

Health Beliefs Related to Breast Self-Examination in a Sample of Turkish Women

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Purpose/Objectives: To examine health beliefs and sociodemographic and breast cancer–related variables influencing breast self-examination (BSE) practice.

Design: Descriptive, cross-sectional.

Setting: Two vocational training centers in Istanbul, Turkey.

Sample: 438 women were selected using a convenience sampling method. Participants had not had breast cancer and were not currently pregnant or breast-feeding. The mean age of participants was 33.51 years (range = 18–67).

Methods: Willing participants were asked to complete a self-administered questionnaire and the Turkish version of Champion's Health Belief Model Scale. The sample was categorized into two groups: performers (i.e., women who performed BSE at least occasionally) and nonperformers (i.e., women who had never performed BSE).

Main Research Variables: Perceived susceptibility to and seriousness of breast cancer, perceived benefits of and barriers to BSE, confidence in the ability to perform BSE, health motivation, and frequency of BSE practice.

Findings: Significant differences between performers and nonperformers correlated to age, marital status, health insurance, regular gynecologic visits, and education about breast cancer and BSE. The mean scores of perceived benefits and confidence were noticeably higher in performers. Stepwise logistic regression analysis yielded three significant predictor variables.

Conclusions: Women who had more confidence in their ability to perform BSE, had health insurance, and were informed about breast cancer were more likely to practice BSE.

Implications for Nursing: Women in Turkey are at great risk for advanced breast cancer and metastatic spread because of their lack of knowledge. Nurses must provide information on breast cancer etiology, risks, prevention, and detection. To promote BSE practice among Turkish women, tailored health education and health promotion programs should be developed based on a specific understanding of women's health beliefs.

Early detection of breast cancer is crucial for early treatment and reduction in related mortality. Recommended screening methods to reduce breast cancer mortality and morbidity include breast self-examination (BSE), clinical breast examination (CBE), and mammography. Of these, BSE, which should be performed monthly, provides an alternative and relatively simple, low-cost method of early detection that can be performed in conjunction with mammography and CBE (Norman & Brain, 2005). In Turkey, improving breast health care and making breast cancer a priority healthcare issue are new initiatives. MOH (2004) published guidelines for early detection of breast cancer, promoting monthly BSE practice and annual CBE for women older than the age of 20. Mammography is not widely available as a screening method and is recommended only for women at increased risk of breast cancer (MOH, 1999). The rate of regularly performing BSE is low in Turkey, and little information is available about factors related to the frequency of BSE practice (Gozum & Aydin, 2004; Ozturk, Engin, & Kisioglu, 1999; Secginli & Nahcivan, 2006). Health beliefs about BSE correlate with BSE rates; therefore, health beliefs related to BSE practice must be examined.

Several health authorities have recommended monthly BSE for all women as an effective primary tool in early breast cancer detection (Anderson et al., 2003; Apantaku, 2000; Smith et al., 2003; Susan G. Komen for the Cure, 2007). Although BSE has been recommended for years, monthly practice rates in many countries are low. Many factors have been associated with BSE performance, such as health beliefs (e.g., perceived susceptibility, seriousness, benefits, barriers, confidence, health motivation) and sociodemographic and breast cancer–related variables (Champion, 1999; Champion & Scott, 1997; Chouliara, Papadioti-Athanasiou, Power, & Swanson, 2004; Fish & Wilkinson, 2003; Fung, 1998; Gasalberti, 2002; Jarvandi, Montazeri, Harirchi, & Kazemnejad, 2002; Jirojwong & MacLennan, 2003; Jirojwong & Manderson, 2001; Lechner, De Nooijer, & De Vries, 2004; Petro-Nustus & Mikhail, 2002). In the current study, health beliefs about BSE were viewed in the context of the Health Belief Model ([HBM], Rosenstock, 1966), which attempts to explain and predict individual participation in programs for preventive and health-promoting behaviors. The HBM is the most widely used psychosocial approach for

