{7,15,16} The HBM was initially introduced in the 1950s to explain individual decision making with regard to health behaviors. Although the model was originally designed to predict preventive behaviors, it has also been used to explain other kinds of health-related behaviors.^{17–19} The model is useful in identifying the factors that are associated with women's beliefs about breast cancer and breast cancer screening behaviors. It has been used in many studies as the conceptual framework to study breast cancer screening behaviors. It has been applied to many studies and has been demonstrated to be a good way to understand participation in breast cancer screening programs.^{5–7} Several researchers pointed out the significant increase of breast cancer screening behavior rates in interventions, on which the HBM variables were based.^{8–20} Some studies have also found positive correlations between participation in breast cancer screening behaviors and the HBM concepts.^{21,22}

On the basis the HBM, it is hypothesized that women with perceived seriousness and susceptibility to breast cancer will be more likely to be screened. In addition, women must perceive benefits to screening and perceive few barriers. The model consists of 6 concepts: (1) perceived susceptibility to an illness, (2) perceived seriousness of the illness, (3) perceived benefits for the presumed action, (4) perceived barriers for the presumed action, (5) confidence in one's ability, and (6) health motivation.^{17–19}

The Health Belief Model Scale, developed and revised by Victoria Champion (1984, 1993), measures the HBM constructs related to breast cancer and screening behaviors. This scale has been tested mostly in Western cultures^{23–25} and other cultures^{26,27} for psychometrics. Reliability and validity of 8 subscales measuring HBM, for BSE and mammography, has been reported.^{24,25} The original scales were tested and found to be valid and reliable in measuring BSE and breast cancer beliefs.^{23–25} The Arabic and Korean language version of the CHBMS related with breast cancer and BSE has been evaluated

by Mikhail and Petro-Nustas²⁶ and Lee et al,²⁷ and found to be a valid and reliable tool for use with both Jordanian and Korean women. A valid and reliable cross-cultural adaptation of Turkish version of the CHBMS could be useful for comparison across settings and in assessing Turkish women's beliefs about breast cancer and screening behaviors. In this study, the psychometric assessment of the concepts related with both BSE and mammography was investigated.

■ Methods

Setting and Sample

A convenience sample of 656 women was recruited at 3 health centers and 2 maternal and child health centers in Istanbul from March 2002 through June 2002. The participants eligible for the study met the following criteria: older than 20 years, not having had breast cancer, not pregnant or breastfeeding, and having the ability to read and write Turkish. Participants who met these criteria were asked if they would like to participate in the study. Those who indicated consent were included in the study. The 656 participants met the criteria for an adequate sample size for a factor analyses (at least 10 subjects per item) as suggested by Nunnally.²⁸

Measures

Sociodemographic measures, including characteristics such as the respondent's age, current marital status, years of education, healthcare insurance coverage, length of residence in Istanbul, and income level, were assessed (Table 1). Because of difficulties

in identifying income level in a country with high inflation rate, perceived income level was measured by the response of perception of participant's monthly income level. It was coded as 1 = very bad, 2 = bad, 3 = middle, 4 = good, and 5 = very good.

Champion's Health Belief Model Scales

Champion's revised Health Belief Model Scale is a 53-item self-report measure, representing 8 scales, namely, susceptibility to breast cancer (5 items); seriousness of breast cancer (7 items); benefits-BSE (6 items); barriers-BSE (6 items); confidence (11 items); health motivation (7 items); benefits-mammography (6 items); and barriers-mammography (5 items). All the items have 5 response choices ranging from "strongly disagree (scores 1 point)" to "strongly agree (scores 5 points)," which are basically a summation of the responses. Higher scores indicate stronger feelings related to that construct. All scales are positively related to screening behaviors except for barriers, which are negatively associated. After receiving permission from Victoria Champion in 2002 for modifying the CHBMS, the scale was translated using a back-translation technique. Two bilingual linguistic experts translated the original version of the CHBMS independently from English into Turkish. The experts met and reviewed the Turkish translations together for inconsistencies with the original English form and minor revisions were suggested in 2 words. The experts asked to change the word "komik" (meaning funny) into "tuhaf" (another expression of funny), and "gizlilik" (meaning privacy) into "mahremiyet" (another expression of privacy), and so words were replaced.

The adequacy of the Turkish translation of the CHBMS was evaluated using back-translation technique and content validity. The Turkish version of CHBMS was back translated into English by a bilingual individual who works in one of the university research center in the community and family health department. The back-translated and original forms of the CHBMS were compared and found to be highly similar regarding meaning and grammar.

