

RESEARCH ARTICLE

Health Beliefs and Breast Self-Examination among Female University Nursing Students in Turkey

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Abstract

Background: The aim of this study was to determine the health beliefs and knowledge about breast self examination (BSE) and the actual BSE habits of female university nursing students. **Materials and Methods:** The study sample recruited 189 nursing students who agreed to participate in the study. Descriptive statistics, the Mann-Whitney U test, one way ANOVA test, t test and Pearson correlation analysis were used to analyse the data. **Results:** 83.1% of nursing students had knowledge about breast cancer (BC) and BSE in the study. BSE was practiced by 70.4% of nursing students; 21.8% of them performed BSE regularly. A fear of developing BC was an incentive for 85% of nursing students to practice BSE. The confidence subscale scores in the third and fourth years of students' university education were higher, and the barrier subscale score in these same years was lower than their first years of study. Perception of benefit of nursing students experiencing breast-related discomfort exerted a positive effect. Nursing students with lower perception of barriers performed BSE regularly. **In conclusion,** nursing students' years of university study, breast cancer knowledge, history of breast cancer in family, and BSE practice status were factors affecting their health beliefs. **Conclusions:** These study results indicate the importance of developing education and training programs which educate not only nursing students but all women about breast cancer, its symptoms, the importance of early diagnosis and of regular BSE.

Keywords: Breast cancer - breast-self examination - health belief model - nursing students - Turkey

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Introduction

Breast cancer is currently the most prevalent cancer among women in both the developed and developing countries (WHO, 2014). In 2012, 1.7 million women were diagnosed with breast cancer. There were also 6.3 million breast cancer survivors who had been diagnosed with the disease in the previous five years. Breast cancer is also the most common cause of cancer death among women (522,000 deaths in 2012) and the most frequently diagnosed cancer among women in 140 of 184 countries worldwide. Since 2008, the breast cancer incidence has risen by more than 20%, while mortality has increased by 14% (GLOBOCAN, 2012). Breast cancer is also the most common cancer among Turkish women, and their BC incidence is 40,6 per 100,000 (Ministry of Health, 2009).

Raising general public awareness on the prevalence of breast cancer and the mechanisms to fight it, and advocating for appropriate policies and programs, are key strategies of population-based breast cancer control (WHO, 2014). Early detection to improve breast cancer outcome and survival remains the cornerstone of breast cancer control (Anderson et al., 2008). Breast self-examination (BSE), clinical breast examination, and mammography are used as screening methods in the early detection of breast cancer, and currently BSE is recommended for women beginning

in their 20s (American Cancer Society, 2014). Although there is no evidence as to the actual effects of screening through breast self-examination, its practice has been seen to empower women in taking responsibility for their own health. Therefore, rather than its use as a screening method, BSE is now recommended for raising awareness among women at risk for breast cancer (WHO, 2014).

Studies indicate that women's health beliefs and attitudes are the most important factors which influence whether or not they will get screened for breast cancer (Lostao et al., 2001; Jirojwong and McLennan, 2003). The Health Belief Model has been used in studies as a theoretical framework to study BSE and other breast cancer detection behaviors. According to this model, women who present a higher risk for breast cancer, perceive breast cancer as a serious threat to their own health, have a low perception barrier, and who possess a high perception of the benefits will be more likely to practice BSE on a regular basis.

Young women's cancers are more aggressive and result in lower survival rates, making early detection even more important (Rosenberg and Levy-Schwartz, 2001). Studies have reported that knowledge about breast cancer and young women's practices and beliefs about BSE are not enough to increase their survival rates (Kılıç et al., 2009; Erbil and Bölükbaş, 2012). Studies from Turkey have

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reported that the percentage of older women regularly performing BSE ranged from 5.5% to 10.2% (Nahçıvan and Seçkinli, 2003; Erbay et al., 2006). It is believed that a higher rate of older women practice BSE because they are at higher risk for breast cancer. However, Turkish studies have revealed that low percentages of both young and older women practice BSE (Balkaya et al., 2007; Beydağ and Karaoğlan, 2007; Daley, 2007; Karayurt et al., 2008). In order to increase breast health awareness among all women, education programs on this important health issue need to be offered early to young women.

