Investigation of Beliefs and Practices of University Students Regarding Breast Self-Examination

Üniversite Öğrencilerin Kendi Kendine Meme Muayenesine İlişkin İnanç ve Uygulamalarının İncelenmesi

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Abstract

Objective: Aim of this study was to investigate university students' knowledge, behaviour and awareness of breast self-examination and health beliefs about early detection of breast cancer.

Method: A descriptive and cross-sectional study was conducted with 610 university students. Data were collected between November 2022 and April 2023 using "Personal Information Form" and "Champion Breast Cancer Health Belief Model Scale".

Results: Students had knowledge about breast cancer (72.0%), knew how to perform breast self-examination (62.8%) and learnt it from internet (46.9%). Students performed breast self-examination once a month (36.8%) and whenever they remembered (74.2%). The familial risk factors significantly increased the sensitivity levels of students. The region where they came from increased the level of taking the disease seriously (p<0.05). The sensitivity, motivation, benefits, barriers, self-efficacy subscale scores and total scale scores were significantly higher (p<0.05) among students who had information about breast cancer and who performed breast self-examination monthly or annually, on the first day of each month or whenever they thought of it were found to be statistically significant higher (p<0.05).

Conclusion: It was concluded that increasing awareness could increase health beliefs about breast cancer screening. Also, students' health beliefs were dependent on variables such as geographical region of residence, faculty of study, family history of cancer, knowledge level, use and frequency breast self-examination and reasons for doing and not doing breast self-examination. There is a need for intensive and comprehensive breast cancer education and breast self-examination awareness. It is important to include demographic variables and individual experience characteristics in the training curriculum.

Keywords: breast self-examination; breast neoplasms; students; health belief model

Özet

Amaç: Bu çalışmanın amacı, üniversite öğrencilerinin kendi kendine meme muayenesi konusundaki bilgi, davranış ve farkındalıkları ile meme kanserinin erken teşhisi konusundaki sağlık inançlarını araştırmaktır.

Yöntem: Tanımlayıcı ve kesitsel çalışma 610 üniversite öğrencisi ile gerçekleştirildi. Veriler Kasım 2022 ile Nisan 2023 tarihleri arasında "Kişisel Bilgi Formu" ve "Champion Meme Kanseri Sağlık İnanç Modeli Ölçeği" kullanılarak toplandı.

Bulgular: Öğrencilerin meme kanseri hakkında bilgi sahibi olduğu (%72,0), kendi kendine meme muayenesi yapmayı bildiği (%62,8) ve internetten (%46,9) öğrendiği bulundu. Öğrencilerin kendi kendine meme muayenesini ayda bir defa (%36,8) ve ne zaman akıllarına gelirse (%74,2) yaptıkları belirlendi. Ailesel risk faktörü bulunan öğrencilerin duyarlılık düzeylerinin anlamlı derecede arttığı belirlendi. Öğrencilerin geldikleri bölgenin hastalığı ciddiye alma düzeylerini arttırdığı bulundu (p<0,05). Meme kanseri hakkında bilgi sahibi olan, aylık ya da yıllık olarak, her ayın ilk günü ya da aklına geldikçe kendi kendine meme muayenesi yapan öğrencilerin, duyarlılık motivasyon, yarar, engel, öz yeterlilik alt ölçek puanları ve toplam ölçek puanları istatistiksel olarak anlamlı düzeyde yüksek saptandı (p<0,05).

Sonuç: Farkındalığın artırılmasının meme kanseri taramasına ilişkin sağlık inançlarını artırabileceği belirlendi. Ayrıca, öğrencilerin sağlık inançlarının ikamet edilen coğrafi bölge, öğrenim görülen fakülte, ailede kanser öyküsü, meme kanseri hakkında bilgi sahibi olma, kendi kendine meme muayenesi yapma sıklığı, yapma ve yapmama nedenleri gibi değişkenlere bağlı olduğu sonucuna varıldı. Meme kanseri ve kendi kendine meme muayenesi farkındalığı konusunda yoğun ve kapsamlı bir eğitime ihtiyaç vardır. Eğitim müfredatına demografik değişkenlerin ve bireysel deneyim özelliklerinin entegre edilmesi önemlidir.

Anahtar Sözcükler: kendi kendine meme muayenesi; meme neoplazileri; öğrenciler; sağlık inanç modeli

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Introduction

Breast cancer is the leading cause of death in women worldwide who have no specific risk factors other than gender and age (1). In the World Health Organization's Global cancer statistics report, it is reported that approximately 20 million new cases of cancer were diagnosed, of which 2.29 million (11.6%) were breast cancer and all cases were female. The same report states that 9.7 million people died from cancer, of whom 665,700 (6.9%) died from breast cancer. This means that 6301 women are diagnosed with breast cancer per day and 1824 women die from breast cancer per day (2,3).

In Turkey, breast cancer is highly prevalent among women, posing a significant threat to their health, affecting 46.8 individuals per 100,000 (3). The International Association for Cancer Research reports that in Türkiye 240,013 new cases of cancer were diagnosed, of which 25,249 (10.5%) were breast cancer. The same report states that 129,672 people died from cancer, of whom 7360 (5.7%) died from breast cancer (3).

