Factors Affecting Women's Breast Cancer Prevention Behaviors

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ABSTRACT:

Purpose: This research was conducted to identify the factors that affected women's breast cancer prevention behaviors.

Material and Methods: The research, designed as a descriptive study, was conducted between October 2020 - March 2021 and the sample of the research consisted of 587 women. The research data were collected by using the descriptive information form and the Scale to Measure Factors Influencing Women's Breast Cancer Prevention Behaviors.

Results: The scores to be obtained from the Scale to Measure Factors Influencing Women's Breast Cancer Prevention Behaviors range from a minimum of 33 to a maximum of 165, and the mean score obtained by the participant women in this study was 104.15± 10.03 points. It was found that, as per knowing the frequency of having mammography screening, receiving breast self-exam training, and having clinical breast exam, there were statistically significant differences in the means of scores obtained by the participant women from the scale (p<0.05).

Conclusion: It was identified that the participant women had moderately positive breast cancer prevention behaviors. It is recommended to develop media content and increase educational resources on breast cancer so that women can easily access information about breast cancer awareness.

Keywords: Breast Cancer, Preventive Behaviors, Women

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INTRODUCTION

Breast cancer is a type of cancer that is inherent in the structure of breast tissue and begins as a consequence of cellular changes (Can, 2012). It is the most common cause of malignancy in women living in developed and developing countries. According to the GLOBOCAN 2020 report, the breast cancer incidence rate for women in all age groups was 47.83% in the world and 56.6% in Turkey, and it ranked at the top among all cancer types (World Health Organization, 2020). Even if there are a large number of risk factors reported in relation to breast cancer, its etiology is not clearly known. However, it is stated that the most significant risk factor was gender, and breast cancer was more prevalent among women (Can, 2012). It is asserted that approximately one in every eight women in the world was at risk of having breast cancer across the lifetime. Therefore, early diagnosis is the best approach to prevent the disease, facilitate treatment, enhance the quality of life, and extend life duration (Sun et al., 2017). The screening for early diagnosis in breast cancer covers physical exam methods such as breast self-exam and clinical breast exam and imaging techniques such as ultrasonography and mammography (Uzun and Karaman Özlü, 2019). In the relevant literature, it is emphasized that women particularly in developing countries did not have adequate awareness about breast cancer prevention, and therefore, attention

should be paid more to the improvement of breast health rather than the clinical treatment in these countries (Sun et al., 2017). Breast cancer mortality can be reduced by virtue of diagnosis at an early stage through the common and effective use of early diagnosis and screening tests. Moreover, as well as early diagnosis and screening tests, it is quite important to equip society with awareness and behavior change by informing society about the causes, risk factors, and symptoms of breast cancer (Açikgöz et al., 2011). This research was carried out with the aim of increasing women's knowledge about early diagnosis and treatment methods of cancer and their use of these methods by determining the factors affecting their breast cancer prevention behaviors.

MATERIAL AND METHOD
Purpose and Type of the Study
This research was conducted to identify the factors that affected women's breast cancer prevention behaviors. Designed as a descriptive study, the research was conducted from October 2020 to March 2021.

Sampling and Participant
The research population was comprised of women living in Turkey. A sampling method was not used in the research; rather, the research sample was formed by 587 women who agreed to participate in the study, were aged 18 years or above, were not diagnosed with breast cancer, had no communication disorder, knew how to use social media, and were literate.

Data Collection Tools
The data collection forms to be used in the research were transferred to the online platform and posted via Google Forms. The research data were collected by using the descriptive information form and the Scale to Measure Factors Influencing Women's Breast Cancer Prevention Behaviors.

Descriptive Information Form: The form was created by the researchers and contained 15 questions about women's socio-demographic characteristics (age, gender, marital status, education level, employment status, Body Mass Index/BMI, economic level, place of residence, state of having a child, and cigarette smoking) and their data, behaviors, and practices in relation to the methods of protection from breast cancer (menstruating regularly, having a family history of breast cancer, receiving breast self-exam training, applying breast self-exam, having information about clinical breast exam, and knowing the frequency of mammography screening) (Can, 2012) .

