

RESEARCH ARTICLE

Determining the Factors that Affect Breast Cancer and Self Breast Examination Beliefs of Turkish Nurses in Academia

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Abstract

Purpose: To define factors that affect the performance status of BSE and confidence of student nurses. **Materials and Methods:** This descriptive study was conducted in the academic year 2010-2011 in a nursing faculty in İzmir, Turkey. "Informative data form" and "Champion's Revised Health Belief Model Scale (CHBMS)" were used as data collection forms. **Results:** The mean age of the participant nurses was 21.0±1.49. The mean CHMS scores of the student nurses were as follows: perceived susceptibility regarding breast cancer, 7.78±2.46; perceived seriousness regarding breast cancer, 22.4±5.43; perceived benefit regarding BSE application, 20.5±4.45; perceived barriers regarding BSE application, 23.8±7.13; perceived confidence regarding BSE application, 36.3±7.78; the mean score of health motivation sub-scale, 25.7±4.59; and mean of the total score of the scale, 36.5±15.01. **Conclusions:** The outcomes obtained in this study indicated the importance of better education to student nurses, who have a key role in teaching preventive health behaviour including BSE to society and other university students as colleagues.

Keywords: Breast cancer - self breast examination beliefs - nursing faculty students - Turkey

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Introduction

Breast cancer is the leading type of cancer among women worldwide that results in mortality. One in every 8 women worldwide has breast cancer (Ferlay et al., 2010; Al-Naggar et al., 2011; DeSantis et al., 2011; Doshi et al., 2012; Akhtari-Zavare et al., 2013; Petro-Nustas et al., 2013). Ozmen (2011) reported that although global breast cancer incidence rates have increased by approximately 0.5% annually since 1990, breast cancer rates in Turkey, Japan, Singapore, and Korea have doubled or tripled in the past 40 years. According to the most recent reports of the Turkish Cancer Registry, BC is currently the most commonly occurring female cancer in Turkey with an incidence of 35.5 cases per 100,000 of all cancers diagnosed in women (Ministry of Health of Turkey, 2005; Yilmaz et al. 2011). Prognosis of the disease is worse in women between 50 and 64 years of age than those diagnosed later in life. One of the reasons for the bad prognosis in younger women is late detection of tumors in this age group (Umeh and Rogan-Gibson, 2001).

Breast self examination (BSE) has an important role in the early detection of breast cancer. It has been reported in literature that 90% of all breast cancers have been detected by the patients themselves. It may be possible

to recognize changes in the breast by knowing the usual structure of them via regular BSE. The American Cancer Society recommends regular BSE in women older than 20. BSE gains particular importance in women younger than 35 since routine clinical breast examination and mammography are rarely performed for the early detection of cancer (Erblich et al., 2000; Fidaner et al., 2001).

BSE is an easy, economic, safe and non-invasive method of early detection for all women and does not necessitate any special instrument. However, many studies have shown that the rate of women performing this method is extremely low. This rate is 18-36% in the United States and 7.3-32.5% in Turkey. These low rates suggest the presence of many factors that affect the behaviour and attitudes of women concerning early diagnosis. These factors include cultural beliefs, health/disease perception, support of family and neighbourhood, information concerning the disease, risk perception, and confidence in the applications that should be performed in the early period of the disease (Ozer and Karamanoglu, 2006; Secginli and Nahcivan, 2006; Akhtari-Zavare et al., 2011).

In a majority of the world, nurses play an important role in educating women about cancer. Therefore, the experience and knowledge of nurses with BSE are

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essential in reducing the mortality of breast cancer. Furthermore, nurses' confidence in the importance of BSE would make a difference while teaching the BSE method and encouraging the women to perform it. The factors that affect the behaviour and beliefs of the student nurses, with different socio-economic and cultural features, towards the early detection of breast cancer should be investigated. Proper adjustments may be made to the educational schedule by using the data obtained. It has been postulated that increasing the number of midwives and nurses that realize the importance of BSE may actually increase the number of women performing the method (Ozer and Karamanoglu, 2006; Akhtari-Zavare et al., 2011).