The WHO's Global Breast Cancer Initiative (GBCI) aims to decrease worldwide breast cancer mortality by 2.5% annually and avert 40% of it by 2040. According to the GBCI, the essential steps toward achieving these goals involve urging women of all ages to undertake breast self-examination (BSE) at least once a month, and conducting regular clinical examinations and mammography screenings (1). In Turkey, the National Breast Cancer Screening Programme aims to diagnose breast cancer as early as possible. The programme includes counselling for all women over the age of 20, annual clinical breast examinations and mammography screenings every two years for women aged 40-69 (4). As a routine screening measure for women aged 20 to 30 years, BSE has become increasingly important as it must be utilized beyond clinical examination and mammography (5). Furthermore, Nde et all. (2015) have reported a positive correlation between BSE performance and breast cancer diagnosis (6). Despite its significant potential in early breast cancer diagnosis, a systematic review found that the percentage of women practicing BSE is inadequate, ranging from 23.0 to 68.3% (7). This situation remains unchanged in our country, with only 7.3-32.5% of women adopting BSE (5). However, raising women's awareness of the signs, symptoms, early detection and treatment of breast cancer enables medical intervention before the progression of the current cancer (1). This simultaneously supports the increase in survival rates and quality of life (8). It is advised for women to undergo regular monthly BSE from the age of 20 years to detect any abnormal changes in the breast (9).

Owing to the high prevalence of breast cancer among young individuals in our nation, the health attitudes of young people towards BSE practices and BSE hold significant importance (10). Ascertaining the beliefs and attitudes of students towards breast cancer screening behaviors will serve as the foundation for devising appropriate health education programmes, which will provide essential awareness to individuals in the young age bracket for early diagnosis (11). This study was conducted to assess young women's knowledge, behavior, awareness and health beliefs regarding BSE, which plays a crucial role in breast cancer's early detection. While there have been several studies about this topic in various parts of Turkey, there is no published data widely available for the Eastern Anatolia Region. Thus, this study is presumed to provide a basis for future research on BSE.

Method
Design

This cross-sectional descriptive study explores the relationship between the demographic attributes of university students and their beliefs and practices towards breast self-examination. The study aims to address the following research inquiries:

1. What is the level of awareness among university students concerning early detection techniques for breast cancer?
2. What are the attitudes of university students towards early detection methods of breast cancer?
3. Which independent variables influence the use of breast cancer early detection methods?
4. What are the health beliefs of university students regarding breast cancer?

Sampling and Setting

This research is a cross-sectional study conducted on a sample of female students between November 2022 and April 2023 at a university in the Eastern Anatolia Region in the 2022-2023 academic year. The students were selected from a pool of 3120 students enrolled in the various faculties of the university. A power analysis was conducted using Cochrane's (1977) formula for categorical data. This a priori analysis indicated that 350 participants were needed when employing 0.05 (95% CI) criteria for statistical significance. The study involved 610 female students studying in the Faculties of Health Sciences, Literature, Engineering, Sports Sciences, Communication, Economics and Administrative Sciences, Fine Arts, Design and Architecture at Munzur University.

Inclusion criteria;
- Continuing their education at Munzur University,
- Between the ages of 20-30 and who verbally and in writing agree to participate in the study,
- Active student enrollment during the academic semester in the period in which the research was conducted,
- Ability to read and write in Turkish,
- Female undergraduate students were included in the study.
- Exclusion criteria;
- Previous diagnosis of breast cancer,
- Students with a history of previous breast surgery were excluded from the study.

Ethical approach

To conduct the study, the approval for ethical compliance was obtained from the Non-Interventional Clinical Research Ethics Committee of University (dated 01.11.2022 and numbered 2022/12-01), and institutional permission was obtained from the University. An informed consent from the students was obtained for participation in research. All study procedures were performed in accordance with the Helsinki Declaration and ethical standards.

Data Collection

The data were collected between November 2022 and April 2023, on random days of the week on the University campus. The research data were collected online using a Google form link shared with the participants. Data were collected using a personal characteristics information form developed from the literature and, in addition, health beliefs about early diagnosis of breast cancer were measured using the Champion's Health Belief Model Scale (CHBMS). After obtaining ethical approval to conduct the study, permission was requested from the University. During data collection, the researchers visited the faculties and collected data from available participants who met the inclusion criteria. After explaining the study procedures and participant rights, the study link was shared with the students who agreed to participate in the study. They were asked to approve the informed consent form on the first page of the study link. Participants who did not approve the consent form were not allowed to see the questions.

Instruments

Personal Information Form: Descriptive and demographic characteristics; age, income status, place of residence, etc. and knowledge and attitudes towards CHCMM practices are included in a total of 20 questions created by the researcher.

Champion's Health Belief Model Scale (CHBMS): The Breast Cancer Health Belief Model Scale was developed by Champion (1984) based on the health belief model regarding beliefs about early diagnosis of breast cancer (12). In this study, the validity and reliability study of CHBMS conducted by Gözüm & Aydın (2004) was used (13). The "barriers to mammography" and "benefits of mammography" sub-dimensions of the scale were not used in the study. A total of 6 sub-dimensions and 36 items were used, including "sensitivity" (3 items), "caring/seriousness" (6 items) and "health motivation" (5 items), "barriers" (8 items), "benefits" (4 items) and "self-efficacy" (10 items) related to CHBMS. The scale is a five-point Likert scale. Increasing scores indicate that sensitivity and caring increase, benefits are perceived as benefits, and obstacles are perceived as obstacles. In the scale developed by Gözüm & Aydın (2004), Cronbach's alpha reliability coefficients were found to be 0.69 and 0.70 (13). In our study, Cronbach's alpha coefficients were 0.761 for the sensitivity

subscale, 0.710 for the severity subscale, 0.714 for health motivation, 0.725 for perceived benefits, 0.723 for perceived barriers, and 0.734 for self-efficacy.

Data analysis

The scale dimensions and total scores were tested for their compliance with normal distribution by Kolmogorov Smirnov Test. However, all dimensions of scale show a normal distribution. Therefore, parametric tests were used to analyze these dimensions. All analysis was conducted by Statistical Package for the Social Sciences (SPSS) version 27.0, and the significance level was set at an alpha level of 0.05 (two-tailed). For descriptive analysis, mean and standard deviation were used for numerical variables and number and percentage for categorical variables.

