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Determination of health beliefs and practices of university students towards breast cancer

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Abstract

This study was conducted as a descriptive study to determine the health beliefs and practices of university students towards breast cancer. The study was conducted between 05.06.2021 and 20.06.2021 with the participation of 522 female students who were studying in a university and who agreed to participate in the study. The data were collected with an information form prepared in line with the literature by the researcher which included 24 questions to find out the sociodemographic characteristics and health beliefs and practices of students towards breast cancer and Champion Health Belief Model Scale. Normality distribution of the data was evaluated with Shapiro–Wilk and Kolmogorov–Smirnov tests. Kruskal–Wallis test and Mann–Whitney U test were used in data analysis.

It was found that 98% of the students in the study were single, 70.8% had a nuclear family and 34.2% had a democratic family structure; families of 83.2% had social security, 71.4% had knowledge about breast cancer, 27.1% received information about breast cancer from the Internet and 25.5% from school; 60.1% knew how to make breast self-examination (BSE), 33.5% made BSE whenever they thought of it, 93.5% did not have clinical breast examination, 85.9% did not have any relatives diagnosed with breast cancer and the mean age of the patients was found as 20.5 ± 1.5 . Students had a median score of 7 (3–15) from Champion's Health Belief Model Scale susceptibility subscale, a median score of 21 (6–30) from seriousness subscale, a median score of 23 (5–25) health motivation subscale, a median score of 18 (4–20) from BSE benefits subscale, a median score of 14 (8–40) from BSE barriers subscale, a median score of 33 (10–50) from BSE self-efficacy subscale, a median score of 20 (5–25) from mammography benefits subscale and a median score of 23 (11–55) from mammography barriers subscale. In line with the scores students got from Champion's Health Belief Model Scale subscales, it was found that students had moderate level of susceptibility perception, high level of seriousness, health motivation, BSE self-efficacy, BSE benefits and mammography benefits perceptions and low level of BSE barriers and mammography barriers perceptions. In line with the

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results found, it is recommended to increase students' awareness about practices to prevent breast cancer and early screening methods.

Keywords: Belief, breast cancer, health, practice, student.

1. Introduction

Breast cancer is a disease in which the cells in breast tissue change and divide uncontrollably [1]. Breast cancer, which is among the most common cancer types among women in the world and in our country, is also among the leading causes of cancer-related deaths [2]. Breast cancer is responsible for one out of every six cancer-related deaths in the world. According to GLOBOCAN 2020 data, it was reported that 2.3 million women had been diagnosed with breast cancer and 685,000 breast cancer-related deaths occurred [3]. In Turkey, age-standardised breast cancer rate was reported as 45.6 per 10,000 in 2016 [4].

When compared with other types of cancer, breast cancer affects the young population significantly and causes life expectancy to get shorter [2]. This situation shows the importance of early diagnosis in breast cancer [5]. Early diagnosis is the most effective method in protecting and improving health, decreasing disease and death rates and increasing quality of life in breast cancer [6]. Breast cancer early diagnosis methods include breast self-examination (BSE), clinical breast examination (CBE) and mammography [7]. In our country, the Ministry of Health Cancer Department recommends women to have BSE each month regularly starting from the age of 20; women older than 20 years of age to have CBE once every 2 years and women older than 40 to have CBE once every year; and women between the ages of 40 and 69 to have mammography once every 2 years [8].

In breast cancer, the first symptom is usually revealed when women notice a palpable mass in the breast. Finding the mass shows the importance of breast self-examination for women [9]. When it is considered that mammography, which is considered as the gold standard in breast cancer diagnosis, is not used in young women, BSE becomes much more important [10].

In some of the studies showing university students' level of knowledge about breast cancer in our country and in the world, it was reported that university students had a low level of information [2], [11], [12], [13], skills [14] about BSE and they gained information about breast cancer through mass media [14], [15], [16]. In another study conducted on this subject, university students listed their barriers to performing BSE as lack of information, not considering themselves under risk and lack of doctor's advice [17]. It was reported in Health Statistics Yearbook 2016 data that in our country 19.7% of the women aged 15 and older performed BSE once a month, 7.9% performed once every 3 months, 11.9% performed in more than 3 months and 60.6% never performed BSE [18].