Content validity was ascertained by expert panels, whose members were selected for their experiences, and were asked to review the 53 items for clarity and fitting the subscale label and definition. The professionals were 5 nursing faculty members, 4 oncology institute members, 3 radiologists specializing in diagnosis and screening of breast cancer, and a physician who works in the Turkish Breast Diseases Foundation. The judges were asked to validate the translation and to determine the cultural appropriateness of the tool. Each judge was given a content validity index (CVI) form for rating each item of CHBMS. The CVI contained a 4-point rating scale (1 = not relevant, 4 = very relevant). A score for each item on the subscales was determined by the proportion of experts who rated the item as relevant (a rating of 3 or 4).^{29,30} The criterion for retaining an item was at least 80% agreement among the experts at the agree or strongly agree level of relevance to the construct.²⁹ The Turkish CHBMS total CVI is 0.92, indicating an acceptable level of content validity. After evaluating the CVI scores, minor

☀ **Table 1 • Theoretical Concepts in the Study**

Variables	Theoretical Range
Age	In years
Marital status	1 = Single 2 = Married 3 = Widowed 4 = Divorced
Education status	1 = Illiterate 2 = Primary (1–6 y) 3 = Secondary (7–12 y) 4 = Tertiary (13+ y)
Health insurance coverage	1 = Uninsured 2 = State 3 = Private
Perceived income level	1 = Very bad 2 = Bad 3 = Middle 4 = Good 5 = Very good
Length of residence in Istanbul	In years
Ethnicity	1 = Republic of Turkey 2 = Other
Religion	1 = Muslim 2 = Other

changes in wording were made in 3 items based on comments made by the panel experts. In 3 items: "I am able to find a breast lump which is the size of a quarter," "I am able to find a breast lump which is the size of a dime," and "I am able to find a breast lump which is the size of a pea," most of the experts suggested the use of chickpea, hazelnut, and walnut instead of quarter, dime, and pea. It is difficult to find a similar size of the Turkish coins instead of quarter, dime, and pea; so suggested words were chosen as a more appropriate translation.

The Turkish version of the instrument was then pretested on 13 women in order to check the clarity of the items. No changes were recommended. Therefore, the original 53-item scale was used in the study. After completing the translation of the research tool, the psychometric testing was done on the tool.

Procedures

Ethical approval was received from the city provincial health director, the director of health centers, and MCH centers from which the participants were recruited. After a written and verbal consent to participate was obtained, all participants were interviewed and given verbal instructions by the same researcher. Women who met the eligibility criteria for the study were approached while they were waiting for healthcare services at the health centers and MCH centers. The interview was conducted in a silent and comfortable room designed in these centers. The Turkish language CHBMS and a socio-demographic data sheet were distributed to all volunteer study participants who were encouraged to complete all items. The instructions specified that participants answer anonymously, that no answers were right or wrong, and that women choose one answer per item that best described beliefs or opinions. After completing the whole sheets, a booklet was given to each woman that included general information written about breast cancer and screening methods. To ensure the women's privacy, the names of the participants were encoded. No problems were encountered with completing the instruments, which took an average of 20 minutes. All women completed the Turkish language CHBMS and a sociodemographic data sheet.

Data Analysis

Descriptive statistics were computed for the demographic characteristics. Reliability was assessed by using item-total subscale correlations and Cronbach alpha coefficients. The items written for each subscale were examined for consistency. The desired criteria of item-total correlation was greater than 0.30 and alpha levels of .80 or greater were considered desirable, with .70 or above viewed as adequate.²⁸ Descriptive statistics, including means and standard deviations were computed for each subscale of CHBMS. To test for construct validity of the scales, a principal component factor analysis with oblique rotation was performed to discover theoretically meaningful factors of the scale. With oblique rotation the factors are allowed to be correlated if such correlations exist in the data and factor loadings greater than 0.40 are considered to be significant in the present study.²⁸

Results

Sample Characteristics

The mean age of the participants was 36.05 (SD = 11.40), with a range from 20 to 70 years. The majority (61.9%) of the sample was between 20 and 39 years. Most of the women (84.8%) were married, with the remaining single (10.2%), and widowed and divorced (5%). Sixty-four percent reported they had completed fifth grade, or graduating from high school (26.7%). Most participants (65%) perceived income level middle and bad/very bad (12.7%) or good/very good (22.3%). The length of residence in Istanbul was from 1 year to 70 years, the median was 20 years, and the mean was 20.93 (SD = 12.20) years. Sixty-one percent had some health insurance coverage. The sample was Moslem and the specific ethnic makeup of the sample was not reported (Table 2).