Scale to Measure Factors Influencing Women's Breast Cancer Prevention Behaviors (ASSISTS): The scale was developed by Khazaee-Pool et al., and the validity and reliability study for the scale was performed in Turkish by Turan. Designed as a five-point Likert-type measurement tool, the scale has seven sub-scales, namely, attitude, stimulant, self-efficacy, supportive systems, information seeking, self-care, and stress management, and 33 items. A high score obtained from a sub-scale indicates that the participant exhibited positive behaviors in the relevant domain. The minimum and maximum scores to be obtained from the scale are successively 33 and 165 points (Khazaee-Pool et al., 2016; Turan and Yiğit, 2019).

Statistical Analysis
The number, percentage, mean, independent samples t-test, and one-way analysis of variance (ANOVA) were utilized in the analysis of research data. When the variances were homogeneous, the Least Significant Difference Test was used as the advanced analysis. The statistical significance was identified if the p-value was below 0.05 ($p < 0.05$).

Ethical Approval
To perform the research, the ethical endorsement was obtained from the ethics committee (Date: 30 June 2020, No: 06/26). During the collection of research data, the principles of informed consent, privacy, and confidentiality were all respected, and thus, the study was carried out in conformity with the principles of the Declaration of Helsinki.

Limitations of the study
This research is limited to women who can read and write and can use social media.

RESULTS

In Table 1, it is discerned that, of the research participants, 46.3% were aged 36-53 years, 49.9% had normal weight, 71% were married, 61.8% held university degrees, 45.3% were housewives, 69.8% had children, and 80.4% smoked. Most participants declared that they had medium-level income and lived in the province center.

First, as per the age, it was found that there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scales of self-efficacy and stimulant), and the group of participants aged 38-53 years obtained higher mean scores than participants from other age groups (p<0.05).

Second, as per the BMI, there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its supportive systems, self-care, and stress management sub-scales (p<0.05) whereas there was no statistically significant difference in the means of scores obtained by the participants from other sub-scales (p>0.05). In the context of the advanced analysis, it was ascertained that the group of participants with normal weights in terms of BMI scores obtained higher mean scores from the ASSISTS and its supportive systems, self-care, and stress management sub-scales.

Third, as per the education level, it was identified that there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scales of self-efficacy and attitude), and the group of participants who held university degrees obtained higher mean scores than participants at other education levels (p<0.05).

Fourth, as per the marital status, it was discerned that there were statistically significant differences in the means of scores obtained by the participants from the sub-scales of supportive systems and self-care (p<0.05). Fifth, as per the employment status, it was ascertained that there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scales of stimulant and attitude), and the participants who were retired and civil servants obtained higher mean scores than other groups of participants (p<0.05). Sixth, as per

the income level, it was found that there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scales of self-efficacy, attitude, and stimulant), and the participants who declared having high income obtained higher mean scores than participants from other income groups (p<0.05). Seventh, as per the place of residence, it was identified that there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scales of self-efficacy and stress management), and the participants who lived in the province center obtained higher mean scores than other groups of participants (p<0.05). Eighth, as per cigarette smoking, there was a statistically significant difference in the means of scores obtained by the participants from the sub-scale of attitude (p<0.05). Besides, as per having a child, there were statistically significant differences in the means of scores obtained by the participants from the sub-scales of supportive systems, self-care, and stress management (p<0.05).

Table 2 displays that, of the research participants, 71.4% menstruated regularly, 86.7% had a family history of breast cancer, 55.9% received no training on breast self-exam, 60.1% sometimes applied breast self-exam, 57.9% knew how frequently they had mammography screening, and 62.4% had no clinical breast exam. It was found that, as per menstruating regularly, there was a statistically significant difference in the means of scores obtained by the participants from the sub-scale of information seeking (p<0.05). It was ascertained that, as per having a family history of breast cancer, there was no statistically significant difference in the means of scores obtained by the participants from the ASSISTS and its sub-scales (p>0.05).