In young age groups, the development of knowledge, belief and behaviour affect the family and society. University students constitute one of the most important target groups in gaining positive health behaviours and they are considered as the appropriate age group in raising more awareness about breast cancer and BSE [10]. For this reason, it is very important to increase the awareness of young women about breast cancer, to raise awareness in them about screening and in helping them gain health promotion behaviours [19]. In line with the results found in this study, university students' knowledge, beliefs and practices about breast cancer will be determined and with the data obtained, appropriate strategies will be developed to increase the awareness of students about practices to prevent breast cancer and about early screening methods.

1.1. Objective of the study

Answers were sought to the following questions in this study which was conducted to find out the beliefs and practices of university students about breast cancer:

- What are the sociodemographic characteristics of university students?
- What are the factors affecting university students' health belief and practices about breast cancer?

2. Material and methods

2.1. Place and time of the research

This descriptive study was conducted between 05.06.2021 and 20.06.2021 with the participation of 552 students who were studying at the Health Services Vocational School of a university and who volunteered to participate in the study.

2.2. Population and sample of the research

In determining the number of samples, the following formula, which is used to identify the number of individuals to be included in the sample when the population is known, was used [20]. The sample was calculated as 306 with a 5% error and 95% confidence interval out of a total of 1,500 female students studying at the Health Services Vocational School of the university where the study was conducted. Considering that there would be data loss, data collection process was completed when the number of students reached 552. Female students who volunteered to participate in the study were included in the study.

2.3. Tools for data collection

In this study, the data were collected by using 'Student Information Form' and 'Champion's Health Belief Model Scale'. The information form for university students consists of 24 questions to determine the sociodemographic characteristics and breast cancer belief and practices of students. The form was tested by making a preliminary application in a group of 10 students and the students who participated in the pilot study were not included in the sample. Ethics committee approval was taken from Human Researches Ethics Committee before starting the study. The data were collected by the researchers after the students who participated in the study were informed about the study and their informed consents were taken.

2.3.1. Champion's Health Belief Model Scale

Champion's Health Belief Model Scale was developed in 1984 by Victoria Champion to measure individuals' beliefs about breast cancer and BSE [21]. The scale which was developed by Gozum and Aydin [9] is a 5-point Likert-type scale consisting of 52 items adapted into Turkish. The scale items are scored as '1 = strongly disagree', '2 = disagree', '3 = neutral', '4 = agree', '5 = strongly agree'.

Champion's Health Belief Model Scale consists of eight subscales as 'susceptibility', 'seriousness', 'health motivation', 'BSE barriers', 'BSE benefits', 'BSE self-efficacy', 'mammography benefits' and 'mammography barriers'. A total score is not obtained from the scale and each subscale is evaluated separately. An increase in the scores of subscales shows an increase in the perceptions of benefits, susceptibility, seriousness and barriers.

In the study conducted by Gozum and Aydin [9], Cronbach's alpha reliability coefficients of the subscales were found as 0.69 for susceptibility, 0.75 for seriousness, 0.83 for health motivation, 0.83 for BSE benefits, 0.73 for BSE barriers, 0.82 for BSE self-efficacy, 0.80 for mammography benefits and 0.81 for mammography barriers [22]. In the study, Cronbach's alpha reliability coefficients of the subscales were found as 0.78 for susceptibility, 0.78 for seriousness, 0.76 for health motivation, 0.71 for BSE benefits, 0.78 for BSE barriers, 0.92 for BSE self-efficacy, 0.71 for mammography benefits and 0.85 for mammography barriers. Permission was taken from Gozum and Aydin [9] who adapted the scale into Turkish to use the Champion's Health Belief Model Scale.

2.4. Data collection

The students were briefed that they would make the decision to participate in the study and the data collected would be used only within the scope of the study. Ethics committee approval was obtained from the institution to collect the data and informed consents were taken from the students included in the study. Data collection process lasted for about 15–20 minutes.

2.5. Data analysis

The data obtained in this study were analysed by using IBM SPSS 21 package programme. Normality distribution of quantitative data was examined with Shapiro–Wilk and Kolmogorov–Smirnov test. Kruskal–Wallis test and Mann–Whitney U test were used in the analysis of data. Reliability of the scales was analysed with Cronbach’s alpha. Significance level was considered as $p < 0.05$.