Results

The mean age of the students participating in the study was 20.3±1.5 years. The mean age at first menstruation was 13.2±1.2 years. When the economic status of the students was analyzed, it was found that 55.2% of the students' income was less than their expenses, 47.0% of the students lived in the province, 36.9% of the students came to the university from the Southeast Anatolia region, and 91.1% of the students studied at the Faculty of Health Sciences of the university. When the students were asked about their family history of breast cancer, it was found that 9.3% of the students had a family history of breast cancer and the closest person who had been diagnosed was most often their aunt with a rate of 26.3% (Table 1).

It was found that 72.0% of the students had information about breast cancer and 62.8% of them knew how to perform BSE. When the information sources of the students about BSE were analyzed, it was determined that the majority of the students received information from the internet (46.9%) and health workers (36.6%), but 51.0% of the students did not perform BSE. When the students who stated that they did not perform BSE were asked about the reasons, it was found that they did not perform BSE because they were not shown how to do it, they did not know what to look for (35.7%) and they did not care (23.5%). When the reasons for performing BSE were questioned, it was

determined that they thought it was important (42.5%) and to take precautions for breast Ca (34.1%). It was found that the majority of the students who performed BSE performed it once a month (36.8%), whenever it occurred to them (74.2%) and using one of the palpation methods (horizontal, vertical, circular) (33.1%) (Table 2).

When comparing the income status of the students with the scale dimensions, it was discovered that those whose income was greater than their expenses achieved high scores in sensitivity and self-efficacy subscale scores (p>0.05), while those whose income was equal to their expenses achieved high scores in motivation and benefits of BSE subscale scores (p>0.05). Students whose income was lower than their expenses achieved high scores in seriousness, BSE barriers subscale scores, and total scale score (p>0.05). When comparing the students' place of residency for the longest duration to scale dimensions, it was observed that those inhabiting the village displayed high scores in the subscale categories of seriousness, benefits, barriers, and self-efficacy, as well as the total scale score (p>0.05). Conversely, those residing in the province exhibited low scores in the total scale score and all subscale scores (p>0.05). Students from the Black Sea region demonstrated high levels of seriousness (p<0.05) in this study. In contrast, students from the Central Anatolia region scored high on motivation, benefits, and self-efficacy subscale scores, as well as total scale scores (p>0.05). Those from the Southeastern Anatolia region scored high on sensitivity, while students from the Eastern Anatolia region demonstrated high levels of barriers to BSE subscale scores (p>0.05). It was found that students in the sports science department of the university achieved high scores in sensitivity, seriousness (p<0.05), self-efficacy and barriers to BSE subscale scores and overall scale scores (p>0.05). Similarly, those studying fine arts attained high scores in the motivation subscale (p>0.05) whilst students in the health sciences obtained high scores in the benefits of BSE subscale (p>0.05). It was found that students with a family history of breast cancer had elevated scores in sensitivity (p<0.05) and seriousness (p<0.05), as well as motivation and benefits of BSE subscale scores (p>0.05).

Table 1. Demographic characteristics		
Age	**Mean ± SD¹**	
	20.3 ±1.5	
	n	**%**
Income status		
Income less than expenditure	337	55.2
Income is equal to expenditure	247	40.5
Income more than expenditure	26	4.3
Longest inhabited place		
Province	287	47.0
District	205	33.6
Village	118	19.3
Geographical region of origin of students		
Aegean Region	94	15.4
Mediterranean Region	45	7.4
Central Anatolia Region	74	12.1
Eastern Anatolia Region	90	14.8
Southeastern Anatolia Region	225	36.9
Black Sea Region	15	2.5
Marmara Region	67	11.0
Faculty of enrolment		
Faculty of Health Sciences	556	91.1
Faculty of Literature	20	3.3
Faculty of Engineering	5	0.8
Faculty of Sport Sciences	8	1.3
Faculty of Economics and Administrative Sciences	7	1.1
Faculty of Fine Arts, Design and Architecture	14	2.3
Family history of breast cancer		
Existent	57	9.3
Non-existent	553	90.7
Degree of closeness of those diagnosed with breast cancer in your family (n=57)		
First degree relative	41	72.0
Second degree relative	16	28.0
Age at first menstruation	**Mean ± SD¹**	
	13.2 ±1.2	

Conversely, they exhibited lower scores in self-efficacy, BSE barriers subscale scores and total scale score (p>0.05) (Table 3).

When comparing the knowledge levels of students about breast cancer and BSE, including the scale dimensions, it was found that those with knowledge about breast cancer and BSE, who understood how BSE is performed and the appropriate age to begin, achieved high sensitivity, seriousness, motivation, BSE benefits subscale scores and total scale score (p<0.05). Students who were uninformed about breast cancer and lacked knowledge of how to perform