It was identified that, as per applying breast self-exam, there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scales of self-efficacy and stimulant), and the participants who regularly applied breast self-exam once a month obtained higher mean scores than other groups of participants (p<0.05).

Table 1. As per the participants' demographic characteristics, the breakdown of mean scores obtained by the participants from the overall ASSISTS and its sub-scale

	n	%	Supportive Systems	Self-Efficacy	Self-Care	Stress Management	Stimulant	Information Seeking	Attitude	Overall ASSISTS
			X±SD	X±SD	X±SD	X±SD	X±SD	X±SD	X±SD	X±SD
Age										
18-35 years	263	44.8	14.63±3.20	11.66±2.29	18.47±4.98	10.28±2.54	9.17±2.93	14.24±3.47	24.76±4.55	103.25±9.63
36-53 years	272	46.3	15.49±3.14	11.93±2.38	19.13±4.54	10.23±2.63	9.52±2.67	15.18±3.38	23.99±4.34	105.55±9.75
54 years or above	52	8.9	14.09±3.90	12.11±2.28	17.12±5.18	8.94±2.85	9.48±2.57	13.65±3.42	26.01±4.79	101.73±11.03
Test and statistical significance			F=6.781 **p=0.001**	F=1.265 p=0.283	F=3.273 **p=0.039**	F=6.045 **p=0.003**	F=1.065 p=0.345	F=7.247 **p=0.001**	F=5.186 **p=0.006**	F=5.037 **p=0.007**
BMI										
Underweight	24	4.1	12.37±3.15	10.95±3.08	18.16±5.52	9.75±2.62	9.33±3.15	13.75±4.18	24.54±5.35	98.87±12.79
Normalweight	293	49.9	15.15±3.12	11.89±2.13	19.46±4.74	10.37±2.51	9.53±2.65	14.77±3.34	24.35±4.15	105.55±9.75
Overweight	174	29.6	15.09±3.42	11.79±2.39	18.25±4.66	10.16±2.70	8.90±2.67	14.71±3.45	24.70±4.92	103.63±9.56
Obese	94	16.4	14.96±3.25	11.95±2.56	17.26±4.77	9,53±2.82	9.70±3.22	14.21±3.66	24.70±4.63	102.34±10.27
Test and statistical significance			F=5.545 **p=0.001**	F=1.286 p=0.278	F=5.947 **p=0.001**	F=2.663 **p=0.047**	F=2.436 p=0.064	F=1.176 p=0.318	F=0.268 p=0.848	F=5.421 **p=0.001**
Education level										
Literate	31	5.3	12.70±2.86	12.64±2.42	16.77±3.61	8.19±2.25	11.29±3.29	12.29±2.49	26.12±4.83	100.03±8.20
Primary school	94	16.2	14.72±3.86	11.98±2.62	17.86±4.97	9.77±2.77	9.52±2.90	14.31±3.58	25.12±4.92	103.31±11.01
High school	99	16.7	15.03±3.72	11.63±2.77	18.01±4.86	9.76±2.95	9.54±3.13	14.46±4.35	24.58±5.43	103.04±12.17
University	363	61.8	15.23±2.92	11.77±2.09	19.25±4.78	10.50±2.44	9.11±2.53	14.95±3.14	24.20±4.04	105.03±9.13
Test and statistical significance			F=6.060 **p=0.000**	F=1.717 p=0.162	F=4.945 **p=0.002**	F=9.625 **p=0.000**	F=6.351 **p=0.000**	F=6.234 **p=0.000**	F=2.502 p=0.058	F=3.328 **p=0.019**
Marital status										
Married	417	71.0	15.29±3.27	11.87±2.33	18.39±4.87	10.01±2.73	9.40±2.86	14.72±3.56	24.50±4.51	104.21±10.26
Single	170	29.0	14.23±3.16	11.71±2.32	19.41±4.63	10.46±2.36	9.26±2.59	14.38±3.21	24.54±4.51	104.01±9.47
