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Assessment of Knowledge, Attitudes, and Behaviors of Turkish Women on Breast and Cervical Cancer in Karabük Province, Turkey

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Abstract

Breast and cervical cancer incidence and mortality among women have been increasing worldwide. This cross-sectional study aimed to evaluate women's knowledge, attitudes, and behaviors regarding breast and cervical cancers. The sample was composed of 507 women aged 18 years and older who were admitted to a primary health care center in Karabük, Turkey, from October to December 2019. The data was obtained using a questionnaire consisting of 34 questions regarding participants' socio-demographic characteristics, knowledge, attitudes, and behaviors toward breast and cervical cancers. The mean age of the participants was 41.3±12.0 years and 68.4% of them were married. Slightly more than seven in ten participants knew that the most common cancer in women was breast cancer. Almost six in ten knew that breast self-examination was the first method in the early diagnosis of breast cancer. Breast self-examination practice was found to be significant among university graduates. Periodic mammography and pap smear screenings among participants were 21.9% and 23.3%, respectively. Only 3.4% of participants had received the HPV vaccine and there was no significant difference between socio-demographic characteristics and HPV vaccination status (p-value > 0.05). Participants had moderate knowledge about breast and cervical cancer. Access to cancer screening programs should be facilitated and increased, considering these cancers' public health importance.

Keywords: breast, cancer screening, cervical, knowledge, Turkey

Introduction

Cancer is a group of diseases characterized by uncontrolled cell proliferation.[1] It is known that the lifestyles and habits of individuals with proven genetic and or environmental exposure influence the risk of cancer.[2] Prevention, early diagnosis, and treatment are of great importance, both individually and nationally. Disease burden decreases and quality of life and life expectancy increase, along with economic gains and psychosocial well-being. In Turkey, cancer constitutes one of the countries' most important health issues.

Globally, the World Health Organization (WHO) ranks cancer as the second most common cause of death. In 2018, it was responsible for 9.6 million, or one-in-six, deaths. In women, the most common type is breast cancer. There were 2.1 million new breast cancer cases worldwide in 2018, and an estimated 627,000 deaths, 15% of the total.[3] The regions with the highest incidence, with over 90 cases per 100 thousand, are Australia, New Zealand, and Northern and Western Europe, with the ratio dropping to 43.6–56.7 per 100,000 in Turkey.[4]

There are many risk factors identified with breast cancer. While age, race, family history, genetic factors, age of first menarche and menopause are the most important fixed risk factors, inactive life, obesity, nutrition, cigarette and alcohol consumption, and environmental exposures are variable.[5,6] Diagnosis of breast cancer before clinical presentation increases treatment success, life quality, and life expectancy. Among the screening methods used for early diagnosis—breast self-examination (BSE), clinical breast examination (CBE), and mammography—the most important is BSE, which is cheap and simple to perform. The Ministry of Health of Turkey recommends it as an easy and cost-free early diagnostic method that can be repeated every month after 20. The ministry further recommends CBE every two years up to age 40. Women aged 40 to 69 suggested performing BSE every month, CBE every year, and mammography every two years.[7]

The WHO reported 570,000 new cervical cancer cases in 2018; the fourth was the most common female cancer worldwide. Cervical cancer caused 311 thousand

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deaths that year, 7.5% of all female cancer deaths.[8] The biggest agent in the etiology of cervical cancer is the *Human papillomavirus* (HPV). Other factors include early sexual intercourse, polygamous lifestyle, smoking, acquired immunodeficiency, birth control medication, and presence of sexually transmitted diseases, Black and Hispanic races, and low socioeconomic status.[9,10]

World Health Organization defines primary, secondary, and tertiary preventive methods for cervical cancer. Primary is HPV vaccination for girls aged nine to 13, secondary is cervical screening for women older than 30 years of age, and tertiary is, if medically necessary, chemotherapy, radiotherapy, and surgery for women of all ages who have been diagnosed with cancer.[11]

In Turkey, HPV-DNA and cervical smear tests are recommended every five years for women aged 30 to 65 in cervical cancer screening programs.[7] Routine screening tests have shown early detection of breast and cervical cancer in women and a significant reduction in morbidity and mortality resulting, with 90% of breast cancers reported by women themselves.[12,13] However, there are also studies in the literature that suggest that women need more cancer information.[14,15]Although screening methods are easy and accessible and significantly reduce mortality and morbidity, it has been found that these methods are not sufficiently acknowledged by women.[16,17]