 **Table 2 • Demographic Characteristics of the Study Population**

Characteristics	N	%
Age (y)		
20–39	405	61.9
40–59	251	37.4
60 and older	4	0.7
Mean (SD)	36.05 (11.40)	...
Range	20–70	...
Marital status		
Married	556	84.8
Single	67	10.2
Widow/divorced	33	5
Educational status		
Illiterate	33	5
Primary (1–6 y)	419	63.9
Secondary (7–12 y)	176	26.7
Tertiary (13+ y)	28	4.4
Income level		
Very bad	19	2.8
Bad	65	9.9
Middle	426	64.9
Good	136	20.8
Very good	10	1.6
Residence in Istanbul (y)		
Mean (SD)	20.93 (12.20)	...
Range	1–70	...
Median	20	...
Health insurance		
Uninsured	257	39.2
State	384	58.5
Private	15	2.3
Ethnicity		
Republic of Turkey	656	100
Other
Religion		
Muslim	656	100
Other

Table 3 • Rotated Factor Analysis of the Turkish Health Belief Model Scales Related to BSE (N = 656)

Factor 1 (Confidence)	Factor 2 (Seriousness)	Factor 3 (Barriers-BSE)	Factor 4 (Health Motivation [1])	Factor 5 (Susceptibility)	Factor 6 (Health Motivation [2])	Factor 7 (Benefits-BSE)
CON 6 0.786	SER 3 0.800	BAR 4 0.793	HMOV2 0.880	SUS 2 0.821	HMOV 7 0.750	BEN 5 0.826
CON 7 0.703	SER 4 0.732	BAR 5 0.785	HMOV4 0.854	SUS 1 0.787	HMOV 6 0.634	BEN 4 0.792
CON 9 0.696	SER 6 0.724	BAR 3 0.778	HMOV1 0.825	SUS 3 0.783	HMOV 5 0.542	BEN 6 0.753
CON 4 0.673	SER 2 0.723	BAR 6 0.695	HMOV3 0.803	SUS 4 0.742		BEN 3 0.724
CON 5 0.673	SER 1 0.692	BAR 1 0.628		SUS 5 0.677		BEN 2 0.601
CON 3 0.607	SER 5 0.642	BAR 2 0.621				BEN 1 0.505
CON 8 0.599	SER 7 0.580					
CON 11 0.566						
CON 1 0.461						
CON 2 0.461						
CON 10 0.386						
Eigen Value						
6.39	5.01	3.04	2.56	2.49	2.00	1.80
Variance explained						
15.20	11.94	7.25	6.10	5.93	4.76	4.27

Construct Validity of CHBMS

A factor analysis using principal components extraction followed by oblique rotation was performed to identify cultural similarities regarding the concepts of the CHBMS. The items of the scales related to BSE and mammography were separately examined for factor analysis.

Related with BSE, a total of 40 items loaded significantly on 1 of 7 factors (Table 3). All 7 factors had an eigen value greater than 1 with an explained variance of 56%. A screen test indicated a marginal discontinuity between the seventh and eighth factors. Factor 1 was the strongest factor explaining the greatest percentage of variance (15%) and represented all 11 confidence items. Factor 2 accounted for about 12% of variance and represented all 7 seriousness items. Factor 3 accounted for 7% of variance and represented all 6 barriers-BSE items. Factor 5 accounted for about 6% of variance and represented all 5 susceptibility items. Factor 7 accounted for 4% of variance and represented all 6 benefits-BSE items.

Items related to health motivation related to BSE separately loaded on factors 4 and 6 in the current study. The correlation coefficients between the 2 motivation factors were weak ($r = 0.20, P = .01$). Cronbach alphas of factors 4 and 6 were .87 and .68, respectively. The alpha value was .74 when collapsing the factors 4 and 6. The 2 health motivation factors were independent of one another and collapsing the both factors was not meaningful. Therefore, the health motivation items which met the reliability criteria of greater than 0.80 were retained. Thus, the motivation items 1, 2, 3, and 4 were retained in this study. All items loaded on expected factors and factor loadings ranged from 0.461 to 0.880, with confidence item 10, 0.386 (Table 3).

The factor analysis for the subscales related to mammography was conducted by using 30 items of the CHBMS. Data from 250 participants (aged 40 and older) were subjected to a principal component factor analysis using oblique rotation.