Breast cancer is the most frequently occurring cancer in women and the most common cause of cancer death worldwide. The second leading cause of cancer death in Turkey, breast cancer accounts for 24% of female cancers, with a crude incidence rate of 7.32 per 100,000 women in 1999 (Ministry of Health [MOH], 1999). Although breast cancer incidence and mortality rates tend to be lower in Turkey than in Western countries, breast cancer incidence rates are increasing gradually. Statistical data from the first population-based cancer registration center in Turkey demonstrated that most women have advanced or metastatic breast cancer at the time of diagnosis (Haydaroglu et al., 2005). Frequency of advanced disease was higher in patients living in rural areas, and in situ breast cancer was diagnosed more often in those younger than age 50. Furthermore, 35% of patients had stage I–II disease, 61% had advanced disease, and 5% had metastatic disease at the time of diagnosis (Haydaroglu et al.).

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Quick Facts: Turkey

Geography, history, and political organization: Three percent of the total area lies in southeastern Europe, and the remainder is in southwestern Asia. The total area is 780,580 km², slightly larger than the size of Texas.

Social and cultural features: Turkey has a highly heterogeneous social and cultural structure, with sharp contrasts among population groups. The modern and traditional exist simultaneously within the society. Family ties are strong and influence the formation of values, attitudes, aspirations, and goals.

Economy: Turkey can be classified as a middle-income country. The rate of economic growth has been comparatively high in recent years, and the economy has undergone a radical transformation from an agricultural base to an industrial one, particularly since the 1980s.

Population: Turkey is the most populous country of the Middle East. The population was 72 million in 2005 and is expected to reach 76 million by 2010 and 88 million by 2025. Approximately 35% of the total population live in rural areas. Twenty-six percent of the total population are younger than age 15; only 7% are older than age 65.

Healthcare system priorities and programs: The Ministry of Health is officially responsible for designing and implementing nationwide health policies and delivering healthcare services. The Ministry also regulates prices of medical drugs and controls drug production and the operation of pharmacies. Health institutions that provide medical care and preventive health services include inpatient institutions (hospitals and health centers) and outpatient institutions (health units, health houses, infirmaries, mother and child health centers, and dispensaries). Services provided by the institutions include personal health cards, which are sent to the Ministry monthly together with information on health status. Mean life expectancy in women and men is 74.0 years and 69.1 years, respectively, with an overall mean of 71.5 years.

Education: Formal education includes preschool, primary school, secondary school, and higher education institutions. Eighty-seven percent of the population are literate.

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explaining health-related behavior, including BSE. According to the HBM, women who perceive themselves to be susceptible to breast cancer and believe that breast cancer is a serious disease are more likely to perform BSE. In addition, women are more likely to perform BSE if they encounter few barriers, believe BSE has many benefits, are motivated to be healthy, and are confident in detecting abnormal changes (Champion, 1993, 1999). Demographic factors (e.g., age, education, marital status) and structural variables (e.g., knowledge about the disease) also are presumed to be important modifying factors. Cues to action (e.g., symptoms, mass media, reminders from healthcare providers) are incorporated in the HBM as well. The model does not suggest that the variables are necessarily inter-related but rather that each of them is likely to be associated with BSE practice.

Although BSE has several benefits, studies suggest that, of the recommended methods for breast cancer detection, BSE is controversial. Many studies have failed to show any effect of BSE on breast cancer mortality (Green & Taplin, 2003; Smith et al., 2003; Thomas et al., 2002). Despite findings about the