There is an increasing number of studies on breast and cervical cancer in women within developed and less developing countries. These studies demonstrate a broad variation in women's knowledge, attitudes, and behaviors about screening methods, which plays a key role in the early diagnosis of cancers worldwide.[3,18] Breast, colorectal, and cervical cancer rates have been rising in Karabük Province of Turkey.[19] No comprehensive studies have been conducted among women to date about knowledge, attitudes, and behaviors concerning breast and cervical cancers in Karabük. We consider that a valuable tool to raise awareness of the importance of early diagnosis and treatment to reduce these cancers' morbidity and mortality significantly.

Method

This cross-sectional study was carried out 507 women aged 18 years and older, admitted to a primary healthcare center in Karabük, Turkey, from October to December 2019. The data were obtained using a questionnaire consisting of 34 questions regarding participants' socio-demographic status, ages, marital status, educational status, occupations, economic status, family structure, knowledge, attitudes, and behaviors about breast and cervical cancers. The questionnaire was administered by a single researcher using a face-to-face interview method for approximately 15 minutes per participant. The participants were explicitly asked not to declare any identifying information. They were informed that the data would not be used outside of the study and that they could withdraw at any time.

The data obtained through the questionnaire were entered into the statistical package program. The controls and analysis of the data were performed in the same program. Frequency and percentage, mean value, standard deviation, highest and lowest values were used for descriptive statistics. Pearson chi-square test was used for statistical analysis of categorical data; the significance of the difference was accepted as p-value < 0.05. The study was ethically approved by the Karabük University Clinical Research Ethics Committee. All participants provided their written, informed consent, and participated voluntarily in the study.

Results

The mean age of the study participants was 41.3 ± 12.0 years. Of the participants, 290 (57.2%) were 40 years or older. While 37.1% of the participants had graduated primary and lower secondary schools, 23.7% had passed high school, and 39.3% were university graduates. Nearly two-thirds, 64.1%, lived in the city center; the rest (27.4%) lived in the district center. Slightly more, 68.4% were married, and 72.6% had at least one child. The detailed socio-demographic characteristics of the participants are displayed in Table 1.

Seventy-one percent, or 359 participants, knew that the most common cancer in women was breast cancer, 57.8% knew that BSE was the first method in its early diagnosis (Table 2), and 38.7% knew that pap smear tests should be done at age 30. Known breast cancer risk factors were family history, past breast cancer episodes, no history of breastfeeding, obesity, and never giving

Table 1. Participants' Socio-demographic Characteristics

Demographic	Category	n = 507	%
Age	Under ≤ 39	217	42.8
	Between 40–49	165	32.5
	Between 50–59	89	17.6
	Above ≥ 60 years	36	7.1
Education	Secondary school and below	188	37.1
	High school	120	23.6
	University graduate	199	39.3
Marital status	Single	110	21.7
	Married	347	68.4
	Divorced /widowed	50	9.9
Economic status	High income	197	38.9
	Middle income	279	55.0
	Low income	31	6.1
Number of children	None	134	26.5
	Single child	80	15.8
	Two children	174	34.3
	Three or more children	119	23.4
Working status	Yes	279	58.6
	No	210	41.4
Breast cancer in the family	Yes	49	9.7
	No	458	90.3

Table 2. Knowledge and Practice of Participants about Breast and Cervical Cancer

Characteristic	Category	n = 507	%
Knowledge about breast cancer	Aware	359	70.8
	Unaware	148	29.2
The knowledge that BSE was the first method in the early diagnosis of breast cancer	Aware	293	57.8
	Unaware	214	42.2
Status of practicing BSE	Yes	307	60.6
	No	200	39.4
Frequency of practicing BSE	Once a month	199	64.8
	Once a week	82	39.4
Reasons for not practicing BSE	Forgetfulness or negligence	127	63.5
	Did not regard as necessary	32	16.0
	Did not know how to perform	28	14.0
Knowledge that family history of breast cancer was a risk factor	Aware	433	85.4
	Unaware	74	14.6
Knowledge that having had breast cancer in the past was a risk factor	Aware	359	70.8
	Unaware	148	29.2
Knowledge that never breastfeeding was a risk factor	Aware	175	34.5
	Unaware	332	65.6
Knowledge that obesity was a risk factor	Aware	151	29.8
	Unaware	356	70.2
Knowledge that never giving birth was a risk factor	Aware	143	28.2
	Unaware	364	71.8
Status of undergoing periodic mammography screening	Yes	111	21.9
	No	396	88.1
Knowledge about pap test	Aware	196	38.7
	Unaware	311	61.3
Status of having pap smear screening	Yes	118	23.3
	No	389	76.7
Knowledge that smoking was a risk factor for cervical cancer	Aware	350	69.0
	Unaware	157	31.0
Knowledge that HPV infection was a common risk factor for cervical cancer	Aware	268	52.9
	Unaware	239	47.1
Knowledge that multiple sexual partners was a common risk factor for cervical cancer	Aware	259	51.1
	Unaware	247	48.7
Status of having had the HPV vaccination	Yes	17	3.4
	No	490	96.6