Table 2. BSE knowledge and attitude characteristics		n	%
Knowledge	**Knowledge about breast cancer (n=610)**		
	Any information	439	72.0
	No information	171	28.0
	Knowledge of how to perform breast self-examination (n=610)		
	Knowing how to perform BSE	383	62.8
	Do not know how to perform BSE	227	37.2
	Area/place/person who learnt breast self-examination (n=610)		
	Internet	286	46.9
	Health workers	223	36.6
	Books, magazines, etc.	30	4.9
	Phone apps	29	4.8
	Circle of friends	42	6.9
	Knowledge of the age of starting breast self-examination (n=610)		
	From the age of 20 onwards, think/recognize that breast examinations should be performed once a month for a lifetime	501	82.1
	Think/recognize that breast examinations should be performed once a month between the ages of 40-69	18	3.0
	Think/recognize that breast examinations should be performed once a month from the age of 35 for life	28	4.6
	Think/recognize that breast examinations should be performed once a month between the ages of 20-69	63	10.3
Attitudes	**Status of breast self-examination (n=610)**		
	Performing BSE	299	49.0
	Not performing BSE	311	51.0
	Frequency of breast self-examination (n=299)		
	More than once a month	64	21.4
	Once a month	110	36.8
	Once a year	34	11.4
	2-3 times a year	62	20.7
	Less than once a year	29	9.7
	Period/interval of breast self-examination (n=299)		
	Whenever I think of it	222	74.2
	During menstrual bleeding	23	7.7
	5-7 days after menstruation	48	16.1
	On the first day of every month	6	2.0
	Method of breast self-examination (n=299)		
	Squeezing the nipple and observing abnormalities	49	16.4
	Use of the inner side of the fingers used in palpation	54	12.0
	Using one of the palpation methods (horizontal, vertical, circular)	99	33.1
	Position technique in lying down examination	17	5.7

	Position technique in standing examination	44	14.7
	Examination of the armpit area	36	12.0
	Reasons for performing breast self-examination (n=299)		
	To take precautions for breast ca in advance	102	34.1
	Because she thinks it is important	127	42.5
	For being in risk group	16	5.4
	For protection	54	18.1
	Reasons for not performing BSE (n=311)		
Attitudes	Unable to apply it because it is not shown how to do it - because it does not know what to look for	111	35.7
	Not applying because they are too busy - forgetting	38	12.2
	Not practicing because she is too ashamed-ashamed of touching her breast	7	2.3
	Not practicing because of her young age	28	9.0
	Not practicing because they do not think about breast cancer	25	8.0
	Does not apply because she is afraid	11	3.5
	Does not apply because she does not care	73	23.5
	Status of performing BSE if shown (n=610)		
	Those who will perform BSE once shown how	531	87.0
	Those who will not perform BSE even if shown how to	79	13.0

BSE exhibited high scores on the self-efficacy and BSE barriers subscale (p>0.05). Whilst the sensitivity, motivation, and barriers to BSE subscale scores of the students who learned about BSE from their phone was high, the seriousness and self-efficacy subscale scores of the students who learned from their friends, and the BSE benefits subscale score of the students who learned from books and magazines were also high (p>0.05) (Table 4).

Upon comparing the attitudes of students towards breast cancer and BSE, along with the scale dimensions, it was discovered that the students who practiced BSE exhibited higher subscale scores in sensitivity, seriousness, motivation, benefits of BSE and total scale score (p<0.05). While the seriousness (p>0.05), motivation, and BSE benefit subscale scores and total scale scores of students who practiced BSE 2-3 times a year were high (p<0.05), those who practiced BSE less than once a year scored low in BSE barrier and self-efficacy subscales (p<0.05). In contrast, sensitivity subscale scores of those who practiced BSE more than once a month were high (p>0.05). It was discovered that students who performed BSE on the first day of each month obtain elevated scores in

motivation, BSE benefits, BSE barriers and self-efficacy subscale scores as well as the total scale score (p<0.05). The sensitivity and seriousness subscale scores of students who performed BSE whenever it came to mind were discovered to be high (p>0.05). The sensitivity, seriousness, and self-efficacy subscales, along with the barriers to BSE subscale (p<0.05), as well as the total scale score, indicated a high performance among students who conducted BSE while lying down. The sensitivity (p<0.05), seriousness, motivation, benefits of BSE, self-efficacy subscale scores and total scale score of the students who practiced BSE because they were in the risk group were discovered to be high (p>0.05). The subscale scores for sensitivity, seriousness, motivation, benefits and barriers of the BSE and the total scale score of the students who refrained from conducting BSE due to embarrassment or shame surrounding breast-touching were found to be high (p>0.05). Sensitivity (p>0.05), seriousness, benefits of BSE subscale scores and total scale scores of the students who stated that they would do BSE if they were shown how to do BSE were found to be high (p>0.05) (Table 5).

Tablo 3. Comparison of the students' demographic characteristics with Champion Health Belief Model Scale Mean Scores (CHBMS)

