RESEARCH COMMUNICATION

Health Beliefs and Breast Self-Examination in a Sample of Turkish Women Academicians in a University

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Abstract

<u>Objective</u>: The purpose of this study was to evaluate health beliefs and BSE behavior of female academicians in a Turkish university. <u>Methods</u>: This descriptive study was conducted at various faculties located in Ege University, Izmir, Turkey, in 2005. The sample consisted of 224 female academicians. Data were collected using a self-administered questionnaire and the Turkish version of Champion's Health Belief Model Scales (HBM). Descriptive statistics, t-test and Mann Whitney u analysis were conducted. <u>Results</u>: The percentage of participants who regularly performed BSE was 27.7 %. Benefits and health motivation related to BSE ranked either first or second, along with confidence. Perceived barriers to BSE had the lowest item mean subscale score in academicians. Single academicians perceived susceptibility and seriousness higher than their married counterparts. Family history of breast cancer of participants affected their health beliefs subscale. <u>Conclusions</u>: BSE performance among participants was more likely in women academicians who exhibited higher confidence and those who perceived fewer barriers related to BSE performance, complying with the conceptual structure of the HBM. Therefore, it is recommended that in order to increase the rates of regular breast cancer screening, mass health protective programs based on the HBM should be executed for women.

Key Words: Breast cancer - screening - self-examination - health belief model - confidence - barriers

Introduction

Breast cancer is the most commonly diagnosed cancer in women, accounting for 24.4% of the total in Turkish women (The Ministry of Health of Turkey, 2004). Breast cancer not only threatens the life of a woman but also affects her gender identity and body image. Therefore, early detection of breast cancer can secure women against premature mortality, physical defects as well as psychological distress.

The early detection and diagnosis rate of breast cancer is considerably low among Turkish women compared with the women in Western countries (Dündar et al., 2006; Secginli and Nahcivan, 2006; Ozmen 2008; Parsa et al., 2008). This fact reflects the lack of awareness of breast cancer as well as low cancer detection and prevention activities among Turkish women (Ceber et al., 2006). The Turkish Association for Cancer Research and Control (TACRC), like other cancer society (ACS), recommends breast self-examination (BSE), clinical breast examination (CBE), and mammography in their guidelines for early breast cancer detection (Smith et al., 2003; TACRC, 2006, ACS, 2008, Özmen 2008). Although the efficiency of BSE is still unclear, BSE is an important screening practice and an economical, simple, and non-invasive screening method for early detection of breast cancer. Turkey is a developing country, and new health politics about breast cancer are consistently constituted. Thus, one of the goals

of TACRC (2006) is to increase BSE performance and mammogram use among asymptomatic women for early detection of breast cancer.

Previous studies have demonstrated that women in professional occupational groups are at increased risk for breast cancer mortality (Goldberg and Labreche, 1992; Rubin et al., 1993; Bernstein et al., 2002). This is likely due to social and economic factors associated with the disease. These factors affect early detection practices. In some studies there is a suggestion that women in certain occupations, such as teaching, have a higher risk of breast cancer (Goldberg and Labreche, 1992; Rubin et al., 1993; Bernstein et al., 2002) although the evidence has been equivocal so far (Coogan and Clapp, 1996; Petralia and Vena, 1999). Teachers have been identified as an occupational group with elevated mortality and incidence for breast cancer and other types of cancers. Ongoing epidemiological research seeks to understand the extent to which known or suspected risk factors for breast cancer differentially affect teachers and that early detection is important in teachers. Over 25 of a total of 115 studies have internationally documented increased incidence of breast cancer among teachers, as noted in a review of occupational risk factors for breast cancer (Goldberg and Labreche, 1992). Similarly, another study suggested that teachers have a greater chance of breast cancer death than the members of other occupational groups (Rubin et al.,

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1993). The California Teachers Study (CTS) has shown that female teachers have a 51% higher age-standardized invasive breast cancer incidence rate and a 67% higher *in-situ* breast cancer incidence rate than would be expected based on race-specific statewide rates after three years of follow-up (Bernstein et al., 2002). These studies were based on registry data where it was impossible for confounders such as lifestyle and reproductive factors to be controlled. However, the results of other studies do not support a positive association between this occupation and the risk of breast cancer (Coogan and Clapp, 1996, Petralia and Vena, 1999).