Notes: BSE: Breast Self Exam, HPV: *Human papilomavirus*

birth (85.4%, 70.8%, 34.5%, 29.8%, and 28.2%, respectively). Participants knew that smoking, HPV infection, and multiple sexual partners were the most common risk factors for cervical cancer (69.0%, 52.9%, 51.1%, respectively). In this study, 60.6% of the participants performed BSE, 64.8% practiced it monthly, and 26.7% were practicing weekly. However, 200 participants (39.4%) were not practicing BSE. Of those, 63.5% expressed that they had forgotten or neglected to practice it, 16.0% of those did not regard it as necessary, and 14.0% did not know how to perform it (Table 2). While there was no significant difference between participants' BSE practice and their ages, marital status, places of residence, and family histories of cancer, BSE practice was found to be highest in university graduates.

Cancer histories appeared in 32.3% of participant families. Of those, 57.3 % performed BSE. On the other hand, 62.1% of participants without cancer histories performed BSE. There was no significant difference between the groups ($\chi^2 = 1.062$, p-value = 0.303) (Table 3).

In this study, 111 participants (21.9%) had undergone periodic mammography screening. Additionally, 33.4% of those aged 40 and older and 25.1% of married participants had regularly undergone mammography screening. The difference between the groups was significant (p-value < 0.05). In the study, it was found that although low income was associated with a lower history of periodic mammography screening, there was no difference between other variables, such as educational status, place of residence, and familial history of cancer (p-value > 0.05). Of the participants aged 40 years or older, 193 (57.5%) did not feel the need to undergo mammography screening, 22.3% of those worried about negative outcomes, and 16.6% lacked knowledge on how to undergo the procedure (Table 3).

In the present study, the rate of participants who had regular pap smears was 23.3%. For women aged 40 and over, the rate was 27.6%; it was 29.1% for married women. In the study, although there was no significant relationship between having a pap smear, education and economic status, place of residence, family history of cancer, and profession, the rate was found to be lower in

Table 3. Breast Self Exam, Mammography, and Pap Smear Test Status of Participants

Characteristic	Category	Total	Practicing BSE				Mammography screening				Having Pap smear tests			
			n	%	χ^2	p-value	n	%	χ^2	p-value	n	%	χ^2	p-value
Age groups	Under 40	217	130	59.9	0.066	0.797	14	6.5	52.90	0.001[1]	38	17.5	7.055	0.008[1]
	40 years and older	290	177	61.0			97	33.4			80	27.6		
Marital status	Married	347	216	62.2	1.323	0.250	87	25.1	6.496	0.011[1]	101	29.1	20.94	0.001[1]
	Single	160	91	56.9			24	15.0			17	10.6		
Education status	Secondary school and below	188	95	50.5	9.516	0.009[1]	47	25.0	1.976	0.372	45	23.9	3.196	0.202
	High school	120	65	54.2			26	21.7			21	17.5		
	University	199	137	68.8			38	19.1			52	26.1		
Occupation	Housewife	210	119	56.7	11.763	0.008[1]	51	24.3	9.812	0.020[1]	58	27.6	7.092	0.069
	Officer	124	83	66.9			18	14.5			25	20.2		
	Worker	41	17	41.5			5	12.2			4	9.8		
	Artisan	132	88	66.7			37	28.0			31	23.5		
Economic status	High	197	123	62.4	11.067	0.004[1]	40	20.3	5.927	0.052[2]	55	27.9	4.954	0.084
	Moderate	279	174	62.4			69	24.7			59	21.1		
	Low	31	10	32.3			2	6.5			4	12.9		
Residence	Province	325	189	58.2	3.237	0.198	62	19.1	5.246	0.073	67	20.6	4.233	0.120
	District	139	93	66.9			35	25.2			37	26.6		
	Village/ town	43	25	58.1			14	32.6			14	32.6		
Family history of cancer	Yes	164	94	57.3	1.062	0.303	42	25.6	1.958	0.162	43	26.2	1.178	0.278
	No	343	213	62.1			69	20.1			75	21.9		
Total		507	307	60.6			111	21.9			118	23.3		