lack of BSE mortality benefit, a large percentage of women do discover malignant tumors during BSE or accidentally (Foxall, Barron, & Houfek, 1998). Even if BSE does not decrease mortality, benefits of self-examination do exist, especially for women younger than age 40 who do not participate in mammography screening (Lechner et al., 2004). In addition, Champion (2003) concluded that regular BSE might result in earlier detection of breast cancer, which could contribute to more favorable mortality and morbidity outcomes. BSE also encourages women to become familiar with their breasts, increasing the likelihood of detecting changes or abnormalities (MOH, 2004; Norman & Brain, 2005; Yucel et al., 2005). Moreover, BSE is an alternative to mammography, which is considered to be a less effective screening test in premenopausal women because of denser breast tissue (Lechner et al.; Youssef & Kawar, 2003). Furthermore, mammography is not always accessible to women without health insurance, those who do not visit doctors regularly, and those who live in rural areas, all of whom have higher rates of breast cancer and detect disease at a later stage (Anderson et al., 2003; Epstein, Bertell, & Seaman, 2001). As a result, BSE is an ideal practice that is inexpensive and effective, especially for younger women who do not undergo other forms of breast cancer screening. BSE can increase breast cancer awareness for all women, particularly those in developing countries with limited resources (Anderson et al.; MOH, 2004; Montazeri, Haji-Mahmoodi, & Jarvandi, 2003).

The purpose of the current study was to examine the health beliefs and sociodemographic and breast cancer-related variables influencing BSE practice in a sample of Turkish women, which may help to identify strategies for implementing a BSE teaching program and provide information to nurses and other healthcare professionals who are working to enhance breast health. The study was designed to answer the following research questions: What is the rate of BSE practice? Do relationships exist among health beliefs and sociodemographic and breast cancer-related variables and BSE practice exist?

Methods

Design and Sample

The descriptive cross-sectional study was conducted in two vocational training centers (VTCs) in Istanbul, Turkey. VTCs are facilities for compulsory technical courses organized by the Ministry of National Education (2002) and provide mainly vocational skill and apprenticeship training courses, such as hair-dressing, skin care and beauty, men's and women's tailoring, cooking, baking, marble work and decoration, wood engraving, furniture making, carpentry, and child development and training. A convenience sample of 950 women who attended VTCs from September 2004 to April 2005 was identified. Of those, 438 (46%) gave informed consent and completed the questionnaires. Participants had to be at least 18 years old and able to read and write Turkish and could not have breast cancer, be pregnant, or be breast-feeding at the time of enrollment.

Instruments

Health beliefs were measured using Champion's revised Health Belief Model Scale (CHBMS) (Champion, 1993). The CHBMS consists of 53 items divided into eight subscales related to BSE and mammography. The Turkish version of the CHBMS showed adequate reliability and validity. A detailed

description of the Turkish CHBMS and its process of translation and testing can be found in Secginli and Nahcivan (2004).

Only six subscales of the Turkish CHBMS that were related to BSE were used in the current study (42 items total): perceived susceptibility to breast cancer (5 items), seriousness of breast cancer (7 items), benefits of BSE (6 items), barriers to BSE (6 items), confidence (11 items), and health motivation (7 items). For each item, participants were asked to rate their level of agreement using a five-point Likert scale from one (strongly disagree) to five (strongly agree). Each item had a maximum score of five, with higher scores indicating stronger feelings related to that construct. The internal consistency reliability of the instrument was assessed using Cronbach's alpha, which ranged from 0.73–0.91.

Participants supplied their sociodemographic information (i.e., age, marital status, years of education, employment status, income level, religion, and health insurance coverage) and breast cancer–related variables (i.e., family history of breast cancer, regular gynecologic visits, education about breast cancer and BSE, and sources of breast cancer information) in a questionnaire. In addition, the question “How often do you practice breast self-examination?” was asked to determine the frequency of BSE practice, with the response options of “never,” “occasionally,” or “regularly (every month).”

Procedure

Protocols were approved by the city provincial director and the directors of the VTCs. Two research assistants were trained to collect data. Verbal consent to participate was obtained from participants before administering questionnaires. Respondents were assured that their responses were private and confidential and informed that the data would be used strictly for scientific purposes. Self-administered questionnaires were distributed by the researchers, and participants were asked during their presence at the centers to read all of the statements carefully and respond truthfully. Data collection averaged 15–20 minutes per participant.