Test and statistical significance			t=3.583 **p=0.000**	t=0.742 p=0.458	t=-2.330 **p=0.020**	t=-2.007 p=0.059	t=0.554 p=0.580	t=1.092 p=0.275	t=-0.080 p=0936	t=0.214 p=0.830
Employment status										
Housewife	266	45.3	14.55±3.51	12.04±2.45	17.78±4.61	9.79±2.80	9.60±3.12	14.19±3.58	24.75±4.77	102.73±10.26
Worker	76	12.9	14.60±3.35	11.34±2.38	18.40±4.80	9.81±2.65	9.06±2.68	14.68±3.44	24.90±4.19	102.82±10.35
Civil servant	493	32.9	15.69±2.95	11.74±2.17	19.78±4.82	10.51±2.42	9.21±2.41	15.17±3.38	24.04±4.27	106.17±9.70
Retired	15	2.6	16.26±2.18	13.00±2.00	18.93±4.75	10.93±2.12	9.46±2.47	16.06±2.01	25.00±3.04	109.66±8.22
Student	37	6.3	14.64±2.61	11.27±1.95	19.91±5.15	11.05±2.13	9.00±2.23	14.18±3.08	24.27±4.82	104.35±7.72
Test and statistical significance			F=4.485 **p=0.001**	F=2.952 **p=0.020**	F=5.644 **p=0.000**	F=3.901 **p=0.004**	F=0.997 p=0.409	F=3.063 **p=0.016**	F=0.941 p=0.440	F=4.866 **p=0.001**
Income level										
High	161	27.4	15.97±2.73	11.67±2.28	19.52±4.90	10.52±2.46	9.03±2.67	15.32±3.46	23.85±4.21	105.91±9.88
Medium	399	68.0	14.63±3.41	11.89±2.36	18.44±4.83	10.04±2.69	9.46±2.80	14.39±3.45	24.74±4.62	103.62±10.21
Low	27	4.6	14.25±2.91	11.81±2.25	17.29±3.25	9.33±2.51	9.88±3.10	13.85±3.18	25.07±4.31	101.51±6.41
Test and statistical significance			F=10.612 **p=0.000**	F=0.488 p=0.614	F=4.123 **p=0.017**	F=3.301 **p=0.038**	F=1.889 p=0.152	F=4.933 **p=0.008**	F=2.502 p=0.083	F=4.019 **p=0.018**
Place of residence										
Province center	394	67.1	15.33±3.12	11.70±2.33	18.89±4.83	10.21±2.61	9.18±2.64	14.91±3.44	24.36±4.39	104.61±10.09
District	157	26.7	14.46±3.53	12.15±2.20	18.71±4.64	10.18±2.67	9.61±2.95	14.36±3.38	24.44±4.63	103.94±9.91
Village	36	6.2	13.47±3.09	11.77±2.78	16.30±4.93	9.16±2.64	10.25±3.41	12.61±3.32	26.47±4.92	10.05±9.22
Test and statistical significance			F=8.233 **p=0.000**	F=2.079 p=0.126	F=4.825 **p=0.008**	F=2.650 p=0.072	F=3.331 **p=0.036**	F=8.063 **p=0.000**	F=3.647 **p=0.027**	F=3.478 **p=0.032**
State of having any child										
Yes	410	69.8	15.28±3.28	11.86±2.30	18.39±4.86	9.99±2.70	9.41±2.83	14.67±3.57	24.59±4.48	104.21±10.33
No	177	30.2	14.29±3.30	11.75±2.40	19.37±4.66	10.49±2.45	9.24±2.67	14.50±3.19	24.35±4.57	104.02±9.33
Test and statistical significance			t=3.368 **p=0.001**	t=0.495 p=0.621	t=-2.268 **p=0.024**	t=-2.109 **p=0.035**	t=0.662 p=0.508	t=0.544 p=0.587	t=0.587 p=0.558	t=0.204 p=0.839
Cigarette smoking										
Yes	115	19.6	14.89±3.47	11.57±2.52	19.20±4.84	10.42±2.77	9.60±2.92	14.90±3.59	23.68±4.57	104.28±11.02
No	472	80.4	15.00±3.22	11.89±2.28	18.56±4.81	10.07±2.60	9.30±2.75	14.55±3.43	24.72±4.47	104.12±9.79
Test and statistical significance			t=-0.331 p=0.741	t=-1.311 p=0.190	t=1.270 p=0.205	t=1.284 p=0.200	t=1.010 p=0.313	t=0.957 p=0.339	t=-2.210 **p=0.028**	t=0.155 p=0.877