Although several studies have shown that teachers are aware of breast cancer risk factors and recommended screening guidelines (Pavia et al., 1999; Yanni Seif and Aziz, 2000; Jarvandi et al., 2006), some studies mentioned inadequate screening behaviors among female teachers (Galedar, 2001; Madanat and Merrill, 2002). Studies of female teachers and academics in Iran (Jarvandi et al., 2002), Nigeria (Odusanya, 2001) and Malaysia (Parsa et al., 2008) showed similarly low prevalence of performing monthly BSE (6%, 11%, and 19%, respectively). The results of a Turkish-study of women university academicians showed that only 13.4% perform regular BSE (Ekici and Utkualp, 2007). Approximately 30% of the teachers above the age of 40 in Italy undertook monthly BSE (Pavia et al., 1999). To increase teachers' and academicians' performance of breast cancer screening, we should know how they feel about early detection of breast cancer, as well as the barriers to and the predictors of the practice of BSE and other early-detection methods (Champion, 1993). Health beliefs play a role in a person's interest in health protective behavior which leads to action (Champion, 1999; Petro-Nustus and Mikhail, 2002; Lee, 2003). The Health belief model (HBM) appears to be most frequently cited in the literature with regard to breast cancer screening (Rosenstock et al., 1988; Foxall et al., 1998; Yarbrough and Braden, 2001; Lee, 2003; Gözüm and Aydin, 2004; Canbulat and Uzun, 2008; Karayurt et al., 2008). The model suggests that change in preventive health behaviors are based on six factors namely: susceptibility, seriousness, benefits, barriers, confidence and health motivation. According to HBM, women who believe that they are susceptible to breast cancer and that breast cancer is a serious condition are more likely to perform breast cancer screening. Besides, women who perceive more benefits from screening practices and fewer barriers are more likely to perform breast cancer screening. Moreover, the more motivated women are to promote their health and the more confident they are in their ability to perform BSE, the more likely they are to practice BSE (Champion, 1993).

It is widely accepted that teachers and academicians play important roles in establishing healthy behaviors. Academicians have been shown to be good agents of information transfer and they are in contact with a large segment of the population. Considering the important role academicians have in education, they are in a position to educate young people about breast cancer risk factors, types of screening practices, and influence behaviors that will reduce the risk of future breast cancer morbidity and mortality. Academicians may also play an important role in health education, helping young people to develop a healthy behavior including BSE. Therefore studies for breast cancer screening practices and beliefs among academicians could be carried out. Some studies were conducted to assess the level of breast cancer knowledge and behaviors in teachers and in academicians (Yanni Seif and Aziz, 2000; Odusanya, 2001; Demirkiran et al., 2007; Ekici and Utkualp, 2007). A lot of studies in Turkey evaluated health beliefs relevant to breast cancer screening behaviors in varied women groups and (Avci et al., 2008; Canbulat and Uzun, 2008; Karayurt et al., 2008) none of them have evaluated health beliefs together with screening behaviors of women academicians in a university. Therefore, the purpose of this study was to evaluate the rates of performance of breast cancer screening behaviors and health beliefs of a convenient sample of female academicians.

Materials and Methods

Sample and procedures

The study utilized a descriptive exploratory design with a coded self-administered questionnaire. The study was conducted in Ege University, Izmir, Turkey, a large institution located in Western Anatolia. The study population consisted of 302 Turkish academicians, who work at the university other than in the Department of Health Sciences. A total of 224 agreed to participate in the study (74% response). Data were collected from the participants who had no personal history of breast cancer, were not pregnant or breast-feeding, and were willing to participate in the study. Seventy eight (26%) participants refused to participate or did not meet the inclusion criteria.