	Susceptibility Score X±SD	Seriousness Score X±SD	Health motivation Score X±SD	BSE benefits Score X±SD	BSE barriers Score X±SD	Confidence/ self-efficacy Score X±SD	CHBMS Total score X±SD
Income status							
Income less than expenditure	7.18±2.47	17.64±6.21	17.24±6.39	13.55±4.93	18.90±6.45	28.33±8.39	102.87±24.41
Income is equal to expenditure	6.85±2.19	17.19±6.25	17.88±6.71	13.78±5.24	17.93±5.70	27.29±8.32	100.93±21.94
Income more than expenditure	7.65±2.77	16.07±6.22	17.00±6.49	13.30±4.80	17.38±5.29	28.88±8.61	100.30±24.07
Total	7.07±2.38	17.39±6.23	17.49±6.52	13.63±5.06	18.44±6.12	27.93±8.37	101.98±23.41
Test /p	2.249/0.106	0.985/0374	0.760/0.468	0.214/0.807	2.230/0.108	1.281/0279	0.554/0.575
Longest inhabited place							
Province	6.98±2.39	17.03±6.13	17.51±6.51	13.64±5.08	18.33±6.12	27.92±8.51	101.44±23.50
District	7.15±2.45	17.56±6.25	17.59±6.72	13.58±5.24	18.49±6.11	27.94±8.31	102.33±23.92
Village	7.12±2.22	17.97±6.42	17.26±6.23	13.71±4.71	18.65±6.19	27.94±8.23	102.67±22.44
Total	7.07±2.38	17.39±6.23	17.49±6.52	13.63±5.06	18.44±6.12	27.93±8.37	101.98±23.41
Test /p	0.345/0.708	1.058/0.348	0.098/0.907	0.024/0.976	0.123/0.884	0.000/1.000	0.151/0.860
Geographical region of origin of students							
Aegean	6.72±2.36	16.17±6.31	18.14±6.36	13.96±4.78	17.97±5.70	27.65±8.02	100.64±21.60
Mediterranean	6.62±1.95	16.00±6.36	15.82±7.43	12.55±5.96	17.82±4.81	26.62±7.49	95.44±22.30
Central Anatolia	7.13±2.33	18.27±5.45	18.41±6.09	14.72±4.61	18.93±6.07	28.67±8.54	106.16±20.12
Eastern Anatolia	6.97±2.35	17.68±6.28	17.23±6.58	12.65±4.93	19.18±6.31	28.58±8.74	102.33±23.48
Southeast Anatolia	7.33±2.40	18.01±6.32	17.64±6.35	13.89±4.97	18.93±6.58	27.92±8.66	103.75±25.20
Black Sea	6.66±1.58	18.93±6.40	16.20±6.78	12.40±5.81	17.46±5.55	28.33±6.38	100.00±21.89
Marmara	7.11±2.77	16.26±6.07	16.79±6.92	13.43±5.35	16.58±5.52	27.44±8.33	97.64±23.19
Total	7.07±2.38	17.39±6.23	17.49±6.52	13.63±5.06	18.44±6.12	27.93±8.37	101.98±23.41
Test /p	1.166/0.323	**2.174/0.044**	1.171/0.320	1.828/0.091	1.817/0.094	0.430/0.859	1.658/0.129

Faculty of enrolment							
Faculty of Health Sciences	7.08±2.35	17.42±6.22	17.52±6.55	13.67±5.07	18.29±6.07	27.93±8.45	101.94±23.34
Faculty of Literature	6.90±3.00	15.95±6.24	17.30±5.75	13.65±4.97	19.45±7.04	27.65±7.93	100.90±23.75
Faculty of Engineering	6.20±2.16	18.20±7.32	16.60±5.63	12.40±4.39	23.40±4.39	30.60±6.76	107.40±27.02
Faculty of Sport Sciences	8.12±2.16	18.87±6.91	16.25±6.13	13.62±4.17	24.87±7.18	31.25±6.51	113.00±26.87
Faculty of Economics and Administrative Sciences	5.57±2.29	15.00±6.37	16.14±8.57	12.57±5.85	16.57±4.75	24.28±10.01	90.14±22.98
Faculty of Fine Arts, Design and Architecture	7.28±2.58	18.35±6.29	18.00±6.69	12.92±5.38	18.64±4.86	27.35±6.66	102.57±23.79
Total	7.07±2.38	17.39±6.23	17.49±6.52	13.63±5.06	18.44±6.12	27.93±8.37	101.98±23.41
Test /p	1.049/0.388	0.596/0.703	0.159/0.977	0.184/0.969	**2.766/0.018**	0.633/0.675	0.775/0.568
Family history of breast cancer							
Existent	7.98±2.53	17.64±6.26	18.12±6.47	14.28±4.98	17.87±6.29	27.52±8.63	101.83±23.35
Non-existent	6.97±2.34	17.37±6.23	17.42±6.53	13.57±5.06	18.50±6.11	27.97±8.36	103.43±24.12
Total	7.07±2.38	17.39±6.23	17.49±6.52	13.63±5.06	18.44±6.12	27.93±8.37	101.98±23.41
Test /p	**-3.057/0.002**	-0.321/0.748	-0.766/0.444	-1.008/0.314	0.738/0.461	0.387/0.699	-0.494/0.608

Discussion

Discussion of the Students' Demographic Characteristics with Champion Health Belief Model Scale Mean Scores (CHBMS)

Studies in the literature point out that health beliefs have a significant effect on women's breast cancer screening (14,15). It is also stated in the literature that socio-demographic characteristics of individuals can affect their health-related behaviors and attitudes (16). When income status and CHBMS sub-dimensions were compared, a significant difference was found between the income levels of the participants in the literature and the sub-dimensions of sensitivity perception, health motivation (17), benefits, barriers and self-efficacy (18). In our study, it was found that income status affected students' beliefs about early diagnosis of breast cancer, and perceived sensitivity to the disease and confidence in one's ability increased with increasing income level. In addition, it was found that the perceived seriousness of the disease and the perceived barriers to performing BSE increased as the income level decreased. In this study, it was determined that the environment in which the students lived affected their beliefs about the disease. Accordingly, the perceived seriousness of the disease, the level of perception that BSE is useful, and the level of confidence in their abilities in BSE were found to be high in students living in the village, but despite this, it was found that students perceived more obstacles in performing BSE. This is thought to be due to the fact that students have difficulty in accessing health education due to socioeconomic inequality and low living standards in the village, and that they pay less attention to the risk factors of breast cancer and BSE. The study found that the faculty in which students studied at university also influenced their beliefs

Tablo 4. Comparison of the students' knowledge characteristics about BSE with Champion Health Belief Model Scale Mean Scores (CHBMS)