3. Results

It was found that 46.2% of the university students in the study were in their first year, 53.8% were in their second year, 98% were single, 70.8% had a nuclear family and 34.2% had a democratic family structure, 83.2% had social security, 60.9% had income equal to expense, 45.5% lived in a city, 71.4% had knowledge about breast cancer, 60.1% knew how to perform BSE, 30.1% learned how to perform BSE at school, 42.8% did not perform BSE, 34.7% did not perform breast examination since they did not have any complaints, 93.5% did not have clinical examination, 14.1% had relatives diagnosed with breast cancer, the aunts of 42.3% had been diagnosed with breast cancer and the mean age of the students was found as $20.5 \pm 1,5$ (Table1).

Table 1. Distribution of university students’ sociodemographic characteristics and their health belief and practices about breast cancer (N = 552)

Characteristics		n	%
Age groups 20.5 ± 1.5	≤20 years of age	299	54.2
	≥21 years of age	253	45.8
Year of study	First year	255	46.2
	Second year	297	53.8
Marital status	Married	11	2.0
	Single	541	98.0
Family type	Extended	161	29.2
	Nuclear	391	70.8
Family structure	Democratic	189	34.2
	Oppressive and authoritarian	95	17.2
	Over protective	121	21.9
	Over tolerant	76	13.8
	Perfectionist	30	5.4
The state of having social security	Unstable	41	7.4
	Yes	459	83.2
Income status	No	93	16.8
	Income < expense	141	25.5
	Income = expense	336	60.9
	Income > expense	75	13.6

Place of residence	City	251	45.5
	Town	182	33.0
	Village	119	21.6
The state of having knowledge about breast cancer	Yes	394	71.4
	No	158	28.6
	Newspaper-magazine -radio-television	134	17.5
Sources of information about breast cancer if the answer is 'yes' ^a	School	195	25.5
	Poster-brochure	118	15.4
	Healthcare professionals	111	14.5
	Internet	207	27.1
The state of knowing how to perform BSE	Yes	332	60.1
	No	220	39.9
	Family	38	6.9
	Newspaper-magazine -radio-television	56	10.2
If the answer is 'yes', from where the individual learned how to perform BSE ^a	School	165	30.1
	Poster-brochure	51	9.3
	Healthcare professionals	113	20.6
	Internet	126	23.0
	Never	236	42.8
	During every bath	73	13.2
Frequency of performing BSE	Once every three months	43	7.8
	Once a year	15	2.7
	Whenever I think of it	185	33.5
	Not knowing how to do	187	29.2
	Not having enough time	36	5.6
	Not considering it necessary	48	7.5
	Considering oneself too young for this examination	87	13.6
Reason/s for not performing BSE ^a	Not having any complaints	222	34.7
	Fear of mass	51	8.0
	Not believing that it is necessary	9	1.4
	Yes	36	6.5
The state of having clinical breast examination	No	516	93.5
	Yes	78	14.1
The state having relatives diagnosed with breast cancer	No	474	85.9
	Mother	16	20.5
The degree of relation if the answer is 'yes' (n = 78)	Maternal aunt	33	42.3
	Paternal aunt	29	37.2

^aMultiple answers were given.

In this study, university students' mean Champion's Health Belief Model Scale susceptibility, seriousness, health motivation, BSE benefits, BSE barriers, BSE self-efficacy, mammography benefits

and mammography barriers subscale scores were found as 7.0 ± 2.4 , 20.1 ± 5.4 , 22.1 ± 2.8 , 17.2 ± 3.0 , 15.3 ± 5.5 , 32.8 ± 1.2 , 1.8 ± 3.5 and 24.3 ± 8.5 , respectively (Table 2).

Table 2. University students' Champion's Health Belief Model Scale subscales mean and median values

Champion's Health Belief Model Scale	Mean \pm SD	Median	Min–Max
Susceptibility	7.0 ± 2.4	7	3–15
Seriousness	2.1 ± 5.4	21	6–30
Health motivation	22.1 ± 2.8	23	5–25
BSE benefits	17.2 ± 3.0	18	4–20
BSE barriers	15.3 ± 5.5	14	8–40
BSE self-efficacy	32.8 ± 10.2	33	10–50
Mammography benefits	19.8 ± 3.5	20	5–25
Mammography barriers	24.3 ± 8.5	23	11–55

Min., Minimum; Max., Maximum; S.D, Standard deviation.