Materials and Methods

This study is a descriptive study designed to define the factors that affect the performance status of BSE and the confidence of student nurses in the method. The research population involved in academic year 2010-2011 studying at the Faculty of Nursing (N=630) of all female students, the sample of 284 female students who agreed to participate in the study.

"Informative data form" and "Champion's Revised Health Belief Model Scale (CHBMS)" were used as data collection forms. *i*) Informative data form: The informative data form was constructed by investigators and included a total of 12 questions. 4 of the questions were about the age, height, body weight and class of the student nurses, and 8 of which were about the breasts. *ii*) Champion's Revised Health Belief Model Scale (CRHBMS)

The scale was constructed by Champion in 1984 and was revised in subsequent studies by the same investigator (Champion, 1993). The validity and reliability of the Turkish version of the revised tool were established by Karayurt and Dramali (2007). Champion's revised tool includes 43 items representing 6 subscales. The present study included 3 items related to susceptibility, 7 items related to seriousness, 4 items related to benefits, 11 items related to barriers, 10 items related to confidence/self-efficacy, and 7 items related to health motivation. The scale items have a 5-point Likert (strongly disagree "1", strongly agree "5"). The lowest score that could be obtained from the scale was 43, and the highest score was 215. Alpha co-efficients for all 6 subscales ranged from .58-.89. Item-total subscale correlations ranged from .30-.74. The scale was calculated to be .80 via Cronbach's alpha in this study.

According to the health belief model there are six terms defined in relation to belief and behaviours

Perception of susceptibility: defines the perception of a possible health danger by the individual.

Perception of seriousness: perception of the concerns and negative outcomes of the threatening situation formed by the threatening issue.

Perception of the benefits: The perceived positive aspects of the protective behaviour.

Perception of the barriers: The perceived negative aspects of the protective behaviour.

General health motivation: The general willingness of

the individual to build up behaviours in order to maintain and develop health.

Confidence: Defines the individual's sufficiency for performing a healthy behaviour. Health belief model provides changeability of behaviours. The model constitutes a guideline in understanding behaviours towards the early detection of cancer, as well. Individuals may support the understanding of health belief model, using it in different areas and developing positive health behaviours of the nurses that play the key role in developing positive health behaviours.

Data analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS) for Windows version 15.0 (SPSS Inc, 2006). Numbers, percentages, variance analysis and t-test were performed. A p value of <0.05 was considered statistically significant.

Ethical consideration

Permission was obtained by email from Karayurt, who performed the validity and safety study of CRHBMS in Turkish. Student nurses were informed about the study, and those who accepted participation were included following their oral informed consent. Prior to the study, written approval was obtained from the Ethical Committee of the Nursing Faculty.

Results

The mean age of the participant nurses was 21.04±1.49 and the body mass index was 0.96±2.55.

91.5% (n=260) of the participant nurses didn't mention breast cancer in the family history, 81.3% (n=231) had no complaints concerning their breasts, 70.8% (201) stated that they knew how to perform BSE, 53.2% (n=151) stated that they did not perform BSE. Among the student nurses who perform BSE (n=133), 41.9% (n=119) performed

Table 1. The Items, Scores, and Cronbach's Alpha Values of the Champion's Health Belief Model Scale

Champion health belief model scale	Item no.	Min/Max scores	Karayurt (2003)	Alpha in this study
Susceptibility	3	3-15	0.58	0.707
Seriousness	7	7-35	0.80	0.726
Benefits	5	5-25	0.85	0.921
Barriers	11	11-55	0.68	0.840
Confidence	10	10-51	0.89	0.936
Health motivation	7	7-35	0.78	0.778
Champion Health Belief Model Scale total score				
	43	43-215		0.805

Table 2. Champion's Health Belief Model Scale Mean Scores (n: 284)

Champion's health belief model scale	X	Ss
Susceptibility	7.78	2.46
Seriousness	22.41	5.43
Benefits	20.54	4.45
Barriers	23.76	7.13
Confidence	36.26	7.78
Health motivation	25.72	4.59
Champion Health Belief Model Scale total score		136.49 15.01

BSE once a month, and among those did not perform BSE (151), 6.3% did not know how to perform BSE. 80.3% (n=228) took lessons on BSE, and 56.0% (n=159) took these lessons at school.