Data Analysis

Descriptive analysis in terms of percentages, means, and standard deviations was conducted initially. Participants were divided into two groups: performers (i.e., those who performed BSE at least once) and nonperformers (i.e., those who had never performed BSE). The Student unpaired *t* test was used to determine whether a relationship existed between health beliefs and BSE performance. The chi-square test was used to determine whether a relationship was present between sociodemographic breast cancer–related variables and BSE performance. Logistic regression analysis with stepwise entry was used to examine the relationship between BSE performance and health beliefs and sociodemographic and breast cancer–related variables. Data were analyzed using SPSS® (SPSS Inc., Chicago, IL) version 11.0 for Windows® (Microsoft Corporation, Redmond, WA). The overall significance level was set at 0.05.

Results

Sample

Of the participants (*N* = 438), 49% were performers and 51% were nonperformers. Only 5% of the sample performed BSE at regular monthly intervals. The mean age of the par-

ticipants was 33.51 (*SD* = 11.28, range 18–67 years), with 68% of the sample younger than age 40. The participants were divided almost equally into married (51%) and single (44%) women, with 5% either divorced or widowed. In terms of education, 20% of participants had attended school for one to five years, 17% had attended school for six to eight years, 59% had attended school for more than nine years, and 4% were illiterate. Seventy-five percent of the participants had health insurance. Most participants were not working (66%) and perceived their income level as middle (43%) or good or very good (43%). All participants were Islamic; the specific ethnic makeup of the sample was not reported. Only 14% of the women indicated that they had regular gynecologic visits, and 8% indicated a family history of breast cancer.

Fifty-five percent of the participants reported that they were educated about breast cancer. Participants received breast cancer information from various sources, the most popular being television and radio programs (23%), followed by printed materials (e.g., newspapers, leaflets) (11%), doctors (10%), and family and friends (4%). Nurses were reported as the source of breast cancer information only 3% of the time.

Health Beliefs

Response percentages to items on the six belief scales are summarized in Table 1. Fifty-eight percent of the sample did not believe they were susceptible to breast cancer and 36% were not sure. Thirty-eight percent did not believe breast cancer was a serious illness. Sixty-two percent of the participants recognized the benefits of BSE, but only 24% reported being confident in their ability to perform BSE correctly. Eighty-one percent of the sample believed that barriers prevented them from examining themselves, and 27% were not motivated to perform BSE. The barriers for not performing BSE were, “Doing BSE will be unpleasant” (91%), “Doing BSE will take too much time” (89%), “BSE will be embarrassing to me” (88%), “Doing BSE during the next year will make me worry about breast cancer” (85%), “I don’t have enough privacy to do BSE” (68%), and “I feel funny doing BSE” (67%).

Comparison of Performers and Nonperformers

Comparison analyses of performers and nonperformers on health beliefs were conducted using unpaired *t* tests. Performers had higher mean scores for perceived benefits (*t* = 3.09, *p* = 0.000) and confidence (*t* = 8.41, *p* = 0.000). No significant differences between the two groups were recorded on the

Table 1. Responses to Champion's Health Belief Model Subscales

| Subscale | Disagree | | Unsure | | Agree | |
|-------------------|----------|----|--------|----|-------|----|
| | n | % | n | % | n | % |
| Susceptibility | 256 | 58 | 156 | 36 | 26 | 6 |
| Seriousness | 168 | 38 | 121 | 28 | 149 | 34 |
| Benefits of BSE | 81 | 19 | 85 | 19 | 272 | 62 |
| Barriers of BSE | 51 | 12 | 31 | 7 | 356 | 81 |
| Confidence | 159 | 36 | 173 | 40 | 106 | 24 |
| Health motivation | 121 | 28 | 33 | 8 | 284 | 65 |

N = 438

BSE—breast self-examination

susceptibility, seriousness, barriers, and health motivation subscales ($p > 0.05$) (see Table 2).

Table 3 provides a comparison of performers and nonperformers on sociodemographic and breast cancer–related variables. Women who were 40–67 years old, were married, had health insurance, made regular gynecologic visits, and were educated about breast cancer ($p < 0.05$) were more often performers than nonperformers. No differences were observed between the two groups in regard to educational status, employment status, perceived income level, or family history of breast cancer.