It was found that Champion's Health Belief Model Scale subscale scores differed in terms of students' year of study ($p = 0.024$), the state of having knowledge about breast cancer ($p = 0.012$), the state of having clinical breast examination ($p = 0.007$) and the state of having relatives diagnosed with breast cancer ($p = 0.002$) (Table 3).

It was found that Champion's Health Belief Model Scale seriousness subscale score differed in terms of students' having social security ($p = 0.012$), family income status ($p < 0.001$) and the state of knowing how to perform BSE ($p = 0.003$) (Table 3).

It was found that Champion's Health Belief Model Scale Health motivation subscale score differed in terms of students' age ($p = 0.020$), the state of having knowledge about breast cancer ($p < 0.001$), the state of knowing how to perform BSE ($p = 0.001$) and the frequency of performing BSE ($p < 0.001$) (Table 3).

It was found that Champion's Health Belief Model Scale BSE benefits subscale score differed in terms of students' year of study ($p < 0.001$), family's social security status ($p = 0.002$), the state of having knowledge about breast cancer ($p < 0.001$), the state of knowing how to perform BSE ($p < 0.001$), the frequency of performing BSE ($p < 0.001$) and the state of having clinical breast examination ($p < 0.001$) (Table 3).

Table 3. Comparison of university students' sociodemographic characteristics and health belief and practices about breast cancer and Champion's Health Belief Model Scale susceptibility, seriousness, health motivation, BSE benefits subscale scores

Characteristics	Susceptibility	Seriousness	Health motivation	BSE benefits	
Age groups	≤ 20 years of age	7 (3–15)	21 (6–30)	23 (10–25)	18 (5–20)
	≥ 21 years of age	7 (3–15)	21 (6–30)	23 (5–25)	18 (4–20)
Test statistic	$U = 34,836.5$	$U = 37,560.5$	$U = 33,527$	$U = 36,817$	
<i>p</i> value	$p = 0.106$	$p = 0.887$	$p = 0.020$	$p = 0.584$	
Year of study	First year	7 (3–13)	21 (6–30)	23 (12–25)	18 (5–20)
	Second year	7 (3–15)	21 (6–30)	23 (5–25)	18 (4–20)
Test statistic	$U = 33,698$	$U = 37,794.5$	$U = 34,287.5$	$U = 31,487$	
<i>p</i> value	$p = 0.024$	$p = 0.968$	$p = 0.052$	$p < 0.001$	
Social security	Yes	7 (3–15)	20 (6–30)	23 (5–25)	18 (4–20)
	No	7 (3–12)	22 (10–30)	23 (15–25)	17 (5–20)
Test statistic	$U = 21,267.5$	$U = 17,820$	$U = 20,070$	$U = 17,120$	