The mean CHMS scores of the student nurses (Table 2) were as follows; perceived susceptibility regarding breast cancer: 7.78±2.46, perceived seriousness regarding breast cancer: 22.41±5.43, perceived benefit regarding BSE application: 20.54±4.45, perceived barriers regarding BSE application: 23.76±7.13, perceived confidence regarding BSE application: 36.26±7.78, the mean score of health motivation sub-scale: 25.72±4.59 and mean of the total score of the scale: 36.49±15.01 (Table 2).

The correlation between the nurses' class and CRHBMS sub-items revealed (Table 3) a significant difference was observed between the perceived barriers concerning BSE application (F=5.306, p=0.001) and perceived confidence regarding BSE application (F=22.435, p=0.000) sub items (p<0.05). No significant difference was observed between the nurses' class and mean scores of CRHBMS total and other sub items (p>0.05) (Table 3).

A significant difference was observed between the age of student nurses and their perceived confidence regarding BSE application sub-item of the CRHBMS (F=5.923,

p=0.001) (p<0.05); no significant difference was observed between the nurses' age group and mean scores of the CRHBMS total and other sub-items (p>0.05). We noticed that the the mean scores of the nurses in the >25 age group was higher than that of the nurses in the other age groups in CRHBMS total and sub items (Table 3).

The data regarding the comparison of the CRHBMS scores and BSE applications of the nurses who participated in the study are shown in Table 4.

Regarding the nurses' knowledge of BSE, significant differences were observed between the mean scores of the CRHBMS total (F=8.580, p=0.000), perceived benefit concerning BSE application (F=7.095 p=0.001), perceived barriers concerning BSE application (F=15.917, p=0.000), perceived confidence concerning BSE application (F=60.508, p=0.000) and health motivation (F=8.580, p=0.000) sub-items (p<0.05); however, no significant difference was observed between the nurses' knowledge of BSE and CRHBMS seriousness and susceptibility sub items (p>0.05) (Table 4). We noticed that the mean scores of the CRHBMS total and the sub-items of nurses who mentioned knowing how to perform BSE were higher than those who mentioned partially knowing or not knowing BSE (Table 4).

Table 3. Comparison of the Students with Regard to the Class and Age with Champion Health Belief Model Scale Mean Scores (n: 284)

		Susceptibility		Seriousness		Benefits		Barriers		Confidence		Health motivation		Total	
		X	SD	X	SD	X	SD	X	SD	X	SD	X	SD	X	SD
Class	First (55)	7.53	2.27	22.53	6.49	19.87	5.28	26.65	5.79	30.89	7.34	25.44	4.67	132.91	15.21
	Second (70)	7.54	2.25	22.64	5.03	19.96	4.7	23.79	5.52	35.13	6.82	25.27	5.12	134.63	15.81
	Third (124)	7.8	2.51	20.69	4.65	21.02	3.89	23.27	7.01	37.46	6.83	25.97	3.96	136.2	12.27
	Fourth (35)	8.07	3.02	22.72	6.76	21.09	4.39	20.91	10.39	42.74	7.63	26.23	5.49	141.5	20.28
		F=0.626; p=0.599		F=1.364; p=0.254		F=1.464; p=0.225		F=5.306; p=0.001*		F=22.435; p=0.000*		F=5.553; p=0.647		F=2.284; p=0.079	
Age	19-20 (108)	7.51	2.11	22.13	5.52	20.62	4.39	24.17	5.35	34.07	6.92	25.57	4.75	134.07	13.55
	21-22 (140)	7.3	2.59	22.91	5.08	20.34	4.78	23.9	7.96	37.1	8.01	25.73	4.7	137.28	16.08
	23-24 (30)	8.01	2.58	20.67	6.26	20.5	2.85	22.03	8.75	38.33	7.72	24.17	3.23	133.71	12.61
	≥25 (6)	9.83	3.87	21.47	7.53	21.23	5.09	21.83	6.11	39.83	8.55	26.57	5.34	140.76	14.75
		F=2.641; p=0.050		F=0.994; p=0.396		F=3.49; p=0.790		F=0.866; p=0.459		F=5.923; p=0.001*		F=6.02; p=0.614		F=1.581; p=0.194	