The aim of this study was to determine the health beliefs and knowledge about BSE and the actual BSE habits of female university nursing students.

Materials and Methods

The population of this descriptive and cross-sectional study included female nursing students from School of Health in Ordu, Turkey. The study sample was 189 nursing students who agreed to participate. The study was conducted between October and November 2012.

Before the study could begin, permission was obtained from the director of institution, and the participants were then invited to participate in the study and verbal consent to participate in the study was obtained from nursing students. The researchers guaranteed participants that their identities and answers would be kept confidential. The study conformed to the principles of the Declaration of Helsinki.

The data was collected via a self-report questionnaire form and Turkish version of Champion Health Belief Model Scale (CHBMS). The scale and questionnaire took an average of 15 minutes.

Questionnaire form

The questionnaire form constituted from two stage. First stage included socio demographic characteristics as student's age, grade level, menarche age. Second stage included characteristics with breast cancer and BSE as breast-related discomfort in the past, family history of breast cancer, family members with breast cancer, friends and acquaintances with breast cancer, information about breast cancer and BSE, source of information about breast cancer and BSE, BSE practice and BSE performance frequency.

Champion's Health Belief Model Scale (CHBMS) was used to examine the influence of health beliefs of nursing students over BSE practice. The Champion's Health Belief Model Scale was developed by Champion in 1984 and

revised in 1993, 1997, and 1999 (Champion, 1984; 1993; 1997; 1999; Champion and Menon, 1997). Validity and reliability for the Turkish version of the scale was done by Karayurt and Dramalı (2007). The CHBMS consists of 6 concepts and 42 items: 1) Perceived susceptibility to an illness (3 items); 2) Perceived seriousness of the illness (7 items); 3) Perceived benefits of certain actions (4 items); 4) Perceived barriers for the action (11 items); 5) Confidence in ones's ability (10 items); and 6) Health motivation (7 items). Each item has a score ranging from 1 to 5: "I disagree strongly" (1 point), "I disagree" (2 points), "I am not sure" (3 points), "I agree" (4 points), "I agree strongly" (5 points). The score of each subscale is considered separately and is not merged into a single total score of all the subscales of the scale. Women who had low scores in the barrier subscale and high scores in the other subscales also held positive beliefs and attitudes about breast cancer and BSE practice (Karayurt and Dramalı, 2007). Karayurt and Dramalı (2007) determined that the Cronbach Alpha coefficients of the subscales ranged from 0.58-0.89.

Descriptive statistics including mean, median, standard deviation, frequency, and percentage were used in the study. The Mann-Whitney U test, One way ANOVA test, t test and Pearson correlation analysis test were used to analyse the correlation between dependent and independent variables. A level of $p < 0.05$ was considered as statistically significant.

Results

One hundred eighty-nine nursing students participated in the study. The mean age of nursing students in this study was 20.86 ± 1.99 (range 18-30 years); 98.4% of them were single; 26.5% of them were in the first year at the School of Health; the mean age of menarche was 13.29 ± 1.20 .

A correlation was found between the nursing students' age and the confidence subscale score of the Turkish

Table 1. Subscale Scores of the CHBMS of Nursing Students

Subscales of the CHBMS	Item No.	Min-Max scores can be taken from scale	Min-Max scores received from scale	Cronbach alpha values	Mean	SD
Susceptibility	3	3-15	3-15	0.79	7.56	2.29
Seriousness	7	7-35	8-34	0.79	22.44	5.02
Benefits	4	4-20	4-20	0.93	16.7	4.32
Barrier	11	11-55	11-44	0.7	22.96	5.52
Confidence	10	11-50	18-50	0.88	36.23	6.88
Health motivation	7	7-35	1-35	0.73	26.62	4.11

Table 2. Distribution of Nursing Students According to BSE, BC and Socio-Demographic Characteristics (n=189)