This analysis resulted in a 6-factor solution, with which 4 of them were originally specified and explained 59% of variance (Table 4). Factor 1, 2, 3, and 5 accounted for about 17%, 16%, 9%, and 6% of variance, respectively and represented all seriousness, benefits-mammography, barriers-mammography, and susceptibility items. Health motivation items loaded on factor 4 and 6 accounted for about 11.2% of variance. The correlation coefficients between the 2 health motivation factors were weak ($r = 0.19, P < .01$). Cronbach alphas of factors 4 and 6 were .81 and .64, respectively. It was .80 when collapsing the 2 motivation factors. Thus, the motivation items 1, 2, 3, and 4, which met the criteria of reliability were retained as items associated with health motivation in this study.

Reliability

The reliability of an instrument refers to the extent to which an instrument is internally consistent, that is the instrument's components measure the same thing.²⁸ Cronbach alpha was calculated as a measure of internal consistency for the 53-item instrument. Alpha coefficients for the 8 subscales ranged from .75 to .87 (Table 5). For testing the relationship between item performance and scale performance, corrected item-total correlations ranged from 0.47 to 0.81 for all 8 subscales (Table 5).

The comparison of the means and standard deviations of the CHBMS for the Turkish sample and previously reported American and Jordan sample were presented in Table 6. Item analysis showed that the highest mean subscale score was 3.84 (SD = 0.56) for benefits-mammography and the lowest mean subscale score was 2.52 (SD = 0.74) for barriers-BSE.

Discussion

The results from this study indicate that the CHBMS is a reliable and valid tool for measuring the screening behaviors of

Table 4 • Rotated Factor Analysis of the Turkish Health Belief Model Scales Related to Mammography (N = 250)

Factor 1 (Seriousness)	Factor 2 (Benefits- Mammography)	Factor 3 (Barriers Mammography)	Factor 4 (Health Motivation [1])	Factor 5 (Susceptibility)	Factor 6 (Health Motivation [2])
SER 3 0.839	BEN 4 0.821	BAR 3 0.851	HMOV 2 0.827	SUS 2 0.846	HMOV 7 0.745
SER 2 0.785	BEN 6 0.791	BAR 2 0.807	HMOV 4 0.788	SUS 3 0.797	HMOV 5 0.688
SER 6 0.773	BEN 5 0.780	BAR 4 0.775	HMOV 1 0.769	SUS 1 0.774	HMOV 6 0.668
SER 1 0.726	BEN 3 0.729	BAR 1 0.675	HMOV 3 0.736	SUS 4 0.737	
SER 4 0.699	BEN 2 0.625	BAR 5 0.433		SUS 5 0.614	
SER 5 0.690	BEN 1 0.503				
SER 7 0.590					
Eigen value					
5.16	4.63	2.82	2.04	1.64	1.31
Variance explained					
17.20	15.45	9.38	6.80	5.46	4.36

breast cancer in Turkish women. In most of the studies (26,27) where the reliability and validity of the CHBMS were tested, the 6 subscales of the tool were examined. In the present study, all the subscales of the CHBMS were tested.

The content validity of the instrument, which was reviewed by an expert panel, seems sufficiently high. The Cronbach alpha coefficients for all subscales ranged from .75 to .87, indicating good levels of internal consistency.²⁸ In this study, each scale items demonstrated acceptable corrected item-correlations of higher than 0.30, with ranging from 0.47 to 0.81.²⁸

The items of the 8 subscales related with both BSE and mammography were examined for construct validity. As a result, 7 factors were identified related to BSE and 6 factors were identified related to mammography. All the items in each of the susceptibility, seriousness, and barriers-BSE subscales clustered together as in Champion's study.²⁴ All the items met the loading criterion and loaded separately on each factors. In this study, all items in the confidence subscale loaded on 1 factor, such as in American and Korean study, but different from Jordanian study. Only confidence item 10, "When looking in

the mirror, I can recognize abnormal changes in my breast," had low factor loading (0.386), and had acceptable item-total subscale correlation ($r = 0.47$). It may have been because of the cultural relevance and little knowledge about breast cancer and BSE. To recognize abnormal changes in the breast, women need at least basic knowledge about BSE and must have routinely performed the breast examination. Previous studies performed in Turkey reported that the level of cancer knowledge of Turkish population was inadequate,³¹ the rate of performing BSE is very low and most of the women do not know how to examine their breasts correctly. Educational programs for breast cancer and BSE are also not prevalent.^{10,11} The findings in the current study may help the importance of educating women to correctly and routinely examine their breasts and giving them opportunities for supervised practice to increase confidence in their ability to perform BSE.