Table 4. Comparison of the Students with Regard to the Self-breast Examination (BSE) with Champion Health Belief Model Scale Mean Scores

N=284	Susceptibility		Seriousness		Benefits		Barriers		Confidence		Health motivation		Total	
	X	Ss	X	Ss	X	Ss	X	Ss	X	Ss	X	Ss	X	Ss
Knowledge status of BSE														
Yes (201)	7.83	2.62	22.58	5.24	21.15	4.13	22.37	7.27	38.85	6.9	26.16	4.6	138.94	14.4
Partially (69)	7.68	2.08	22.38	6.02	19.28	4.9	26.57	5.56	31.2	5.01	24.41	4.24	131.52	14.04
No(14)	7.57	1.91	22.07	5.54	18.07	4.92	29.91	4.39	24.14	7.67	25.93	5.25	127.71	19.98
	F=0.147 p=0.863		F=0.064 p=0.938		F=7.095 p=0.001*		F=15.917 p=0.000*		F=60.508 p=0.000*		F=3.852 p=0.022*		F=8.580 p=0.000*	
BSE application status														
Applying (133)	7.87	2.76	22.41	5.35	22.14	3.34	20.62	6.98	38.86	7.46	26.82	4.56	138.71	15
Not applying (151)	7.71	2.18	22.41	5.52	19.14	4.84	26.52	6.06	33.98	7.36	24.76	4.42	134.52	14.79
	t=5.32 p=0.595		t=0.005 p=0.996		t=5.991 p=0.000*		t=7.625 p=0.000*		t=5.537 p=0.000*		t=3.858 p=0.000*		t=2.367 p=0.019*	
BSE frequency														
Once a month (119)	8.29	3.55	22.57	7.09	23.71	3.42	20.48	7.12	39.29	7.63	28	4.69	142.34	15.48
Once in two months (7)	7.91	2.75	22.49	5.25	22.07	1.8	22.29	7.16	39.08	6.1	26.77	3.37	140.61	10-Sep
Rarely (7)	6.71	2.06	20.14	5.4	21.3	3.04	22.14	5	35.57	4.43	27	3.37	132.86	7
	F=6.80 p=0.565		F=4.17 p=0.741		F=11.988 p=0.000*		F=19.045 p=0.000*		F=11.169 p=0.000*		F=5.392 p=0.001*		F=2.632 p=0.050*	
Educational status about BSE														
Have education (228)	7.89	2.53	22.79	5.27	21	4.04	22.91	7.22	37.88	7.05	25.97	4.5	138.43	14.15
Don't have education (56)	7.32	2.17	22.32	6.9	18.73	5.54	27.23	5.59	29.68	7.18	24.73	4.88	130.01	16.93
	t=1.563 p=0.119		t=5.74 p=0.567		t=3.457 p=0.001*		t=4.182 p=0.000*		t=7.770 p=0.000*		t=1.813 p=0.071		t=3.403 p=0.001*	
Source of information on BSE														
Book/journal(4)	6	0	22.5	4.43	20.75	2.23	22.25	6.85	37.25	6.9	27.75	1.5	136.5	9
Health care staff (11)	8.91	3.18	23.55	4.59	21.91	3.45	19.18	6.43	38.45	7.22	28.36	3.88	140.36	11.82
Internet (55)	7.66	2.16	22.73	4.43	21.27	4.35	20.8	7.76	39.76	6.76	26.87	4.09	139.09	12.68
School (159)	7.94	2.6	22.06	5.6	20.82	4.01	23.97	6.9	37.14	7.11	25.45	4.62	137.38	14.89
	F=1.754 p=0.138		F=4.26 p=0.790		F=3.155 p=0.015*		F=7.269 p=0.000*		F=16.006 p=0.000*		F=2.869 p=0.024*		F=3.003 p=0.019*	

Regarding the application of BSE by the student nurses, significant difference was observed between the mean scores of the CRHBMS total ($t=2.367$, $p=0.019$), perceived benefit regarding BSE application ($t=5.991$, $p=0.000$), perceived barriers regarding BSE application ($t=-7.625$, $p=0.000$), perceived confidence regarding BSE application ($t=5.537$, $p=0.000$) and health motivation ($t=3.858$, $p=0.000$) ($p<0.05$). It was detected that the mean scores of the nurses who stated that they perform BSE were higher in the CRHBMS total and all sub-items (except the perceived barriers) than those who stated they do not perform BSE.