Nursing student's characteristics			Subscales of the CHBMS					
			Susceptibility	Seriousness	Benefit	Barrier	Confidence	Health Motivation
School grade	n	%						
First grade	50	26.5	7.54	21.7	18.36	24.62	30.34	25.62
Second grade	45	23.8	7.82	23.28	16.33	24.6	35.55	26.51
Thirth grade	49	25.9	7.63	23.04	16.83	21.18	39.32	27.08
Fourth grade	45	23.8	7.24	21.77	17.31	21.44	40.08	27.37
p ^a			0.688	0.28	0.667	0.001*	0.000*	0.163

*Significant at level $p < 0.05$; ^aOne-Way ANOVA test

Table 3. Distribution of Nursing Students According to BSE and BC Characteristics (n=189)

Characteristics		Subscales of the CHBMS							
		n	%	Susceptibility	Seriousness	Benefit	Barrier	Confidence	Health Motivation
Breast problem in her history	Yes	18	9.5	7.72	23.38	18.61	22.72	34.66	27.88
	No	171	90.5	7.54	22.34	16.5	22.99	36.39	26.49
	p ^a			0.654	0.489	0.032*	0.926	0.413	0.216
BC in their family history	Yes	26	13.8	8.46	21.8	17	23	36.23	25.8
	No	163	86.2	7.41	22.54	16.65	22.96	36.23	26.76
	p ^a			0.036*	0.317	0.72	0.719	0.98	0.131
Friends and acquaintances with BC	Yes	61	32.3	7.98	22.18	16.27	23.86	36.09	26.34
	No	128	67.7	7.35	22.57	16.9	22.53	36.29	26.76
	p ^b			0.081	0.619	0.352	0.122	0.854	0.512
Information about BC and BSE	Yes	157	83.1	7.52	22.3	16.7	22.27	37.67	26.84
	No	32	16.9	7.71	23.12	16.68	26.37	29.15	25.56
	p ^b			0.937	0.33	0.149	0.741	0.829	0.769
BSE perform	Yes	133	70.4	7.42	22.35	16.9	21.91	38.27	27.07
	No	56	29.6	7.89	22.66	16.21	25.46	31.39	25.57
	p ^b			0.586	0.111	0.548	0.699	0.262	0.667
BSE performance frequency (n=133)	Regularly	29	21.8	7.17	21.58	17.65	19.55	40.31	28.34
	Irregularly	104	78.2	7.49	22.56	16.7	22.57	37.7	26.72
	p ^a			0.476	0.295	0.879	.012*	0.062	0.068

*Significant at level p<0.05, ^aMann-Whitney-U test, ^bt test

version of the CHBMS ($r=0.434$, $p=0.000$). A correlation existed between students' mean menarche age and the seriousness subscale score of the Turkish version of the CHBMS. The confidence subscale score in the third and fourth years of university study was higher than for the first and second years, and the barrier subscale score in the third and fourth year was lower than that of the first and second year, and the difference was found to be statistically significant ($p=0.000$).

The subscale scores of the CHBMS of nursing students is shown in Table 1. The mean scores of subscales of the Turkish version of the CHBMS were as follows: the susceptibility subscale of nursing students was 7.56 ± 2.29 ; their seriousness subscale score was 22.44 ± 5.02 ; the benefit subscale was 16.70 ± 4.32 ; the barrier subscale was 22.96 ± 5.52 ; the confidence subscale was 36.23 ± 6.88 ; and their health motivation subscale score was 26.62 ± 4.41 (Table 1).

In this study, 9.5% of nursing students stated that they had breast-related discomfort in the past; 13.8% of students had family members with breast cancer, and 32.3% of them had friends and acquaintances with breast cancer. It was determined that 83.1% of nursing students had knowledge about BC and BSE. BSE was practiced by 70.4% of nursing students; 21.8% of them performed BSE regularly (see Table 2). A fear of developing BC was a motivating factor for 85% of nursing students to practice BSE.