<i>p</i> value		<i>p</i> = 0.956	<i>p</i> = 0.012	<i>p</i> = 0.358	<i>p</i> = 0.002
Income status	Income < expense	7 (3–13)	22 (7–30) B	22 (7–25)	18 (5–20)
	Income = expense	7 (3–15)	20 (6–30) A	23 (5–25)	18 (4–20)
	Income > expense	7 (3–11)	20 (6–30) A	23 (14–25)	19 (7–20)
Test statistic		$\chi^2 = 0.242$	$\chi^2 = 17.624$	$\chi^2 = 4.339$	$\chi^2 = 2.420$
<i>p</i> value		<i>p</i> = 0.886	<i>p</i> < 0.001	<i>p</i> = 0.114	<i>p</i> = 0.298
The state of having knowledge about breast cancer	Yes	7 (3–15)	21 (6–30)	23 (5–25)	18 (4–20)
	No	7 (3–14)	21 (6–30)	22 (7–25)	16 (5–20)
Test statistic		<i>U</i> = 26,887	<i>U</i> = 29,382	<i>U</i> = 24,883	<i>U</i> = 22,273.5
<i>p</i> value		<i>p</i> = 0.012	<i>p</i> = 0.302	<i>p</i> < 0.001	<i>p</i> < 0.001
The state of knowing how to perform BSE	Yes	7 (3–14)	20 (6–30)	23 (5–25)	19 (4–20)
	No	7 (3–15)	21 (6–30)	22 (7–25)	17 (5–20)
Test statistic		<i>U</i> = 34,630	<i>U</i> = 31,020	<i>U</i> = 30,682	<i>U</i> = 23,918.5
<i>p</i> value		<i>p</i> = 0.299	<i>p</i> = 0.003	<i>p</i> = 0.001	<i>p</i> < 0.001
The frequency of performing BSE	Never	7 (3–15)	21 (6–30)	22 (7–25) A	17 (5–20) A
	During every bath	7 (3–11)	19 (6–30)	23 (14–25) B	19 (12–20) B
	Once every 3 months	8 (3–13)	18 (7–28)	24 (18–25) B	20 (9–20) B
	Once a year	7 (3–11)	21 (7–28)	23 (5–24) AB	17 (4–20) A
	Whenever I think of it	7 (3–15)	21 (6–30)	23 (7–25) AB	18 (5–20) B
Test statistic		$\chi^2 = 6.355$	$\chi^2 = 9.452$	$\chi^2 = 21.557$	$\chi^2 = 62.497$
<i>p</i> value		<i>p</i> = 0.174	<i>p</i> = 0.051	<i>p</i> < 0.001	<i>p</i> < 0.001
The state of having clinical examination	Yes	8 (3–12)	21 (6–30)	23 (14–25)	20 (12–20)
	No	7 (3–15)	21 (6–30)	23 (5–25)	18 (4–20)
Test statistic		<i>U</i> = 6,803.5	<i>U</i> = 8,926	<i>U</i> = 8,535	<i>U</i> = 5,801.5
<i>p</i> value		<i>p</i> = 0.007	<i>p</i> = 0.695	<i>p</i> = 0.410	<i>p</i> < 0.001
The state of having relatives diagnosed with breast cancer	Yes	8 (3–13)	20.5 (8–30)	23 (11–25)	18 (8–20)
	No	7 (3–15)	21 (6–30)	23 (5–25)	18 (4–20)
Test statistic		<i>U</i> = 14,442.5	<i>U</i> = 17,419.5	<i>U</i> = 16,622.5	<i>U</i> = 16,471.5
<i>p</i> value		<i>p</i> = 0.002	<i>p</i> = 0.413	<i>p</i> = 0.148	<i>p</i> = 0.117

χ^2 = Kruskal–Wallis test statistic. *U* = Mann–Whitney *U* test statistic. A, B = There are no differences between groups with the same letter.

It was found that Champion’s Health Belief Model Scale BSE barriers subscale score differed in terms of the state of having knowledge about breast cancer (*p* = 0.002), the state of knowing how to perform BSE (*p* < 0.001) and the frequency of performing BSE (*p* < 0.001) (Table 4).

It was found that Champion’s Health Belief Model Scale BSE self-efficacy subscale score differed in terms of the state of having knowledge about breast cancer (*p* < 0.001), the state of knowing how to perform BSE (*p* < 0.001), the frequency of performing BSE (*p* < 0.001) and the state of having clinical breast examination (*p* = 0.010) (Table 4).

It was found that Champion’s Health Belief Model Scale mammography benefits subscale score differed in terms of students’ year of study (*p* = 0.015). It was found that students in their second year had a higher Champion’s Health Belief Model Scale Mammography benefits subscale score (Table 4).

It was found that Champion’s Health Belief Model Scale mammography barriers subscale score differed in terms of the state of having social security ($p = 0.007$), the state of having knowledge about breast cancer ($p < 0.001$), the state of knowing how to perform BSE ($p < 0.001$), and the frequency of performing BSE ($p < 0.001$) (Table 4).