Consistent with previous findings,^{26,27} items in the health motivation subscale loaded on 2 factors (general concern about health and preventive health practices) in this study. The factor that represented the 3 items (5, 6, and 7) of the health motivation scale was dropped because of the low reliability

Table 5 • Item-Total Subscale Correlation and Cronbach Alpha for Subscales

Subscales	Number of Scale Items	Item-Total Subscale Correlation	Chronbach Alpha
Susceptibility	5	0.70–0.81	.82
Seriousness	7	0.62–0.78	.83
Benefits-BSE	6	0.58–0.81	.81
Barriers-BSE	6	0.66–0.78	.81
Confidence	11	0.47–0.71	.85
Health motivation	4	0.64–0.71	.87a* .81b†
Benefits-mammography	6	0.59–0.80	.82
Barriers-mammography	5	0.61–0.81	.75

*a is related to BSE.

†b is related to mammography.

Table 6 • Turkish-HBMS Subscales Item Means and Standard Deviations of Study Sample and 2 Predominantly American and Jordanian Samples

Scale	Current Study		Champion's Study ²⁴		Mikhail & Petro-Nustas's Study ²⁶	
	M	SD	M	SD	M	SD
Susceptibility	2.58	0.62	2.54	0.81	2.74	0.73
Seriousness	3.41	0.74	3.25	0.68	3.39	0.78
Benefits-BSE	3.60	0.64	3.88	0.52	3.97	0.59
Barriers-BSE	2.52	0.74	2.02	0.60	3.77	0.68
Confidence	3.16	0.55	3.31	0.57	2.65	0.73
Motivation	3.55	0.55	3.78	0.59	3.85	0.50
Benefits-mammography	3.84	0.56				
Barriers-mammography	2.74	0.69				

estimates. The health beliefs of the Turkish and Jordanian women associated with health motivation were very similar. Three items, including preventive health practices, do not seem relevant in the Turkish society. It is not surprising that preventive practices, such as “eat well balanced meals,” “exercise at least 3 times,” and “regular health checkups,” are not common in Turkish people. According to the national health survey report,¹⁴ Turkish women utilize healthcare services the least, and the rates of having regular health checkups are low in general population. More refinement of the confidence item 10 and health motivation scales is recommended to identify the beliefs associated with these concepts. Additional research is recommended on larger and different samples of Turkish women groups, especially for the health motivation subscale related with both BSE and mammography subscales. Testing of the instrument among culturally diverse populations and in other service delivery settings would strengthen the generalizability of the findings.

The psychometric study provides support for use of the Turkish language of CHBMS. Moreover, women's beliefs about breast cancer and screening behaviors were examined by mean and standard deviations. The item mean scores obtained were very similar to those of a study by Champion²⁴ and Mikhail and Petro-Nustas²⁶ except for the barriers-BSE and confidence subscales. For Jordanian women it was evident that the item mean of the barriers-BSE was higher and the item mean of the confidence was lower than both Turkish and American women.^{25,26} It might be the differences in perceiving more barriers and being less confident in performing BSE between Jordanian women and both the Turkish and American women. More refinement and testing of the barriers-BSE and confidence scales are needed to determine the indicators of the Turkish women's beliefs related with barriers-BSE and confidence subscales.

■ Conclusions

In this study, the Turkish version of the CHBMS consisting of 42 items related with BSE clustered into 7 subscales and 30 items related with mammography clustered into 6 subscales.

Turkish language version of CHBMS appears to be a useful instrument for assessing women's beliefs related to breast cancer, BSE, and mammography. It could easily be used by nurses and other healthcare providers to determine the beliefs in need of interventions. The scales also are very useful that they allow for immediate interventions based upon the results. To decrease breast cancer mortality through early detection, nurses must broaden their understanding of the factors that influence women's breast cancer screening behaviors. Furthermore, nurses have an important task in giving women advice and education aimed at preventive behaviors and encouraging healthy life. Nurses can provide ongoing education about the breast cancer screening behaviors and its importance, and help clients to detect early signs of breast cancer. There is a need for strategies to minimize the perception of barriers related to the breast cancer screening methods. So it is important to help women to overcome barriers so that women routinely practice BSE and have mammography done. In addition, this study is important for designing more effective health education programs and in order to meet the national target of a 15% in cancer mortality by the year 2005 in Turkey.

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