The benefit subscale score of nursing students who had breast-related discomfort in the past was higher than other nursing students, and the difference was statistically significant ($p=0.032$). The mean score of susceptibility subscale of nursing students who had family members with breast cancer was higher than other nursing students, and the difference was statistically significant ($p=0.036$). The barrier subscale scores for nursing students who practice BSE regularly were lower than nursing students who do not practice BSE regularly, and the difference was statistically significant ($p=0.012$), (Table 3).

Discussion

The American Cancer Society recommends that women should be aware of how their breasts normally look and feel and report any new breast changes to a health professional as soon as they are found. Women should be informed that breast self-examination (BSE) should be considered for them beginning in their 20s. At the same time, they should also be told about the benefits and limitations of BSE (American Cancer Society, 2014).

This study determined that only 21.8% of nursing students practice BSE every month. Beydağ and Yürügen (2010) found a rate of 11.6%, and Özkan et al. (2010) indicated that 32.7% of Turkish nursing and midwifery students practice BSE regularly every month. Akhtari-Zavare et al. (2013) reported that 36.7% of Malaysia female undergraduate students practice BSE. Memiş et al. (2009) determined that first-year students had negative attitudes about BSE but became more positive as they progressed in their education. Studies on nursing and midwifery students indicate that despite having knowledge of BSE, they fail to practice BSE on a regular basis (Alsaif, 2004; Plesnicar et al., 2004).

The information obtained during a student's education influences their knowledge, attitudes, and practices regarding BSE (Özkan et al., 2010). Studies on nursing and midwifery students indicate that despite having knowledge on BSE, they do not practice it regularly. It was found that the barrier subscale scores of nursing students in their third and fourth year of study was lower than the barrier subscale scores of nursing students in the first and second year and the difference was statistically significant (respectively, $p=0.01$, $p=0.000$). In this study, as students' grade level and health-related knowledge were increasing, their barrier subscale scores were decreasing and their confidence subscale scores were increasing.

Nursing students who had breast-related discomfort had higher benefit subscale scores than those who did not, and the difference was statistically significant ($p=0.032$).

Nursing students who had a family history of breast cancer had a higher susceptibility subscale score than other nursing students, and the difference was statistically significant ($p=0.036$). Similar studies have shown that individuals with breast cancer in family members had a higher sensitivity perception (Gerçek et al., 2008; Erbil and Bölükbaş, 2012). Nursing students who have family members with breast cancer should be particularly vigilant concerning this issue. They need to understand breast cancer as life-threatening and very serious. At the same time, they also need to understand the important responsibility of providing information to others about the risks of breast cancer. Students are given information and training about breast examination for breast cancer during their nursing education. Research has shown that education about this important health issue is the key to raising women's perceptions and confidence in their ability to look after their own health and reduce breast cancer deaths (Lu, 2001; Thomas et al., 2002).

Our study found that 70% of nursing students performed BSE, but only 21.8% of them did so on a regular basis. Although students are knowledgeable in the practice of BSE, this study showed they did not perform BSE regularly. Previous studies have reported the same results as our study (Aslan et al., 2007; Karayurt et al., 2008; Kılıç et al., 2009). The barrier perceived scores of nursing students who practice BSE regularly were lower than nursing students who do not BSE practice regularly, and the difference was statistically significant ($p=0.012$). This result may be due to their young age, as they do not view themselves in a high risk category. Özkan et al. (2010) indicated that the BSE barrier scores of students who did not practice BSE regularly were higher than those who practice it regularly. They found that the factors inhibiting students' BSE practice were fear of a breast cancer diagnosis, no time, no need to do so, the perception of no susceptibility to the disease, and inability to see any risk to their health. Results of our study were similar to the Özkan et al. (2010) study.