Logistic regression analysis was used to test multivariate relationships among variables that were significant in bivariate analysis. Health beliefs and sociodemographic and breast cancer–related variables were entered independently into the logistic regression analysis to identify predictors of BSE frequency, which resulted in three variables with significant odds ratios ([ORs], see Table 4). Participants were more likely to perform BSE if they had health insurance ($OR = 0.57$, 95% confidence interval [CI] = 0.34–0.96), were educated about breast cancer ($OR = 2.94$, 95% CI = 1.87–4.62), and were confident about performing BSE ($OR = 1.10$, 95% CI = 1.06–1.14).

Discussion

Although the findings indicate that nearly half of the women performed BSE at least occasionally, the 5% rate of monthly BSE is lower than in previous studies in European countries (Chouliara et al., 2004; Norman & Brain, 2005; Umeh & Rogan-Gibson, 2001), the United States (Foxall et al., 1998; Salazar, 1994), and Asian countries (Fung, 1998; Montazeri et al., 2003; Petro-Nustus & Mikhail, 2002). However, the rate of performing BSE in this study was consistent with other Turkish studies, confirming findings that Turkish women are less likely to perform BSE (Dundar et al., 2006; Gozum & Aydin, 2004; Karayurt & Dramal, 2007; Secginli & Nahcivan, 2006).

Most women did not believe that they were susceptible to breast cancer, and only a third agreed that breast cancer is a serious illness. The majority of participants reported that barriers to (e.g., unpleasant, embarrassing, time consuming) and benefits of (e.g., finding lumps early, feeling good, decreasing chances of requiring radical or disfiguring surgery) performing BSE existed. Several studies have found that knowledge of breast cancer and BSE was associated with BSE practice (Champion & Menon, 1997; Fish & Wilkinson, 2003; Petro-Nustus & Mikhail, 2002; Secginli & Nahcivan, 2006; Umeh & Rogan-Gibson, 2001). Almost half of the women reported

that they did not know about breast cancer, which correlated with low BSE performance. Thus, barriers as well as lack of knowledge about breast cancer and BSE may account for the low rate of monthly performance.

Significant differences between performers and nonperformers were identified with respect to benefits and confidence variables; performers scored higher on benefits and confidence variables, which is consistent with findings from other studies conducted in different regions of Turkey (Dundar et al., 2006; Gozum & Aydin, 2004). Contrary to other studies in the United States, Greece, and Hong Kong (Champion & Miller, 1992; Fung, 1998; Umeh & Dmitrakaki, 2003) and one study in Turkey (Secginli & Nahcivan, 2006), perceived susceptibility to breast cancer was not significantly associated with performing BSE; findings were similar to some studies performed in Turkey (Gozum & Aydin) and Jordan (Petro-Nustus & Mikhail, 2002). Perceived seriousness appeared to be the weakest predictor of HBM constructs in other studies (Champion, 1993; Champion & Miller, 1992; Fung) because almost all women considered breast cancer a serious condition. In the current study, only a third of participants believed breast cancer was a serious disease; however, the lack of a significant relationship between perceived seriousness and performing BSE was consistent with the previous studies (Champion, 1993; Fung). The HBM presumes that women who believe they have few barriers to BSE and have higher motivation are more likely to perform BSE (Champion, 1993), which is consistent with the results of several studies (Champion & Menon, 1997; Fung; Norman & Brain, 2005; Secginli & Nahcivan, 2006; Umeh & Dmitrakaki); however, no significant association among perceived barriers and health motivation and BSE was noted. Performers and nonperformers agreed with barriers to performing BSE. The lack of significance of perceived barriers and BSE practice is unclear. Measured barriers were feeling uncomfortable performing BSE, concern and worry about breast cancer, not having sufficient time, finding the procedure unpleasant and embarrassing, and lack of privacy. Champion and Miller viewed cancer worry as a potential barrier to preventive action in the HBM and suggested that fear of diagnosis may be a global phenomenon that often delays early diagnosis of breast cancer (Smith et al., 2006). Umeh and Dmitrakaki concluded that “lack of privacy may be more familiar to practitioners working in developing countries with a communal culture, where women may enjoy less privacy within the family home and, hence, find it difficult to carry out the necessary procedures” (p. 110). Fish and Wilkinson (2003) also suggested that one possible explanation for the “unpleasantness” barrier might be traditional attitudes associated with the body.