Table 4. Comparison of university students’ sociodemographic characteristics and health belief and practices about breast cancer and Champion’s Health Belief Model Scale BSE barriers, BSE self-efficacy, mammography benefits and mammography barriers subscale scores

Characteristics		BSE barriers	BSE self-efficacy	Mammography benefits	Mammography barriers
Age groups	≤20 years of age	14 (8–40)	33 (10–50)	20 (5–25)	24 (11–50)
	≥21 years of age	14 (8–40)	34 (10–50)	20 (5–25)	23 (11–55)
Test statistic		$U = 36,540$	$U = 36,502.5$	$U = 37,100.5$	$U = 37,689$
p value		$p = 0.928$	$p = 0.479$	$p = 0.697$	$p = 0.942$
Year of study	First year	15 (8–40)	32 (10–50)	20 (5–25)	23 (11–50)
	Second year	14 (8–40)	35 (10–50)	21 (5–25)	23 (11–55)
Test statistic		$U = 34,406$	$U = 33,603.5$	$U = 33,343.5$	$U = 37,833.5$
p value		$p = 0.195$	$p = 0.022$	$p = 0.015$	$p = 0.985$
Social security	Yes	14 (8–40)	34 (10–50)	20 (5–25)	23 (11–55)
	No	14 (8–40)	32 (10–50)	21 (14–25)	26 (11–50)
Test statistic		$U = 19,425$	$U = 20,083$	$U = 18,671.5$	$U = 25,101$
p value		$p = 0.460$	$p = 0.368$	$p = 0.055$	$p = 0.007$
Income status	Income < expense	14 (8–40)	32 (10–50)	20 (5–25)	24 (11–50)
	Income = expense	14 (8–40)	34 (10–50)	20 (5–25)	23.5 (11–55)
	Income > expense	14 (8–32)	32 (11–50)	19 (5–25)	22 (11–48)
Test statistic		$\chi^2 = 0.740$	$\chi^2 = 1.749$	$\chi^2 = 0.463$	$\chi^2 = 1.308$
p value		$p = 0.691$	$p = 0.417$	$p = 0.793$	$p = 0.520$
The state of having knowledge about breast cancer	Yes	14 (8–40)	36 (10–50)	21 (5–25)	22 (11–55)
	No	15 (8–40)	29 (10–50)	20 (5–25)	27 (12–49)
Test statistic		$U = 24,923.5$	$U = 15,649$	$U = 28,414.5$	$U = 21,974$
p value		$p = 0.002$	$p < 0.001$	$p = 0.107$	$p < 0.001$
The state of knowing how to perform BSE	Yes	14 (8–35)	38 (10–50)	20.5 (5–25)	22 (11–50)
	No	15 (8–40)	26 (10–50)	20 (5–25)	25.5 (11–55)
Test statistic		$U = 28,468$	$U = 10,723.5$	$U = 35,661$	$U = 28,321.5$
p value		$p < 0.001$	$p < 0.001$	$p = 0.638$	$p < 0.001$
The frequency of performing BSE	Never	15 (8–40) B	27.5 (10–50) A	20 (5–25)	25 (11–55) B
	During every bath	12 (8–35) A	41 (22–50) C	21 (13–25)	21 (11–50) A
	Once every 3 months	12 (8–25) A	40 (23–50) C	19 (14–25)	19 (11–33) A
	Once a year	17 (8–30) AB	31 (10–50) AB	19 (5–25)	25 (11–38) AB
	Whenever I think of it	15 (8–34) B	36 (13–50) B	21 (12–25)	23 (11–50) B
Test statistic		$\chi^2 = 28.561$	$\chi^2 = 169.655$	$\chi^2 = 6.271$	$\chi^2 = 25.509$
p value		$p < 0.001$	$p < 0.001$	$p = 0.180$	$p < 0.001$
The state of having clinical breast examination	Yes	13 (8–30)	40 (19–50)	21 (15–25)	23 (11–46)
	No	14 (8–40)	33 (10–50)	20 (5–25)	23 (11–55)

Test statistic		$U = 8,097.5$	$U = 5,476.5$	$U = 8,614.5$	$U = 8,617.5$
p value		$p = 0.250$	$p = \mathbf{0.010}$	$p = 0.464$	$p = 0.468$
The state of having relative diagnosed with breast cancer	Yes	14 (8–30)	35.5 (10–50)	20.5 (11–25)	22.5 (11–42)
	No	14 (8–40)	33 (10–50)	20 (5–25)	24 (11–55)
Test statistic		$U = 16,563$	$U = 17,646$	$U = 18,094.5$	$U = 16,224.5$
p value		$p = 0.267$	$p = 0.519$	$p = 0.763$	$p = 0.083$

χ^2 = Kruskal–Wallis test statistic. U = Mann–Whitney U test statistic, A, B, C = There are no differences between groups with the same letter.