Knowledge	Susceptibility Score X±SD	Seriousness Score X±SD	Health motivation Score X±SD	BSE benefits Score X±SD	BSE barriers Score X±SD	Confidence/ self-efficacy Score X±SD	CHBMS Total score X±SD
Knowledge about breast cancer (n=610)							
Any information (n=439)	7.18±2.36	17.57±6.09	17.91±6.42	14.10±5.08	18.23±5.97	27.89±8.45	102.91±22.33
No information (n=171)	6.77±2.41	16.93±6.55	16.39±6.66	12.43±4.81	18.98±6.48	28.05±8.21	99.58±25.90
Test /p	1.899/0.050	1.141/0.254	2.597/0.010	3.799/<0.001	-1.362/0.174	-0.214/0.830	1.579/0.115
Knowledge of how to perform breast self-examination (n=610)							
Knowing how to perform BSE (n=383)	7.10±2.37	17.56±6.24	18.23±6.25	14.42±5.02	17.85±5.98	27.45±8.42	102.63±22.42
Do not know how to perform BSE (n=227)	7.00±2.40	17.11±6.21	16.24±6.79	12.31±4.85	19.44±6.24	28.74±8.26	100.87±25.01
Test /p	0.492/0.623	0.874/0.382	**3.678/<0.001**	**5.061/<0.001**	**-3.118/0.002**	-1.857/0.064	0.900/0.369
Area/place/person who learnt breast self-examination (n=439)							
Internet (n=185)	7.01±2.45	17.50±6.20	17.96±6.75	14.16±5.28	18.42±6.27	27.65±8.67	102.77±23.15
Health workers (n=194)	7.17±2.32	17.34±6.02	17.77±6.27	13.99±4.88	17.96±5.64	28.02±8.44	102.27±22.45
Books, magazine (n=25)	7.32±2.17	16.92±6.46	18.32±6.86	14.88±5.91	17.16±5.05	27.76±7.22	102.36±20.81
Phone apps (n=11)	8.18±1.40	19.18±5.32	18.45±4.48	14.00±5.07	20.18±7.60	28.27±10.02	108.27±18.05
Circle of friends (n=24)	8.00±2.34	19.58±5.82	18.04±5.72	13.83±4.42	19.16±6.39	28.58±7.82	107.20±18.54
Test /p	1.467/0.211	0.983/0.417	0.073/0.990	0.191/0.943	0.783/0.537	0.095/0.984	0.423/0.792
Knowing the age of starting breast self-examination (n=610)							
Knowing the correct age at BSE (n=501)	7.12±2.41	17.67±6.20	17.70±6.25	13.86±5.02	18.56±6.14	28.11±8.45	103.04±23.09
Knowing the wrong age at the age of the first BSE (n=109)	6.83±2.19	16.10±6.21	16.53±6.96	12.60±5.10	17.90±6.03	27.09±8.00	97.07±24.32
Test /p	1.140/0.255	**2.405/0.016**	1.697/0.090	**2.359/0.019**	1.014/0.311	1.161/0.246	**2.424/0.016**

Tablo 5. Comparison of the students' attitudes characteristics about BSE with Champion Health Belief Model Scale Mean Scores (CHBMS)

Attitudes	Susceptibility Score X±SD	Seriousness Score X±SD	Health motivation Score X±SD	BSE benefits Score X±SD	BSE barriers Score X±SD	Confidence/self-efficacy Score X±SD	CHBMS Total Score X±SD
Status of breast self-examination (n=610)							
Performing BSE (n=299)	7.22±2.39	17.69±6.22	18.47±6.18	14.69±4.88	17.30±5.84	26.92±8.51	102.31±22.25
Not Performing BSE (n=311)	6.92±2.36	17.11±6.23	16.54±6.71	12.62±5.02	19.54±6.19	28.90±8.14	101.65±24.51
Test /p	1.529/0.127	1.149/0.251	3.699/<0.001	5.152/<0.001	-4.593/<0.001	-2.936/0.003	0.345/0.703
Frequency of breast self-examination (n=299)							
More than once a month (n=64)	7.50±3.08	18.13±7.01	17.31±6.82	14.40±5.31	16.62±6.33	26.10±7.72	100.09±25.31
Once a month (n=110)	7.13±2.22	16.57±5.98	18.38±6.52	14.68±5.27	17.26±5.44	26.38±8.86	100.42±22.10
Once a year (n=34)	7.10±2.05	18.30±5.87	17.96±5.99	13.67±4.54	17.81±5.34	28.38±7.77	103.26±20.19
2-3 times a year (n=62)	6.89±2.36	18.59±6.18	19.40±5.71	15.09±4.61	17.28±5.93	26.46±8.56	103.74±21.35
Less than once a year (n=29)	6.98±2.33	17.03±6.18	16.52±6.64	12.61±4.94	19.83±6.29	29.31±8.19	102.30±24.76
Test /p	0.761/0.551	2.068/0.083	3.931/0.004	6.342/<0.001	7.368/<0.001	4.445/0.002	0.409/0.802
Period/interval of breast self-examination (n=299)							
Whenever I think of it (n=222)	7.15±2.37	17.65±6.18	17.68±6.37	13.65±4.96	18.76±6.05	28.30±8.23	103.22±23.00
During menstrual bleeding (n=23)	6.42±2.44	15.02±6.15	14.64±7.47	11.45±5.65	16.90±6.04	24.85±9.11	89.30±23.87
5-7 days after menstruation (n=48)	6.89±2.39	16.86±6.24	17.66±6.76	14.52±5.25	16.50±5.79	26.42±8.36	98.88±23.12
On the first day of every month (n=6)	6.84±2.24	17.57±6.80	18.26±6.38	15.21±4.32	19.57±7.72	29.94±9.04	107.42±25.84
Test /p	1.387/0.246	2.482/0.060	3.903/0.009	3.581/0.014	3.368/0.019	3.246/0.022	5.363/0.001
Method of breast self-examination (n=299)							
Squeezing the nipple and observing abnormalities (n=49)	6.94±2.52	17.71±6.43	17.28±6.45	13.14±4.86	19.56±6.72	28.49±8.42	103.14±26.24
Use of the inner side of the fingers used in palpation (n=54)	7.31±2.47	17.30±5.92	18.11±6.49	14.40±4.98	17.20±6.40	27.80±8.19	102.15±21.61
Using one of the palpation methods (horizontal, vertical, circular) (n=99)	6.97±2.11	17.17±6.22	18.11±6.56	14.19±5.24	17.25±5.28	27.24±8.29	100.95±22.52