Table 2. Differences in Health Beliefs Between Breast Self-Examination Nonperformers and Performers

| Variable | Nonperformers (N = 225) | | Performers (N = 213) | | t | p |
|-------------------|-------------------------|------|----------------------|------|-------|------|
| | \bar{X} | SD | \bar{X} | SD | | |
| Susceptibility | 2.34 | 0.67 | 2.37 | 0.69 | 0.525 | 0.60 |
| Seriousness | 2.93 | 0.80 | 2.92 | 0.75 | 0.160 | 0.87 |
| Benefits | 3.37 | 0.74 | 3.58 | 0.70 | 3.092 | 0.00 |
| Barriers | 4.00 | 0.71 | 4.04 | 0.56 | 0.642 | 0.52 |
| Confidence | 2.60 | 0.50 | 3.05 | 0.63 | 8.411 | 0.00 |
| Health motivation | 3.57 | 0.60 | 3.60 | 0.70 | 0.503 | 0.62 |

Table 3. Bivariate Relationships Between Variables and Performing Breast Self-Examination

| Characteristic | Nonperformers (N = 225) | | Performers (N = 213) | | X ² | df | p |
|---|-------------------------|----|----------------------|----|----------------|----|------|
| | n | % | n | % | | | |
| Age (years) | | | | | 20.189 | 1 | 0.00 |
| 18–39 | 175 | 78 | 123 | 58 | | | |
| 40–67 | 50 | 22 | 90 | 42 | | | |
| Marital status | | | | | 7.239 | 1 | 0.01 |
| Married | 101 | 45 | 123 | 58 | | | |
| Other (single, widowed, divorced) | 124 | 55 | 90 | 42 | | | |
| Educational status (years) | | | | | 1.311 | 2 | 0.52 |
| 0–5 (i.e., illiterate and 1–5) | 59 | 26 | 46 | 22 | | | |
| 6–8 | 37 | 17 | 36 | 17 | | | |
| 9+ | 129 | 57 | 131 | 61 | | | |
| Employment status | | | | | 2.633 | 2 | 0.11 |
| Working | 69 | 31 | 81 | 38 | | | |
| Not working | 156 | 69 | 132 | 62 | | | |
| Income level | | | | | 2.720 | 2 | 0.26 |
| Very bad or bad | 38 | 17 | 27 | 13 | | | |
| Middle | 88 | 39 | 98 | 46 | | | |
| Very good or good | 99 | 44 | 88 | 41 | | | |
| Health insurance | | | | | 14.839 | 1 | 0.00 |
| Uninsured | 70 | 31 | 33 | 15 | | | |
| State or private | 155 | 69 | 180 | 85 | | | |
| Regular gynecologic visits | | | | | 22.438 | 1 | 0.00 |
| Yes | 13 | 6 | 45 | 21 | | | |
| No | 212 | 94 | 168 | 79 | | | |
| Family history of breast cancer | | | | | 2.546 | 1 | 0.11 |
| Yes | 13 | 6 | 21 | 10 | | | |
| No | 212 | 94 | 192 | 90 | | | |
| Educated about breast cancer | | | | | 52.601 | 1 | 0.00 |
| Yes | 85 | 38 | 154 | 72 | | | |
| No | 140 | 62 | 59 | 28 | | | |
| Educated by healthcare professionals about breast self-examination | | | | | 27.716 | 1 | 0.00 |
| Yes | 19 | 8 | 59 | 28 | | | |
| No | 206 | 92 | 154 | 72 | | | |

Participants generally perceived themselves to be health motivated, even though regular health check-up rates are low in Turkey (MOH, 1996) and preventive practices, such as eating well-balanced meals and exercising at least three times a week, are not practiced commonly by Turkish people. Respondents may have considered themselves health motivated because health motivation items were loaded separately on two factors (general concern about health and preventive health practices) in the Turkish CHBMS (Gozum & Aydin, 2004; Secginli & Nahcivan, 2004), contrary to the original scale (Champion, 1993), attributing their responses mostly to a general concern about health. Consequently, no significant association was found between motivation and BSE practice.