4. Discussion

The results obtained in this study, which was carried out to find out the breast cancer-related beliefs and practices of students studying at a university in the Western Black Sea region of Turkey, are discussed in line with the literature.

In this study, university students' mean Champion's Health Belief Model Scale Susceptibility, Seriousness, Health motivation, BSE benefits, BSE barriers, BSE self-efficacy, Mammography benefits and Mammography barriers subscale scores were found as 7.0 ± 2.4 , 20.1 ± 5.4 , 22.1 ± 2.8 , 17.2 ± 3.0 , 15.3 ± 5.5 , 32.8 ± 1.2 , 1.8 ± 3.5 and 24.3 ± 8.5 , respectively. Increase in the subscale scores shows an increase in benefit, susceptibility, seriousness and barrier perceptions. In this study, in line with the scores students obtained from the Champion's Health Belief Model Scale subscales, it was found that students had moderate susceptibility perceptions, while they had high seriousness, health motivation, BSE self-efficacy, BSE benefits and mammography benefits perceptions and low BSE barriers and mammography barriers perceptions. In a study conducted by Guner and Kirca [23], when students' health belief scale subscale scores were examined, it was found that students had high benefit perceptions and low susceptibility, seriousness, barrier and health motivation perceptions. In a study by Altıntaş and Aslan [24], it was found that women had moderate seriousness, health motivation, benefit and self-efficacy perceptions about early diagnosis of breast cancer, while they were found to have low susceptibility and barrier perceptions. High benefit and seriousness perceptions of students about the early diagnosis of breast cancer show that they have high beliefs and motivations in protective behaviours towards breast cancer in protecting and improving health.

Susceptibility perception means that individuals can perceive any danger that may occur in their health status [9]. In this study, it was found that Champion's Health Belief Model Scale susceptibility scores were higher in students in their second year, those who had knowledge about breast cancer, those who had clinical breast examination and those who had relatives diagnosed with breast cancer. In parallel with the results of the study, it was found in other studies conducted on this topic that women with family history of cancer had higher susceptibility perception [25]–[27].

Unlike the findings of the study, it was reported in a study conducted by Olgun (2019) that there were no statistically significant associations between susceptibility perception and the state of having knowledge about breast cancer, the state of having clinical breast examination and the state of having relatives diagnosed with breast cancer [28]. In another study in which the effectiveness of education given to university students about breast cancer was determined, no statistically significant difference was found between students' year of study and their pre-education and post-education susceptibility perceptions [12].

In this study, it was found that Champion's Health Belief Model Scale Seriousness subscale scores were higher in students whose families did not have social security, those who had income lower than expense and those who did not know how to perform BSE. When the literature was reviewed, it was found that studies conducted reported that students who knew how to perform BSE and who performed BSE felt safe [25] and the students who were informed about BSE had higher health belief

mean scores than those who were not [29]. In another study conducted on the topic, it was reported that there were no significant associations between seriousness perception and social security status, income status, the state of knowing how to perform BSE and the state of performing BSE [24]. It is thought that this difference between study results is due to the differences in individuals who perceive the results related with the anxiety giving and threatening situation seriousness perception creates in individuals.

Health motivation reflects individuals' intention to promote and maintain their health and their willingness to create a protective behaviour [9]. In this study, it was found that Champion's Health Belief Model Scale Health motivation subscale score was higher in students who were ≥ 21 years of age, who had knowledge about breast cancer, who knew how to perform BSE and who performed BSE once every 3 months and during every bath. When studies conducted on this subject were examined, it was found that women who were in 18–24 age group [30], who had knowledge about BSE [24], who knew how to perform BSE [24] and who performed BSE regularly once a month [31] had higher health motivation when compared with the other groups. Unlike the findings of the study, it was reported in a study that there was no significant relationship between health motivation and the state of receiving education about breast cancer and the state of performing BSE regularly within the last year [28].