A statistically significant difference was observed between the frequency of BSE application by nurses and CRHBMS total ($F=2.632$, $p=0.050$), perceived benefits regarding BSE application ($F=11.988$, $p=0.000$), perceived barriers regarding BSE application ($F=19.045$, $p=0.000$), perceived confidence regarding BSE application ($F=11.169$, $p=0.000$) and health motivation sub items ($F=5.392$, $p=0.001$) ($p<0.05$). It was detected that the mean scores of the nurses who stated that they perform BSE once a month were higher than those of the other groups.

A significant difference was observed in the mean scores between the educational status concerning BSE of the nurses and CRHBMS total score ($t=3.403$, $p=0.001$), perceived benefits regarding BSE application ($t=3.457$, $p=0.001$), perceived barriers regarding BSE application ($t=-4.182$, $p=0.000$) and perceived confidence regarding BE application sub items ($t=7.770$, $p=0.000$) ($p<0.05$). A significant difference was observed between the mean scores of the source of the information on BSE and the CRHBMS total ($F=3.003$, $p=0.019$), perceived benefits regarding BSE application ($F=3.155$, $p=0.015$), perceived barriers regarding BSE application ($F=7.269$, $p=0.000$), perceived confidence regarding BSE application ($F=16.006$, $p=0.000$) and health motivation ($F=2.869$, $p=0.024$) sub-items ($p<0.05$). It was detected that the mean scores of the nurses who stated getting the information from health personnel were higher in the total CRHBMS and sub-items than those who stated that they got the information from other people.

Discussion

Self breast examination may provide early detection of possible cancer and reduces the success rate of treatment. Although young women in university are at a low risk of breast cancer, the world health organization marks the importance of developing a knowledge concerning breast health at an early age (Gursoy et al., 2009).

Regular self breast examinations are extremely important in the health of an individual and in early detection of possible breast cancer. The number of studies investigating the preventive applications of women in Turkey is limited; however, it has been detected that the majority of Turkish women do not perform BSE (GOzUm and Aydin, 2004). In many studies concerning this issue among nursing or midwifery students, it has been observed that the rate of BSE application was between 27-75%. However, the rate of regular monthly examinations was

less (13-46%). The rate of those who never perform BSE is equal to those who rarely perform it (Karadag, 2010; KocatUrk and Aydin, 2005; Eskiocak et al., 2005; Ates et al., 2005; GOk et al., 2009). In this study, the rates of those who perform (46.8%) and who do not perform (53.2%) BSE parallel the rates in literature. The American Cancer Society recommends BSE, provided that a check by health personnel is performed once every 3 years in the 20-40 year old age group and once a year in elder age groups (American Cancer Society, 2013).

In the study, student nurses were asked why they performed BSE, and the answer was "prevention" in 33.3%. Among those who were asked why they didn't perform BSE, the reason was "I don't know" in 6.3%. In the study by Beydag and Karaoglan (2009), 50% of the students did not know how to perform BSE. Kilic (2009) has reported that 33.5% of the students had information on breast cancer and BSE, but only 19.5% had performed BSE. Akkus et al. (2005) reported that university students had no information on the timing or application of BSE. The findings observed, both in this study and in other studies, report that the students didn't have sufficient information on BSE. Therefore, it was concluded that student nurses need to get additional education and that the education provided by health care professionals needs to be repeated regularly.