Sociodemographic and breast cancer-related variables correlated with BSE performance. Consistent with other studies (Champion & Menon, 1997; Gasalberti, 2002; Montazeri et al., 2003; Petro-Nustus & Mikhail, 2002), participants who were age 40 or older, were married, had health insurance, made regular gynecologic visits, and were educated about breast cancer and BSE were more likely to perform BSE. Fung (1998) suggested that health insurance and regular gynecologic visits often bring women into contact with the healthcare system, thus increasing their chances of learning

BSE and obtaining encouragement in performing BSE from healthcare professionals. Petro-Nustus and Mikhail also suggested that routine CBE may help women to become more confident in performing BSE and provide knowledge about the importance of BSE to detect breast cancer early. Similarly, other Turkish studies found a dose-response relationship between the level of health insurance and BSE performance (Secginli & Nahcivan, 2006; Yucel et al., 2005). As Champion and Menon noted, the trend indicates that involvement in a healthcare system and continuity with healthcare professionals are related to a higher frequency of BSE performance. Contrary to other studies in the United States (Erblich, Bovbjerg, & Valdimarsdottir, 2000; Gasalberti; Salazar, 1994) and Iran (Jarvandi et al., 2002; Montazeri et al.), no significant relationships were found among BSE performance, family history of breast cancer, and educational level.

The results of logistic regression analysis revealed that confidence in the ability to perform BSE, health insurance, and information about breast cancer were significant predictors for BSE performance. Similar to other studies in the United States, Thailand, and Britain (Champion, 1993; Champion & Miller, 1992; Jirojwong & MacLennan, 2003; Jirojwong & Manderson, 2001; Norman & Brain, 2005), women who were confident in their ability to perform BSE were more likely to

Table 4. Logistic Regression Analysis of Variables for Performing Breast Self-Examination

| Variable | β | SE | Wald | p | OR | 95% CI |
|---|---------|-------|--------|-------|-------|-------------|
| Age (years) | -0.316 | 0.271 | 1.363 | 0.243 | 0.729 | 0.429–1.239 |
| Marital status | -0.007 | 0.240 | 0.001 | 0.976 | 0.993 | 0.621–1.588 |
| Health insurance | -0.563 | 0.264 | 4.554 | 0.033 | 0.570 | 0.340–0.955 |
| Regular gynecologic visits | 0.587 | 0.409 | 2.065 | 0.151 | 1.799 | 0.808–4.007 |
| Educated about breast cancer | 1.077 | 0.231 | 21.814 | 0.000 | 2.937 | 1.869–4.615 |
| Educated about breast self-examinations | 0.303 | 0.358 | 0.717 | 0.397 | 1.355 | 0.671–2.734 |
| Benefits | 0.025 | 0.022 | 1.340 | 0.247 | 1.025 | 0.983–1.070 |
| Confidence | 0.093 | 0.019 | 23.378 | 0.000 | 1.097 | 1.057–1.139 |
| Constant | -3.809 | 0.736 | 26.803 | 0.000 | 0.022 | – |

N = 438

CI—confidence interval; OR—odds ratio; SE—standard error

Note. Model chi-square = 112,364; df = 8; p = 0.000

examine their breasts; however, most women disagreed with the high confidence items, such as “to know how to perform BSE,” “feeling confident to perform BSE correctly,” and “can use the correct part of the fingers when examining breasts,” which indicates that women should be encouraged to perform BSE and educated about the correct method of performing BSE and its potential to detect even small changes in breasts, as supported by Ashton, Karnilowicz, and Fooks (2001) and Jirojwong and Manderson. As in other studies of Turkish (Secginli & Nahcivan, 2006), Jordanian (Petro-Nustus & Mikhail, 2002), and Chinese (Fung, 1998) women, the results of the current study indicate that women with health insurance practiced BSE significantly more than women without health insurance. Having information about breast cancer was another important predictor of performing BSE, which has been well established in previous studies (Champion & Menon, 1997; Jarvandi et al., 2002). According to Ali and Khalil (1996), increasing people’s knowledge about cancer is an important strategy in influencing their decisions about whether to participate in preventive cancer practices.