Position technique in lying down examination (n=17)	106.27±25.29	29.40±8.35	19.89±6.82	13.78±5.30	17.54±6.78	18.02±6.66	7.62±2.84
Position technique in standing examination (n=44)	100.49±22.50	27.16±8.69	18.55±5.68	13.57±4.98	17.17±6.41	17.37±5.97	6.65±2.25
Examination of the armpit area (n=36)	101.44±22.59	28.35±8.38	13.63±5.06	12.89±5.02	16.66±6.61	17.17±6.39	7.27±2.35
Test /p	0.452/0.812	0.752/0.585	**3.493/0.004**	1.542/0.175	0.855/0.511	0.212/0.957	1.403/0.221
Reasons for performing breast self-examination (n=299)							
To take precautions for breast ca in advance (n=102)	103.44±21.57	27.29±9.06	17.17±5.27	14.93±4.68	18.73±5.84	18.17±6.24	7.12±2.30
Because she thinks it is important (n=127)	100.18±21.61	26.58±8.48	17.08±5.51	14.40±5.09	18.03±6.39	17.07±6.17	7.00±2.30
For being in risk group (n=16)	110.12±26.79	27.31±9.25	17.12±7.71	15.75±4.95	20.00±6.12	19.68±6.47	10.25±3.21
For protection (n=54)	102.87±23.49	26.92±7.41	18.11±7.00	14.59±4.82	18.59±6.36	17.64±6.20	7.00±2.30
Test /p	1.143/0.332	0.142/0.935	0.420/0.738	0.478/0.698	0.607/0.611	1.177/0.319	**9.894/<0.001**
Reasons for not performing BSE (n=311)							
Unable to apply it because it is not shown how to do it - because it does not know what to look for (n=111)	100.42±25.26	28.36±8.27	18.92±5.87	12.67±4.98	16.77±6.91	16.93±6.53	6.68±2.34
Not applying because they are too busy - forgetting (n=38)	100.97±27.24	29.21±7.89	19.18±6.72	11.92±5.50	15.63±6.96	17.60±6.82	7..42±2.72
Not practising because she is too ashamed-ashamed of touching her breast (n=25)	111.57±19.38	30.14±2.96	21.00±4.61	14.71±4.99	18.00±6.27	19.28±4.82	8.42±1.27
Not practicing because of her young age (n=28)	98.67±26.96	26.17±8.67	18.75±7.55	12.78±5.56	16.71±7.61	16.89±6.19	7.35±2.49
Not practicing because they do not think about breast cancer (n=25)	99.80±23.26	26.40±8.07	19.24±5.96	12.88±5.26	16.40±6.75	18.40±6.47	6.48±2.20
Does not apply because she is afraid (n=11)	101.63±29.71	30.36±8.81	20.09±8.60	12.00±5.45	14.45±6.59	17.45±6.40	7.27±1.61
Does not apply because she does not care (n=73)	103.32±23.51	30.64±8.07	20.64±6.13	12.42±4.61	16.32±6.26	16.58±5.79	6.68±2.34

Test /p	1.151/0.331	0.406/0.898	0.558/0.790	0.418/0.891	0.694/0.677	1.585/0.139	0.468/0.857
Status of performing BSE if shown (n=610)							
Those who will perform BSE once shown how	7.12±2.37	17.65±6.16	17.91±6.42	14.09±5.01	18.31±5.94	27.80±8.37	102.82±22.95
Those who will not perform BSE even if shown how to	6.70±2.41	15.63±6.45	14.62±6.53	11.13±4.67	19.36±7.21	28.83±8.40	96.30±25.77
Test /p	1.448/0.148	**2.710/0.007**	**4.250/<0.001**	**4.788/<0.001**	-1.431/0.153	-1.020/0.307	**2.318/0.021**

about early diagnosis of breast cancer. Students from the Faculty of Sport had a higher perception of the seriousness of the disease and were more sensitive to the disease. And again, these students were found to have a high level of confidence in their ability to perform BSE, despite the perceived excessive barriers. Analyzing the results of the study in the light of this information, it can be assumed that female students' perception of seriousness of the disease at a high level and their perception of sensitivity to the disease, regardless of the faculty they study in, may increase their motivation to perform BSE. Again, our study found that students studying in the Faculty of Health Sciences believed that BSE was beneficial, while students studying in the Faculty of Fine Arts believed in health motivation. The literature has shown that, in line with the findings of our study, health science students have a high level of knowledge about BSE (19,20). This can be attributed to the fact that the course contents taken by health science students serve as the foundation of their knowledge regarding breast cancer and BSE practice. In faculties of sport science and fine arts, where there is limited or no health-related course content, students tend to share comparable attitudes towards BSE and health beliefs. This implies that breast cancer and BSE-related information may be passed down among peers. Therefore, students of similar age and gender can be appointed as peer educators, sharing the knowledge they have obtained. It is believed that providing health science students with knowledge and skills, particularly regarding BSE, and appointing them as change agents for peer education in various faculties could prove to be worthwhile. It has been reported that individuals with a family history

of cancer attach more importance to cancer screening tests (21). Studies in the literature report that women with a family history of cancer perform more BSE and have a higher perception of sensitivity and seriousness of the disease (16,22). In another study, students with a family history of breast cancer were found to have high self-efficacy for BSE, while benefits of BSE and health motivation were low (23). Although this study found that students with a family history of breast cancer were more sensitive to the disease, perceived the disease to be serious, believed that BSE was beneficial and had health motivation, it also found that students did not feel competent to perform BSE. The fact that students who had relatives with cancer were more sensitive may be due to their understanding of the possible influence of genetic factors in the development of cancer. Again, the fact that these students did not feel adequate in performing BSE may be due to the fact that they believed that they would already have breast cancer due to genetic predisposition and that early diagnosis with BSE would not be effective in preventing breast cancer.