Data collection was carried out during February-March 2005 and data were collected in face to face interviews. The survey form prepared by the researchers was evaluated by the ethical committee of Izmir Atatürk School of Health in Ege Unıversity. Required written permission was obtained from beyond faculty of health before initiating the research. The participants were invited to participate after an explanation by the investigator. Potential participants were informed that participation was voluntary. The completion of the instruments took an average of 15 minutes.

Instruments

In this study, data were collected by using a self-administration questionnaire prepared by researchers and the Turkish version of Champion's Health Belief Model Scale.

Based on a literature review, a self-designed form was used to assess relevant sociodemographic and other variables. Sociodemographic variables included age, current marital status, education level, academic degree. Information about the number of births, the age of first pregnancy were collected from women academicians. Other variables included perception of breast cancer risk, history of breast cancer among family, personal history of breast problems, BSE practice and frequency in the previous year. Health beliefs were assessed using the

Champion's revised Health Belief Model Scale (HBMS) (Champion, 1993). The instrument was developed and tested for American women, and then it was revised (1993, 1999) by Champion. This scale was adapted by Gozum and Aydin (2004) for use with Turkish people. The Turkish version of the HBMS consisted of 36 items that were clustered into six subscales: susceptibility (three items), seriousness (seven items), motivation (seven items), benefits of BSE (five items), barriers to BSE (eleven items) and confidence of BSE (ten items). The scale items have a 5-point Likert format with the following coding: strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). Higher scores indicate stronger feelings related to that construct. All subscales are positively related to BSE practice except for barriers which are negatively associated. Reported Cronbach's alpha for the HBMS ranged from 0.69–0.83. Cronbach's alpha coefficient for the current study ranged from 0.720.91. In this study, Cronbach's alpha coefficients were 0.72 for susceptibility, 0.72 for seriousness, 0.77 for health motivation, 0.77 for barriers-BSE, 0.86 for benefits-BSE, 0.91 for BSE self-efficacy, indicating dequate reliability the scale.

Statistical analyses

For the data obtained at the end of the research a min-max consistency control was conducted after coding. Data were evaluated using a SPSS 14.0 computer program. Descriptive statistics included the mean, median, standard deviation (SD), frequency distributions and percentages.

Table 1. Baseline Characteristics of Turkish Female Academicians in Ege University, Turkey 2005

Characteristic	Category	n=224	%
Age	20-29	73	32.6
	30-39	84	37.5
	40-49	45	20.1
	50 +	22	9.8
Educational Level	Msc	63	28.1
	PhD	145	64.7
	Other	16	7.2
Position	Res Assist	135	60.3
	Assist Prof	37	16.5
	Assoc Prof	19	8.5
	Professor	33	14.7
Marital Status	Single	100	44.6
	Married	124	55.4
Children	Yes	96	42.9
	No	128	57.1
Premenopausal	Yes	200	89.3
	No	24	10.7
Family history	Yes	25	11.2
	No	199	88.8
Breast Biopsy	Yes	17	7.6
	No	207	92.4

Table 2. Breast Self-Examination Practices of Turkish Female Academicians in Ege University

Characteristic	Category	n=224	%
Performing BSE	Yes	114	50.9
	No	110	49.1
Frequency of BSE	Not Performing	110	49.1
	Irregularly	52	23.2
	Monthly	62	27.7

Internal consistency was calculated by Cronbach's alpha reliability analysis. Also the t test and Mann Whitney U test were applied, all with significance at 0.05.

Results

Characteristics of the participantsare presented in Table 1. The mean age of participants was 35.6 years (SD=9.1) with an age range between 23 and 60 years. The majority of the participants (64.7%) had up to a PhD degree and 28.1% had a MSc degree. All of the participants had social insurance. Approximately 11% of the participants were postmenopausal and 11.2% had a family history of breast cancer. A personal history of breast cancer as having biopsy was reported by 7.6% of the participants.