Developing strategies to increase breast health awareness is a major challenge to healthcare professionals around the globe (Smith et al., 2006). Several studies have suggested that breast cancer education and BSE instruction from a nurse or physician increased the frequency of practice, particularly when a woman is shown BSE in a one-on-one demonstration (Ashton et al., 2001; Fish & Wilkinson, 2003; Foxall et al., 1998; Salazar, 1994). Nevertheless, only 13% of participants mentioned healthcare professionals as a source of breast health information. Therefore, awareness among healthcare professionals as well as the general public should be promoted (Smith et al., 2006). Moreover, consistent with findings of previous studies performed in Turkey (Secginli & Nahcivan, 2006; Yucel et al., 2005) and Jordan (Petro-Nustus & Mikhail, 2002), radio and television advertisements and programs were identified as the main source for information on breast cancer, suggesting that the sources provide important opportunities to reach women of all ages. However, as Petro-Nustus and Mikhail mentioned, caution should be taken when receiving information about breast cancer and BSE from media sources because they may not provide accurate scientific information. Educational strategies, such as using breast models and videotapes and teaching women how to examine their breasts by one-on-one demonstrations, may help them feel more con-

fidant (Foxall et al., 1998; Norman & Brain, 2005; Youssef & Kawar, 2003). Furthermore, VTCs might be used more effectively in changing and promoting interventions for breast health because most VTC attendants in Turkey are women. Health education programs might be planned in VTCs to increase breast cancer knowledge and early-detection methods and promote positive attitudes toward BSE. Programs should focus on providing accurate information about breast cancer, emphasizing the importance of performing BSE in improving patients’ chances of survival, and increasing women’s confidence and BSE knowledge. By using the HBM variables for assessment, nurses can gain an understanding of the beliefs that influence women’s BSE practice. Then, interventions can be designed to influence the beliefs. According to the results of the current study, beliefs about perceived benefits and confidence are areas of particular significance in influencing BSE practice. Educating women about the benefits of performing regular BSE increases the probability of detecting breast cancer at an early stage (Foxall et al.; Ashton et al.; Umeh & Rogan-Gibson, 2001). Therefore, to increase BSE frequency, healthcare professionals should enhance information delivery about the benefits of BSE. On the whole, participants in the current study had a relatively low level of confidence about performing BSE (i.e., lack of confidence caused participants to abstain from BSE).

Limitations

Results cannot be generalized beyond the study sample because of the cross-sectional design, convenience sampling technique, and use of self-report measures. The study looked at health beliefs and sociodemographic and breast cancer-related variables as they relate to BSE practice, at one particular point in time and in one area. The study provides preliminary insights into perceptions associated with BSE; however, most women were not educated about breast cancer and BSE. Therefore, future studies should take the limitations into account and focus on more representative cross-cultural samples, with women who have an average awareness about breast cancer and BSE, to verify the present findings.

Conclusion

Study findings provide valuable information for nurses to promote BSE practice. According to the results, beliefs

about confidence and perceived benefits are areas of particular significance in attempts to increase BSE practice. Sociodemographic and breast cancer-related variables also can be a source of valuable information. By using the HBM constructs, nurses can gain an understanding of health beliefs that influence women's BSE practice. The information then can provide a basis for individualized interventions designed to foster women's motivation to practice BSE. Studies should be conducted to identify issues that increase awareness of BSE, its value, and how it should be promoted further. To do this effectively, modification of women's

health beliefs continues to be a major aspect of interventions to promote breast cancer screening (Vietri, Poskitt, & Slaninka, 1997).

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