In this study, it was found that Champion's Health Belief Model Scale BSE benefits subscale score was higher in students in their second year, those whose families had social security, those who had knowledge about breast cancer, those who knew how to perform BSE, those who performed BSE once every 3 months and during each bath and those who had clinical breast examination. In parallel with the results of the study, it was found in Altıntaş and Aslan's [24] study that women who had social security, those who had knowledge about breast cancer and those who performed BSE had significantly high BSE benefit perceptions; unlike the results of the study, it was reported that there were no significant differences between the frequency of performing BSE and BSE benefit perception. In another study, it was reported that there was a significant correlation between the frequency of performing BSE and BSE benefit perception and women who performed BSE regularly once a month had higher BSE benefit perceptions [31].

It is reported that the barriers perceived by the individual towards protective behaviours related to health beliefs and practices are the most important factors in exhibiting behaviour [32]. In this study, it was found that Champion's Health Belief Model Scale BSE barriers subscale score was higher in students who did not have knowledge about breast cancer, those who did not know how to perform BSE, those who never performed BSE and those who performed BSE whenever they thought about it. In parallel with the results of the study, it was reported in a study conducted by Kilic et al. [26] that students who did not have knowledge about breast cancer had high BSE barriers perceptions. In another study conducted, while women who did not know how to perform BSE had high BSE barriers perceptions, it was reported that there was no statistically significant difference between the frequency of performing BSE and BSE barrier perception [24]. When the literature was reviewed, it was found that the barriers for BSE were listed as not knowing how it is performed, the thought of not being able to perform it with the right technique, not finding time and the fear of finding a mass [2], [33].

It is reported that the perception of self-efficacy is related to the efficacy of individuals towards a behaviour [9]. In this study, it was found that Champion's Health Belief Model Scale BSE self-efficacy subscale score was higher in students who had knowledge about breast cancer, those who knew how to perform BSE, those who performed BSE during each bath and once every 3 months and those who had clinical breast examination. When the literature was reviewed, in parallel with the results of the study, it was found that women who had knowledge about breast cancer [26], [28], those who performed BSE [36], [24] and those who had breast examination in hospital [24] had high BSE self-efficacy perceptions.

In this study, it was found that Champion's Health Belief Model Scale mammography benefits subscale score was higher in students who were in their second year. In parallel with the results of the

study, it was found in a study [34] that the rates of having mammography increased as level of education increased. Unlike the results of the study, in other studies conducted on the topic, no statistically significant relationship was found between mammography benefit perception and level of education [31], [30].

In this study, it was found that Champion's Health Belief Model Scale mammography barriers subscale score was higher in students whose families did not have social security, those who did not have knowledge about breast cancer, those who did not know how to perform BSE, those who never performed BSE and those who performed BSE whenever it came to their mind. In parallel with the results of the study, it was reported in studies conducted on the topic that there was a statistically significant relationship between the frequency of performing BSE and mammography barrier perception, and individuals who never performed BSE had high mammography barrier perceptions [31], [35]. Unlike the results of the study, it was reported in a study that there was no significant relationship between the state of receiving education on BSE and BSE barrier perception [28]. Not having health security in accessing healthcare services is also another important barrier in the formation of protective behaviours towards breast cancer [36].

As a conclusion, BSE, CBE and mammography have a very important place in the early diagnosis and treatment of breast cancer. It is very important in terms of women's health to raise awareness of university students, who are young female population and to help them gain health promoting behaviours.

5. Conclusion

In this study, it was found in line with the scores students obtained from the subscales of Champion's Health Belief Model Scale that students had moderate susceptibility perceptions, high seriousness, health motivation, BSE self-efficacy, BSE benefits and mammography benefits perceptions and low BSE barriers and mammography barriers perceptions. In line with the results obtained from the study, it can be said that health belief and practices are very important in the early diagnosis of breast cancer.

Considering that breast cancer is the most frequent cancer type among women, it can be recommended to increase awareness in university students about breast cancer risk factors, early diagnosis, treatment and screening methods, to find out educational needs to carry out these behaviours regularly and to plan and regularly implement training programmes supported with models.

Conflicts of interest

The authors have no conflicts of interests to disclose.

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