The percentage of participants who performed BSE was 50.9 while the percentage of female academicians who regularly performed BSE was 27.7 % (Table 2). In this study, it was found that participant age groups, education level, academic degree and menopausal status of breast cancer of the participants did not affect their health beliefs (Table 3). Single academicians perceived susceptibility (t=2.40, p=0.01) and seriousness (t=2.25, p=0.02) higher than the married ones. Family history of breast cancer of participants affected their health beliefs subscale (perceived susceptibility, mwu= 1456.50, p=0.00). It was found that perceived barriers relating to BSE of participants were higher in those who did not have a practice of BSE (t=3.66, p=0.00). Confidence was significantly higher in those with regular practice of BSE (t=5.51, p=0.00).

Discussion

Although we found in our study that nearly half of the Turkish academicians in Izmir university performed BSE at least occasionally, the percentage of those with regular BSE was rather low. The reason may be that participants do not attach importance to BSE personally. On the other hand the percentage of academicians who perform regular BSE (27.7%) was much higher than a previous Turkish study (13.4%) in academicians (Ekici and Utkualp, 2007). A different study that was carried out in Western Turkey by Dundar et al. (2006) reported that only 10.2% of the Turkish women studied performed regular BSE. Nahcivan and Secgili (2007) found only 5% of the women performed regular BSE. Some studies found out a similar percentage of BSE performance in teachers, 53.8% of the teachers in Western Turkey decelerated BSE (Demirkiran et al., 2007) and 30% of the teachers in Italy undertook

Table 3. Means (M), Rank (R), Standard deviations (SD), and Cronbach alphas (α) for the Health Belief Model Subscales

Scale	Min-max	R	M (diving)	SD	α	Items
Benefits	5-25	1	19.86 (3.97)	3.96	0.86	5
Motivation	9-35	2	26.75 (3.82)	4.33	0.77	7
Confidence	10-50	3	32.28 (3.22)	7.55	0.91	10
Seriousness	7-33	4	21.37 (3.05)	5.10	0.77	7
Susceptibility	3-13	5	6.96 (2.23)	2.12	0.72	3
Barriers	11-49	6	23.61 (2.14)	6.08	0.77	11

Table 4. Comparison of Demographic Features and other Characteristics with Health Beliefs in Turkish Female Academicians in Ege University, Turkey 2005

Parameter	Category	Susceptibility	Seriousness	Benefits	Barrier	Confidence	Motivation
Age groups	≤40	7.08±2.13	21.69±4.90	20.04±3.87	23.22±5.85	31.80±7.49	26.58±4.11
	>40	6.66±2.06	20.54±5.55	19.38±4.18	24.62±6.59	33.53±7.62	27.20±4.84
	t	1.325	1.511	1.119	1.546	1.537	0.973
	p	0.187	0.132	0.264	0.123	0.126	0.332
Education	PhD	7.02±2.07	21.37±5.13	19.87±3.99	23.37±5.88	32.19±7.40	26.67±4.34
	Other	6.18±2.63	21.37±4.84	19.75±3.60	26.68±7.88	26.68±7.88	27.75±4.09
	mwu	1296.50	1559.00	1602.00	1263.00	1406.50	1464.00
	p	0.136	0.674	0.802	0.108	0.302	0.422
Marital status	Single	7.34±2.17	22.23±5.14	20.16±3.28	23.86±6.57	32.72±7.18	26.79±4.41
	Married	6.66±2.03	20.69±4.99	19.62±4.43	23.41±5.67	31.92±7.85	26.72±4.28
	t	2.406	2.258	0.997	0.538	0.780	0.110
	p	0.01	0.02	0.32	0.59	0.43	0.91
Position	Res Assist	7.15±2.16	21.62±4.83	20.20±3.97	22.97±6.05	31.82±7.72	26.71±3.94
	Professor	6.67±2.03	21.01±5.50	19.34±3.91	24.58±6.03	32.96±7.28	26.82±4.88
	t	1.668	0.876	1.593	1.946	1.102	0.184
	p	0.09	0.38	0.11	0.05	0.27	0.85
Menopause	Yes	6.54±2.62	19.54±6.16	19.50±5.45	25.87±8.33	31.95±9.18	27.70±5.42
	No	7.01±2.05	21.60±4.93	19.91±3.76	23.34±5.72	32.32±7.36	26.64±4.18
	mwu	2123.00	1900.500	2328.500	2027.500	2259.000	1937.000
	p	0.34	0.09	0.81	0.21	0.63	0.12
Family history	Yes	8.32±1.90	22.40±4.59	20.76±2.63	23.44±7.16	34.48±6.29	26.24±3.13
	No	6.79±2.08	21.25±5.16	19.75±4.09	23.63±5.95	32.00±7.67	26.81±4.46
	mwu	1456.500	2092.500	2292.000	2416.500	1978.500	2192.500
	p	0.00	0.19	0.51	0.81	0.09	0.33
BSE	Yes	7.00±2.21	21.69±5.31	19.98±3.80	22.19±5.37	34.85±6.74	27.25±4.62
	No	6.92±2.04	21.05±4.88	19.74±4.13	25.09±6.44	29.61±7.45	26.23±3.95
	t	0.310	0.935	0.447	3.662	5.511	1.767
	p	0.75	0.35	0.65	0.00	0.00	0.07