Discussion of the Students' Knowledge Characteristics About BSE with Champion Health Belief Model Scale Mean Scores (CHBMS)
It has been reported that inadequate knowledge about breast cancer and BSE has a negative impact on BSE practice, and this situation leads to referrals to health facilities at advanced stages of the disease (16). In a cross-sectional study conducted on young Somali women, a significant difference was found between women's level of knowledge about breast cancer and the sub-dimensions of health

motivation, barriers and self-efficacy perceptions of BSE, where women with knowledge reported higher health motivation and confidence perceptions and lower perceptions of barriers (17). Another study found that the scores of the benefits, barriers, confidence and health motivation sub dimensions of women with information about breast cancer were statistically significant (24). This study found that students' level of knowledge about breast cancer and BSE and the sources from which they obtained the information influenced their beliefs about the disease. Accordingly, it was found that students who had knowledge (about breast cancer and BSE) were more sensitive to the disease, took the disease seriously, believed that BSE was useful and their health motivation increased. In line with the literature, it was considered a positive finding that the health beliefs of students from different regions of the country and studying in different faculties were positively influenced in a common way and their health motivation increased. In the literature, it has been reported that the most frequently used tool for students to obtain information about BSE and breast cancer is the internet, and the sources of information are radio, television, friends, books/magazines, health professionals, school and family (23,25,26). In this study, telephone applications, which were the most commonly used source of information, increased students' perception of disease sensitivity and their belief in health motivation, but at the same time caused them to perceive more barriers in performing BSE. The fact that students received information from their friends made them take the disease more seriously and increased their confidence in their ability to perform BSE. The use of books and magazines as sources of information increased the students' belief that BSE was useful.

Discussion of the Students' Attitudes Characteristics About BSE with Champion Health Belief Model Scale Mean Scores (CHBMS)

According to the health beliefs model, there is a positive correlation between health motivation, sensitivity, severity and perceived benefits and a negative correlation with perceived barriers (27). In the literature, there are studies showing that women's higher perceived sensitivity is associated with higher BSE performance (13,16),

while there are studies finding no relationship between BSE practice and perceived sensitivity and benefit (28). Knowing how to perform BSE and performing it correctly is important for the effectiveness of the examination, and knowing how to perform it also affects the status of performing BSE (16). In another study in the literature, the sensitivity, benefits and self-efficacy of women who knew how to perform BSE were found to be significant and high (17). Our study found that students' attitudes towards breast cancer and BSE influenced their beliefs about the disease. For example, performing BSE helped students to be more sensitive to the disease, to take the disease seriously, to believe that BSE is useful, and to increase their health motivation. In addition, our study found that students' perceptions of disease severity and health motivational beliefs increased as the frequency of performing BSE increased. It has been reported in the literature that women who perceive fewer barriers and have higher motivation increase the frequency of BSE and perform them every month (22). Therefore, educational programmes that emphasize the benefits of BSE can be considered as an important strategy to overcome barriers to BSE by increasing women's self-efficacy. Again, in our study it was found that the time spent performing BSE and performing BSE in the supine position increased students' perceptions of sensitivity and seriousness of the disease, their health motivation, their level of belief that BSE is useful, their confidence in their ability to perform BSE and also caused them to perceive more barriers to performing BSE. In a study conducted with Omani undergraduate students, the majority of students reported that they felt funny while performing BSE and that performing BSE was embarrassing for them (9). Consistent with the literature, our study found that students who did not perform BSE because they were too embarrassed/ashamed to touch their breasts, despite being perceived as sensitive to the disease, taking the disease seriously, and believing that BSE was beneficial, also perceived too many barriers to performing BSE. Women's knowledge of how to perform BSE affects their perception of the benefits of BSE and their self-efficacy for BSE. In a study conducted among Saudi women, the most important reason given for women not performing BSE was not knowing how to examine their breasts or not being confident in

their ability to do so (16). This study found that the students who said they would perform BSE if they were shown how to do it were sensitive and serious about the disease and believed that BSE was useful. It is believed that the number of women who perform BSE and the confidence of women in their health beliefs and self-efficacy will increase if the BSE training to be given is explained in a practical way.

Conclusion

In order to prevent breast cancer, it is very important to instill health beliefs about early detection in young people from their 20s and to support them with additional courses and training on the subject. In general, the results of this study show that health beliefs about breast cancer screening can be improved by increasing awareness. In addition, this study shows that students' health beliefs depend on variables such as geographical region of residence, faculty of study, family history of cancer, having information about breast cancer, use of breast self-examination and frequency of use, duration of use, reasons for use and reasons for not using breast self-examination. In the light of these findings, there is a need to integrate demographic variables and individual experience characteristics into the educational curriculum and to design an intensive and comprehensive educational intervention on breast cancer awareness while educating young people, the future generations, about breast cancer and breast self-examination. In addition, efforts such as quality improvement programmes, which may include various strategies to improve breast cancer prevention practices and increase knowledge and awareness in all educational settings, should be expanded.

Limitations and Suggestions

As the study was conducted in only one public university and the 610 students who volunteered there, the generalizability of the present findings is limited. Another limitation is that the data collection was based on a self-administered questionnaire, so the data may be subject to information bias. Future national studies are recommended. The current literature on predictors of BSE is limited. It is therefore recommended that further studies are conducted to investigate the predictors of BSE using the Health Belief Model.

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