This study found nursing students' perception of susceptibility to breast cancer at a moderate level (7.56); the perception of the seriousness was high (22.44), the perception of benefits was also high (16.70); the perception of barriers was at a low level (22.96); the perception of confidence was high (36.23) and the perception of health motivation was also high (26.62), respectively. We found the nursing students' seriousness, benefit, confidence and health motivation subscale scores at high levels; the susceptibility subscale score was at the middle level, and the barrier subscale score was low. The study of Kılıç et al. (2009) reported the perception of susceptibility as 8.50, the perception of seriousness as 21.68, the perception of benefit as 16.58, the perception of barrier as 16.29, the perception of confidence as 28.47, and the perception of health motivation as 20.67. Gerçek et al. (2008) determined the perception of susceptibility as 7.78, the perception of seriousness as 19.16, the perception of benefit as 15.92, the perception of barrier as 26.13, the perception of confidence as 29.63, and the perception of health motivation as 19.25. Yücel et al. (2014) reported the mean CHBMS scores of the student

nurses were as follows: perceived susceptibility regarding breast cancer 7.78; perceived seriousness regarding breast cancer, 22.4; perceived benefit regarding BSE application, 20.5; perceived barriers regarding BSE application, 23.8; perceived confidence regarding BSE application, 36.3; the mean score of health motivation sub-scale, 25.7. Özkan et al. (2010) indicated that the average of susceptibility was 7.52, seriousness was 21.8, benefit was 16.7, barrier was 22.3, confidence was 40.3 and health motivation was 26.6 among nursing and midwifery students. Kılıç et al. (2009) found higher mean scores of other subscales of CHBMS except for the susceptibility perception in our study. Gerçek et al. (2008) determined higher mean scores of other subscales of the CHBMS except with the susceptibility perception and the barrier perception. According to the Health Belief Model, the sensitivity and seriousness perceptions create the threat perception (Nahçıvan and Seçginli, 2003). Women who perceive breast cancer as a serious threat to their health will be more likely to practice regular BSE and to undergo mammography and clinical breast examinations.

In conclusion, the confidence subscale scores in the third and fourth years of students' university education were higher, and the barrier subscale score in these same years of study was lower than their first years of study. The perception of benefit of nursing students experiencing breast-related discomfort was affected positively. Nursing students with lower perception of barrier performed BSE regularly. Finally, the number of nursing students' years of university study, breast cancer knowledge, history of breast cancer in family, and BSE practice status were factors affecting their health beliefs.

These study results indicate the importance of developing education and training programs which educate not only nursing students but all women about breast cancer, its risk factors, symptoms, the importance of early diagnosis and of regular BSE. Such programs could be instrumental in increasing nursing students' perception of susceptibility and may serve to improve not only their own health status but that of all other women who are entitled to know more about how to protect their own health, especially their own breast health.

References

- Akhtari-Zavare M, Juni MH, Said S, et al (2013). Beliefs and behavior of Malaysia undergraduate female students in a public university toward breast self-examination practice. *Asian Pac J Cancer Prev*, **14**, 57-61.
- Alsaif AA (2004). Breast self examination among Saudi female nursing students in Saudi Arabia. *Saudi Med J*, **25**, 1574-8.
- American Cancer Society (2014). American Cancer Society recommendations for early breast cancer detection. <http://www.cancer.org/cancer/breastcancer/detailedguide/breast-cancer-detection> (Accessed: 28.02.2014).
- Anderson BO, Yip CH, Smith RA, et al (2008). Guideline implementation for breast healthcare in low-income and middle-income countries: overview of the Breast Health Global Initiative Global Summit 2007. *Cancer*, **113**, 2221-43.
- Aslan A, Temiz M, Yiğit Y, et al (2007). The knowledge attitude and behavior of nursing students about breast cancer. *TAF Prev Med Bull*, **6**, 193-8.