Table 2. As per the participants' data, behaviors, and practices in relation to breast cancer and protection methods, the breakdown of the mean scores obtained by the participants from the overall ASSISTS and its sub-scales

	n	%	Supportive Systems	Self-Efficacy	Self-Care	Stress Management	Stimulant	Information Seeking	Attitude	Overall ASSISTS
			X±SD	X±SD	X±SD	X±SD	X±SD	X±SD	X±SD	X±SD
Menstruating regularly										
Yes	419	71.4	15.11±3.19	11.75±2.31	18.79±4.88	10.27±2.63	9.39±2.79	14.84±3.43	24.30±4.49	104.49±9.93
No	86	14.6	14.73±3.18	12.12±2.29	18.53±4.53	9.94±2.47	9.11±2.92	14.19±3.46	24.70±4.21	103.36±9.81
In menopause	82	14.0	14.58±3.72	11.91±2.46	18.28±4.81	9.65±2.80	9.48±2.58	13.93±3.52	25.39±4.83	103.25±10.78
Test and statistical significance			F=1.206 p=0.300	F=0.990 p=0.372	F=0.447 p=0.640	F=2.201 p=0.112	F=0.440 p=0.644	F=3.164 **p=0.043**	F=2.071 p=0.127	F=0.840 p=0.432
Having a family history of breast cancer										
Yes	78	13.3	14.87±3.44	12.06±2.15	19.58±4.83	10.46±2.37	9.15±2.64	14.84±3.07	24.30±4.43	105.29±8.90
No	509	86.7	15.00±3.25	11.79±2.35	18.55±4.80	10.09±2.67	9.39±2.80	14.59±3.52	24.55±4.52	103.98±10.19
Test and statistical significance			t=-0.331 p=0.740	t=0.953 p=0.341	t=1.776 p=0.076	t=1.145 p=0.253	t=-0.717 p=0.474	t=0.663 p=0.509	t=-0.442 p=0.659	t=1.076 p=0.282
Receiving breast self-exam training										
Yes	259	44.1	15.68±3.06	12.04±2.12	20.22±4.54	10.66±2.51	9.50±2.53	15.71±2.99	23.48±4.21	107.33±910
No	328	55.9	14.43±3.33	11.65±2.47	17.47±4.69	9.73±2.66	9.25±2.96	13.76±3.57	25.33±4.57	101.64±10.04
Test and statistical significance			t=4.688 **p=0.000**	t=2.041 **p=0.042**	t=7.143 **p=0.000**	t=4.315 **p=0.000**	t=1.142 p=0.254	t=7.202 **p=0.000**	t=-5.022 **p=0.000**	t=7.102 **p=0.000**
Applying breast self-exam										
Once a month	48	8.2	17.72±2.50	12.52±2.13	22.64±4.28	11.72±2.68	10.20±2.90	17.41±2.40	21.54±3.96	113.79±8.78
Sometimes	353	60.1	15.54±2.88	11.82±2.07	19.38±4.27	10.41±2.42	9.32±2.50	15.30±2.92	24.05±3.83	105.85±8.55
No	186	31.7	13.22±2.29	11.65±2.77	16.34±4.86	9.21±2.70	9.23±3.20	12.61±3.64	26.16±5.20	98.45±9.89
Test and statistical significance			F=58.284 **p=0.000**	F=2.636 p=0.073	F=48.632 **p=0.000**	F=23.799 **p=0.000**	F=2.471 p=0.085	F=65.340 **p=0.000**	F=26.790 **p=0.000**	F=70.853 **p=0.000**
Knowing the frequency of mammography screening										
Yes	340	57.9	16.01±2.79	12.06±2.05	20.16±4.47	10.75±2.44	9.20±2.57	15.64±3.04	23.50±3.93	107.35±8.55
No	247	42.1	13.57±3.36	11.50±2.63	16.65±4.53	9.30±2.66	9.58±3.04	13.22±3.52	25.90±4.88	99.76±10.27
Test and statistical significance			t=9.283 **p=0.000**	t=2.772 **p=0.006**	t=9.319 **p=0.000**	t=6.822 **p=0.000**	t=-1.608 p=0.109	t=8.676 **p=0.000**	t=-6.363 **p=0.000**	t=9.467 **p=0.000**
Having clinical breast exam										
I never had	366	62.4	14.51±3.36	11.61±2.48	17.85±4.91	9.77±2.71	9.46±2.98	13.98±3.59	25.00±4.65	102.21±10.09
At least once a year	80	13.6	16.85±2.92	12.56±2.23	21.61±4.26	11.12±2.35	9.36±2.59	16.28±3.06	22.82±4.17	110.62±9.14
At irregular intervals	141	24.0	15.14±2.83	11.97±1.84	19.18±4.12	10.53±2.37	9.09±2.31	15.34±2.85	24.21±4.07	105.51±8.54
Test and statistical significance			F=17.794 **p=0.000**	F=5.854 **p=0.003**	F=22.541 **p=0.000**	F=11.040 **p=0.000**	F=0.887 p=0.412	F=19.664 **p=0.000**	F=8.250 **p=0.000**	F=29.926 **p=0.000**