monthly BSE (Pavia et al., 1999). Contrarily, in a study concluded by Odusanya (2001), it was found that 11% of the Nigerian school teachers performed BSE monthly. Parsa et al. (2008) reported that 19% of Malaysian teachers performed regular BSE while Jarvandi et al. (2002) determined that 6% of the female teachers performed regular BSE in Tehran. When compared with the results of studies of women who were general population in Turkey or who were the teachers in different developing countries, we note that the rates of regular BSE performance are higher in our study population. In this regard, previous study results were as expected in those university academicians, who are most likely to see the ramifications of breast cancer in society and have knowledge about the subject, perform BSE more often and more regularly than the general population.

Health beliefs toward BSE of the participants in this study were found as favorable. Benefit perception of BSE had the highest values and barrier perception had the lowest value among the health beliefs of the academicians related to BSE practice. The similar result was indicated by Gozum and Aydin (2004) in their study. The results in both studies are considered that high level education is important in acquiring health behaviors. The participants with good education can come due to high level of benefit perception. The higher perceived benefits of the participants in this study also indicate that the motivation and likelihood of beginning the behavior is high. Health motivation of our participants was observed high. High level of education of the participants might have affected this position positively. The findings we obtained from

the study are consistent with the other research. In the previous studies, it is also found out that the health motivation of the participants who are well educated is quite high (Budden, 1998, Yavari and Pourhoseingholi, 2007, Secginli and Nahcivan, 2004, Kara and Aciket al., 2008, Avci, 2007). However, when the obtained findings are compared with the study of Mikhail and Petro-Nustas (2001), our participants were found to perceive fewer barriers and had more self-efficacy when compared with Jordanian women. This difference may have originated from our participants being better informed about the BSE practice and a higher educational level than Jordanian women or as a result of the cultural differences. In societies having low level of social and economic conditions, it is seen that the belief in external power increases. Mikhail and Petro-Nustas (2001) have said that the destiny approach is widespread in the Arabic culture. The approach can affect the health beliefs of the women and their perception about the benefits of early detection.

In this study, it was found that participants' ages were not affected their health beliefs. Susceptibility and seriousness of single academicians have been found out to be higher than the married ones. Avci (2007) reported that the health motivation of single midwives and nurses had been found out to be higher than the married ones. Married women can experience life problems with their husband and children, so their health status can be thought to be lower. And single women can be thought to have more free time and wish a healthier life for themselves. At the end of the study, it has been shown that the academicians who had a family history of breast cancer

perceive susceptibility more than women without a family history. This result can come out due to the fact that the women who had a family history of breast cancer can feel themselves closer to screening practices to prevent themselves from breast cancer. Furthermore, their having more knowledge about breast cancer during treatment process of their relatives may be one of the reasons for positive effect. Likewise, Cohen (2006) found that women with a positive family history perceived significantly higher susceptibility. In the other study (Avci, 2007), women with a positive family history were not different from the women without a family history in terms of any components of the health belief model.