- Balkaya N, Memiş S, Demirkıran F (2007). The effects of breast self-examination on the performance of nursing and midwifery students: a 6-month follow-up study. *J Cancer Educ*, **22**, 77-9.
- Beydağ KDT, Karaoğlu H (2007). Effect of breast self examination education to the knowledge and attitudes of female students. *TAF Prev Med Bull*, **6**, 106-11.
- Beydağ KD, Yürügen B (2010). The effect of breast self-examination (Bse) education given to midwifery students on their knowledge and attitudes. *Asian Pac J Cancer Prev*, **11**, 1761-4.
- Champion VL (1984). Instrument development for health belief model constructs. *Adv Nurs Sci*, **6**, 73-85.
- Champion VL (1993). Instrument refinement for breast cancer screening behaviors. *Nurs Res*, **42**, 139-43.
- Champion VL, Menon U (1997). Predicting mammography and breast self-examination in African American women. *Cancer Nurs*, **20**, 315-22.
- Champion VL (1999). Revised susceptibility, benefits, and barriers scale for mammography and screening. *Res Nurs Health*, **22**, 341-8.
- Daley CM (2007). College student's knowledge of risk and screening recommendations for breast, cervical and testicular cancers. *J Cancer Educ*, **22**, 86-90.
- Erbil N, Bölükbaş N (2012). Beliefs, attitudes, and behavior of Turkish women about breast cancer and breast self-examination according to a Turkish version of the Champion Health Belief Model Scale. *Asian Pac J Cancer Prev*, **13**, 5823-8.
- Gerçek S, Duran Ö, Yıldırım G, et al (2008). Determining the breast cancer and self breast examination belief and the effecting factors among the schoolgirls in state dormitory. *J Breast Health*, **4**, 157-61.
- Globocan (2012). Latest world cancer statistics, http://www.iarc.fr/en/media-centre/pr/2013/pdfs/pr223_E.pdf, (Accessed: 2.3.2014).
- Jirojwong S, McLennan R (2003). Health beliefs, perceived self-efficacy, and breast self-examination among Thai migrants in Brisbane. *J Adv Nurs*, **41**, 241-9.
- Karayurt Ö, Dramalı A (2007). Adaptation of champion's health belief model scale for Turkish women and evaluation of the selected variables associated with breast self-examination. *Cancer Nurs*, **30**, 69-77.
- Karayurt Ö, Özmen D, Çetinkaya AÇ (2008). Awareness of breast cancer risk factors and practice of breast self examination among high school students in Turkey. *BMC Public Health*, **8**, 359.
- Kılıç D, Sağlam R, Kara Ö (2009). The examination of the factors affecting the awareness of breast cancer in college students. *J Breast Health*, **5**, 195-9.
- Lostao L, Joiner TE, Pettit JW, et al (2001). Health beliefs and illness attitudes as predictors of breast cancer screening attendance. *Eur J Public Health*, **11**, 274-9.
- Ministry of Health (2014). Türkiye Kanser İstatistikleri. http://www.kanser.gov.tr/Dosya/ca_istatistik/2009kanseraporu.pdf
- Nahcivan Ö, Seçginli S (2003). Attitudes and behaviors toward breast cancer early detection: Using the health belief model as a guide. *J Cumhuriyet University School of Nursing*, **7**, 733-8.
- Özkan A, Malak AT, Gürkan A, et al (2010). Do Turkish nursing and midwifery students teach breast self-examination to their relatives?. *Asian Pac J Cancer Prev*, **11**, 111-5.
- Plesnicar A, Golicnic M, Kralj B (2004). Midwifery students and breast self examination. *Breast J*, **10**, 560.
- Rosenberg R, Levy-Schwartz R (2003). Breast cancer in women younger than 40 years. *Int J Fertil*, **48**, 200-5.
- Lu ZJ (2001). Effectiveness of breast self-examination nursing interventions for Taiwanese community target groups. *J Adv Nurs*, **34**, 163-70.
- Thomas B, Stamler LL, Lafreniere KD, Delahunt TD (2002). Breast health educational interventions. Changes in beliefs and practices of working women. *AAOHN J*, **50**, 460-7.
- WHO (2014). Breast cancer: prevention and control. <http://www.who.int/cancer/detection/breastcancer/en/index3.html>. (Accessed: 28.02.2014).
- Yücel SÇ, Orgun F, Tokem Y, et al (2014). Determining the factors that affect breast cancer and self breast examination beliefs of Turkish nurses in academia. *Asian Pac J Cancer Prev*, **15**, 1275-80.