It was discerned that, as per knowing the frequency of having mammography screening, receiving breast self-exam training, and having clinical breast exam, there were statistically significant differences in the means of scores obtained by the participants from the ASSISTS and its sub-scales (excluding the sub-scale of stimulant) ($p < 0.05$).

Table 3. Means of scores obtained by the participants from the ASSISTS and its sub-scales

ASSISTS sub-scales	Min - Max	X ± SD
Supportive systems	4.00-20.00	14.98 ± 3.27
Self-efficacy	4.00-20.00	11.82 ± 2.33
Self-care	6.00-30.00	18.68 ± 4.82
Stress management	3.00-15.00	10.14 ± 2.63
Stimulant	4.00-20.00	9.36 ± 2.78
Information seeking	4.00-20.00	14.62 ± 3.46
Attitude	11.00-40.00	24.51 ± 4.51
Overall ASSISTS	65.00-131.00	104.15± 10.03

Table 3 exhibits that the participants obtained 14.98±3.27 points from the sub-scale of supportive systems, 11.82±2.33 points from the sub-scale of self-efficacy, 18.68±4.82 points from the sub-scale of self-care, 10.14±2.63 points from the sub-scale of stress management, 9.36±2.78 points from the sub-scale of stimulant, 14.62±3.46 points from sub-scale of information seeking, 24.51±4.51 points from the sub-scale of attitude, and 104.15±10.03 points from the overall ASSISTS.