In this study perceived fewer barriers and higher confidence were significant in explaining BSE performance. BSE performance among participants was more likely to be women academicians exhibited higher confidence and those who perceived fewer barriers related to BSE performance. These results were complying with the conceptual structure of HBM. On the basis of HBM theory, those high perceptions of health motivation, BSE benefits, BSE self-efficacy, and low perceptions of barriers, and perceived susceptibility to breast cancer demonstrate increased levels of BSE performance (Champion, 1993, Mikhail and Petro-Nustas, 2001, Gozum and Aydın, 2004, Secginli and Nahcivan, 2004). Confidence significantly contributed to BSE performance. The results of this study support other study results that reported a significant positive relationship between perceived confidence and BSE performance (Petro-Nustus and Mikhail, 2002, Lee, 2003, Secgili and Nahcivan, 2006). We found out that those who do not perform regular BSE perceived the barriers of BSE higher than the others. This is an expected result. Those who do not perform BSE are through to perceive the barriers higher owing to the fears for the unknown, wrong beliefs about the process or different reasons. The lower perceived barriers imply an increased probability of initiating screening behaviors (Secginli and Nahcivan, 2004). Some studies reported a significant positive relationship between lower perceived barriers and BSE performance (Foxall et al., 1998, Lee, 2003, Secginli and Nahcivan, 2006), Champion (1993) also noted that the levels of perceived barriers to BSE played an important role regarding BSE performance. However, when the obtained findings are compared with the other study, Turkish academicians were found to perceive fewer barriers and had more self-efficacy (Mikhail and Petro-Nustas, 2001). This difference may have originated from Turkish university academicians' being better educated and informed about BSE practice than Jordanian women or from cultural differences.

In this study, BSE benefits, susceptibility, seriousness and motivation of the female academicians who performed BSE were higher than those who did not, but the difference between these groups was not statistically significant. Nevertheless, these results were inconsistent to the conceptual structure of HBM. Previously published studies concluded that there was a link between an individual's performance of BSE and her health perceptions, but in some studies regarding health perceptions of BSE conflicting results have been revealed.

In some studies, susceptibility, seriousness, motivation and benefits were variables that found no relationship with BSE performance (Graham et. al., 2002, Mikhail and Petro-Nustus, 2001, Han et al., 1996, Lee, 2003, Secgili and Nahcivan, 2006) while in some studies it was reported that these variables were significant predictors of the BSE performance (Petro-Nustus and Mikhail, 2002, Gözüm and Aydın, 2004, Canbulat and Uzun, 2008).

This study had several limitations. First, there was a lack of pertinent literature on previous similar studies which health beliefs and early detection of breast cancer in women and especially inclusive female academicians conducted. Thus, the study was limited in its comparisons with some aspects of screening behaviors and health beliefs of the participants. Second, our study was designed as a cross-sectional survey and did not include monitoring of the participants. Data were collected by self-report. The participants might have made mistakes as BSE performance frequency is a measurement based on remembering. However, health beliefs and BSE practice of the individuals change over time. Additionally, in this study, the sample size is relatively small. Since this study was carried out only in Ege University, Turkey, these results cannot be generalized to all Turkish female academicians. Further studies are needed using larger samples in different universities in Turkey. Therefore, the results of this study cannot be generalized.

The results of this study demonstrate that female university academicians' rates of regular BSE performance are not adequate. Academicians who do not have BSE perceived barriers higher than the ones having BSE performance. On the contrary, BSE performance among participants was more likely to be women academicians exhibited higher confidence related to BSE performance. It is therefore recommended that in order to increase the rates of regular breast cancer screening behaviors, mass health protective programs based on HBM should be executed to especially female academicians who undertake the responsibility of raising awareness in society. So, female academicians may regularly perform more breast cancer screening behaviors. A result of this study shows that positive health beliefs are effective in stimulating performance of BSE of female academicians. Socio-demographic and breast cancer–related variables can also be a source of valuable information. By using the HBM constructs, academicians can acquire 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. The results in this study also show that additional studies are needed to investigate the relation between health beliefs and the mammography use among the Turkish female academicians. Further research is recommended using a larger sample size with women in rural and urban areas, including the cost-effectiveness of designing and implementing preventive care.

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