The mean CHMBS scores of the student nurses revealed the following data (Table 2). The perceived susceptibility regarding breast cancer (7.78 ± 2.46), perceived seriousness regarding breast cancer (22.41 ± 5.43), perceived confidence regarding BSE application (36.26 ± 7.78) and health motivation (25.72 ± 4.59) sub-items and the mean total score of the scale were moderate. The mean score of perceived benefits regarding BSE application sub-item (20.54 ± 4.45) was high. The mean score of the perceived barriers regarding BSE application (23.76 ± 7.13) sub-item was low. Karayurt et al. (2008) reported that the mean scores of perceived susceptibility, seriousness, benefits, barriers, confidence and health motivation sub-items were 8.0 ± 2.1 , 21.5 ± 5.1 , 19.1 ± 3.8 , 27.0 ± 5.9 , 31.2 ± 6.9 and 25.1 ± 5.3 , respectively. The findings in the study by Karayurt et al. support the findings in our study. Budden (1999) detected that the perception of seriousness and benefits were high, susceptibility and health motivation were moderate, and barriers were low. Ruda et al. (1992) detected the perception of benefits as high. The outcomes of related studies are similar to those observed in our study. The results of this study showed that the mean scores of the health beliefs of the student nurses concerning BSE application were generally moderate, the perception of benefits was high, and the perception of barriers was low. The presence of a high perception of benefit and low perception of barriers indicate a high probability of starting a behaviour. This suggests that the students may accept and apply BSE more frequently. The problems that young women experience with their breasts are generally premenstrual syndrome-related density and pain problems, which are not related to cancer. These problems may have resulted in an increased susceptibility of the student nurses regarding breast cancer.

The correlation between the class of nurses and the

CHMBS sub-items revealed the following (Table 3). The positive increase in the mean scores observed in the last class of the school supports the findings of Karadag (2010). In particular, the increase in the perception of barriers and confidence was related to insufficient education in the first class of the school. In the second and higher classes, an increased susceptibility towards BSE application was due to more informative lessons concerning the disease's prevention, and psychomotor behaviour development in the higher classes resulted in the self-confidence of students concerning BSE application. This belief was supported by the study of Budden et al. (1999).

The correlation between the age of the nurses and the CHMBS revealed the following (Table 3). The mean scores of the student nurses over 25 years of age in the CHMBS scores and its sub-items were higher than those observed in the other age groups. It was observed in the study by Karadag (2010) that the perception of confidence was higher in the 25 and older age group than those of the other age groups. According to these results, it may be concluded that the awareness of the student nurses concerning the importance of the BSE application increased with an increased in age. Furthermore, the increased risk of breast cancer in increased ages may be another factor affecting the increased awareness of students.

It was an expected outcome that the mean scores observed in the students who declared to know how to perform BSE in the CHMBS and its sub-items were higher than those who declared not knowing or partially knowing the application. This finding shows that the desired awareness is present for the student nurses.

A significant relationship was observed between BSE application status and the perceived benefit, barriers, confidence, health motivation sub-items of CHMBS. The perceived confidence and health motivation were high in the study of Karayurt et al. (2008), similar to our study. It may be concluded that the higher perceived confidence of the students who have performed BSE than those who have not, may be due to the higher perceived BSE application ability. The higher health motivation in the same group may be related to the stronger will of maintaining and developing health.

A significant correlation was observed between BSE frequency of student nurses and perceived benefit, barriers, confidence and health motivation sub-items of CHMBS. It was observed that the mean score of students who mentioned performing BSE once a month was higher than other mean scores in the CHMBS total and sub-items. This was related to the health-related education of these student nurses, which was an expected outcome.

A statistically significant correlation was observed between the educational status of student nurses regarding BSE and the perceived benefit, barriers, and confidence sub-items of the CHMBS. Although the risk of breast cancer increases with the increase in age, particularly over 50 years, it is important to start preventive education on breast health at an early stage in order to provide a habitual behaviour. Studies have shown that educational programs on BSE application have resulted in wider knowledge and regular examination, which in turn resulted

in the perceived benefit, health motivation and confidence (Beydag and Karaoglan, 2007; GURsoy et al., 2009).

It was observed, in our study, that the mean scores in the total CHMBS score and its sub-items of students who received BSE education from health personnel were higher than those who mentioned getting the education from other people. This is an indicator of easier contact of student nurses with people in the same occupational group.

Nurses, who have an important role in health care services, are also important in defining informational requirements of women concerning breast cancer and teaching them the application of BSE. They should educate women according to the recommendations of The American Cancer Society and teach the application of BSE. The outcomes obtained in this study indicated the importance of student nurses, who have a key role in teaching preventive health behaviours including BSE to society and other university students as colleagues.

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