DISCUSSION

Breast cancer is a type of cancer that is prevalent among women and restricts individuals' daily life activities and affects their social lives (Khazaee-Pool et al., 2016). As per the relevant literature, it is known that breast cancer prevalence is affected by a large number of factors such as menarche at an early age, having the first childbirth at an advanced age, having a small number of children, breastfeeding for a short period, using hormonal contraceptives, lifestyle (excessive alcohol consumption, cigarette

smoking, and physical immobility)), and weight gain (Can, 2012; Pashayan et al., 2020). Ensuring the adaptation of women in the high-risk group to lifestyle changes to prevent breast cancer and taking initiatives to raise their awareness about early diagnosis and screening methods for breast cancer are of importance to the protection of health (Mardela et al., 2017). In a study, it was found that the mean of scores obtained by the participants from the ASSISTS was 114.51±14.19 points, and hence, the participants had a medium-level mean of ASSISTS scores (Turan and Yiğit, 2019). Likewise, in studies that evaluated women's levels of knowledge about breast cancer by using different scales, it was ascertained that the participants had medium-level knowledge (Çehreli et al., 2019; Younis et al., 2016). In this current research conducted to identify the factors affecting women's breast cancer prevention behaviors, it was discerned that the mean of participants' ASSISTS scores was 104.15±10.03 points and thus, the participants had moderately positive breast cancer prevention behaviors. The finding of this current research is in parallel to the relevant literature.

In a study, it was put forward that the women aged 40-69 years had higher levels of knowledge about breast cancer than women at a more advanced age and most participant women stated that advanced age was not a risk factor for breast cancer (Schilling et al., 2017). Also, in another study, it was set forth that the women exhibited positive behaviors less toward information seeking and stress management as they aged, and the participants aged 30-34 years exhibited more positive behaviors than participants aged 45 years or above (Turan and Yiğit, 2019). In this current research, it was found that the participant women aged 36-53 years obtained a higher mean of scores for their breast cancer prevention behaviors. It is considered that, since a large majority of the women included in the research were in the aforementioned age group and held university degrees and also, the cancer screening was recommended more for this age group by the Ministry of Health of Turkey, the awareness levels of the women of this age group might have been enhanced. In the relevant literature, it is asserted that breast cancer was associated with the age at which the weight gain started, the duration of being overweight or obese, and the distribution of fatty tissue, and also, a diet rich in fats raised breast cancer risk by raising the estrogen level in the blood (Yılmaz and Atak, 2014). In a study, most women stated that the high body weight could have raised the breast cancer risk (Çehreli et al., 2019). Also, in another study, it was ascertained that weight gain was positively associated with breast cancer in women in the post-menopause period (Vrieling et al., 2010). In this current research, it was identified that the participants with normal body weights had a higher mean of ASSISTS scores and exhibited more positive behaviors than participants in other BMI groups.

In certain studies, it was stated that the education level was a significant determinant of breast cancer awareness, and breast cancer awareness increased as the education level rose (Güzel et al., 2019; Kwok et al., 2016; Liu et al., 2018; Terzioğlu et al., 2017). In this current research, it was discerned that the participants who held university degrees obtained a higher mean of ASSISTS scores. It is considered that the above current research result might have been obtained since, along with the increase in education level, women's awareness about improving health increased and women developed health behaviors and used books, journals, and websites more effectively to reach evidence-based information on breast cancer.

In a study, it was put forth that the workers and health employees had more knowledge about breast cancer symptoms and risk factors than those occupied with agriculture (Liu et al., 2018). Moreover, in another study, it was ascertained that the women who worked in the area of healthcare and were academicians had higher breast cancer awareness levels (Güzel et al., 2019). In this current research, it was identified that the participants who were retired and civil servants obtained higher mean ASSISTS scores and had positive breast cancer prevention behaviors.

In the previous studies, it was found that the participants with a relatively good economic situation had positive breast cancer prevention behaviors (Ba et al., 2020; Turan and Yiğit, 2019). In parallel to the results in the relevant literature, this

research also identified that the participants with a relatively good economic situation obtained a higher mean of ASSISTS scores and exhibited positive breast cancer prevention behaviors. In a study, it was ascertained that the women living in rural areas participated less in the breast cancer screening programs and were less informed about them (Ba et al., 2020). In this current research, it was discerned that the participants living in the province center obtained a higher mean of ASSISTS scores and exhibited positive breast cancer prevention behaviors. It is considered that the above current research result might have been obtained as the women living in the province center had more opportunities to take part in early diagnosis and screening programs and benefited from easier access to the institutions that offered health services.

In a study, it was identified that the participants who received breast self-exam training had positive breast cancer prevention behaviors (Turan and Yiğit, 2019). In other studies, it was ascertained that the participants who had knowledge about breast cancer participated more in screening programs and had higher levels of awareness about screening programs (Bhandari et al., 2021; Güzel et al., 2019).

The result of this current research is also in parallel to the relevant literature. It is considered that the women will have more positive behaviors toward practicing early diagnosis along with the development of their risk awareness about breast cancer and the enhancement of their knowledge about protection from breast cancer. In the relevant literature, it is asserted that the breast self-exam, clinical breast exam, and mammography performed for ensuring the early diagnosis of cancer reduced mortality rates (Can, 2012; Sun et al., 2017). Breast self-exam is an exam method that incurs no cost, is simple, can be applied by anyone, and is important to the early diagnosis. In Turkey, to raise societal awareness as per the National Standards for Breast Cancer Screening, free consultancy services are offered to all women aged 20 years or above to assure that the women apply breast self-exam regularly and have clinical breast exam once a year and the women aged 40-69 years have mammography screening once every two years (Cancer Department of the Directorate General of Public Health of the Ministry of Health of Turkey 2021).

In a study, it was set forward that 7.2% of the participants had clinical breast exams annually and 14.4% of the participants applied breast self-exam regularly each month (Bhandari et al., 2021). In another study, it was noted that the participants who regularly applied breast self-exam and had annual clinical breast exams had positive breast cancer prevention behaviors (Turan and Yiğit, 2019). In parallel to the results in the relevant literature, this research also identified that 13.6% of the participants had annual clinical breast exams, 8.2% applied breast self-exam once a month, and the participants who regularly had clinical breast exams and applied breast self-exam had positive breast cancer prevention behaviors.

Considering that the women identify the lump inside the breast tissue and go to the doctor by virtue of knowing the breast tissue better, the importance of regularly applying breast self-exam comes to the fore once again. In a study, 3.4% of the participants reported that they had mammography screening once every two years (Bhandari et al., 2021). In other studies, it was ascertained that more than half of the women did not know how frequently they had mammography screening (Güzel et al., 2019; Kwok et al., 2016). In another study, it was asserted that there was a statistically significant relationship between having mammography screening and having knowledge about breast cancer (Noroozi and Tahmasebi, 2011). In this current research, more than half of the participants (57.9%) declared that they knew how frequently they had mammography screening, and it was identified that they had positive breast cancer prevention behaviors.

In this current research, it was found that marital status, having a child, cigarette smoking, menstruating regularly, and having a family history of breast cancer had no statistically significant relationship with mean ASSISTS scores. It can be asserted that, as a large majority of the participant women had no family history of breast cancer, menstruated regularly, had children, and did not smoke, they were in the low-risk group in terms of developing breast cancer.

CONCLUSION

It was identified that the women who participated in the research had moderately positive breast cancer prevention behaviors. It is of utmost importance that the health professionals increase the frequency of individual consultancy services offered in the context of primary and secondary protection aimed at the early diagnosis of breast cancer, encourage the use of practices intended for cancer prevention by taking the cultural characteristics of society into consideration, and establish positive communication with healthy/sick individuals. Moreover, to enable that women can have easy access to information about breast cancer awareness, it is recommended that the media content be improved and the number of educational resources for breast cancer be increased.

Conflict of interest: We declare that our manuscript has never been published and under consideration in a journal. Authors declare that there are no conflict of interest between them. Also, we note that our manuscript contains original material.

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