Notes: BSE: Breast Self Exam, [1]p-value < 0.05, [2]Acceptable significance level, χ^2 = chi-square test

workers, civil servants, and those living in the city center. Furthermore, 76.9% of participants aged 40 and older were married; 29.1% of those had undergone pap smear screening. Of the 246 participants who were married but did not have pap smears, 62.6% said they neglected or forgot it, 24.0% said they did not find it necessary, and 11.8% feared bad results.

In the present study, 3.4% of the participants had received HPV vaccinations, with no significant differences between the participants' socio-demographic characteristics (p-value > 0.05). Of those who had not received the vaccine, 19.8% said they would consider receiving it. It is contrast to the 29.2% of participants with family histories of cervical cancer who said they would inherit it. There were no significant differences between patients with and without family histories of cervical cancer (p-value > 0.05).

Slightly more than 21% of the participants knew about cancer. They obtained their knowledge primarily from health workers, the internet, TV-radio, friends, relatives, and neighbors (45.2%, 38.7%, 37.3%, 32.1%, respectively). Another 80.3% of the sample wanted to obtain more information and education about cancer.

Discussion

Breast cancer is the world's most common type of cancer and cause of cancer-related deaths in women.[20] Two studies in Karachi and Islamabad, by Naqvi, *et al.,*[21] and Rasool, *et al.,*[22] concluded that 60%–65% of Pakistani women over the age of 18 knew breast cancer to be a common type of cancer in women and one of the leading causes of death.

Like the Pakistani papers, a study of health care workers in Kayseri, Turkey reported that 88.2% of the participants knew that the most common cancer in women was breast cancer, 37.0% named breast cancer as a common cause of cancer-related deaths.[14] Consistent with previous studies, Kabacaoğlu, *et al.,*[14] found that 70.8% of the participants knew that the most common female cancer was breast cancer, which 43.0% knew to be a significant cause of death.

Breast self-exam (BSE) is a simple, cost-free, non-invasive method for early detection of breast cancer. All women should start it after the age of 20.[23,24] In a study conducted in 407 female students in Ethiopia, 56.2% of the participants knew about BSE, but only 21.4% that actually practiced it.[25] This finding is similar to another study conducted by Ahmed, *et al.,*[26] in Pakistan, where 68.4% of women knew that BSE was an early screening method, of whom 60.8% practiced it monthly. Consistent with previous study, the current results show that 57.8% of participants knew that BSE was the first method for early diagnosis of breast cancer, 60.6% of those practiced BSE, and 41.4% stated that this method should be started from the age of 20. These values also indicate that women are aware of BSE but not sufficiently. Some studies are investigating the reasons why women do not practice BSE in Turkey. One study conducted by Kabacaoğlu, *et al.,*[14] with female healthcare professionals stated that the reasons why 86.5% of women do not

perform BSE were that they were "forgetting and neglecting". In another study from Turkey, it was revealed that the lack of information and the fear of bad results were the most common reasons for not performing BSE.[27] All these studies, including the present one, suggest that women are dismissing the importance of early diagnosis of breast cancer and that the fear of getting cancer appears to affect their continuing BSE performance.

In the study, while there was no difference between ages, marital status, place of residence, family cancer histories, and BSE practice status, the practice was more frequent with women who were university graduates and who regarded their economic status as "good" (p-value < 0.05). In the study conducted by Duman, *et al.,*[16] similar to the present study, BSE practices were higher in women with higher education levels. Likewise, Deger and Aker's studies,[27,28] found that those with higher educational levels practiced BSE more regularly. These results suggest that healthy life expectancy rises significantly for people who are aware and have more knowledge to use health services and awareness increases with education.

According to the literature, breast cancer's family history is one of the important factors increasing the risk of breast cancer.[29,30] Of the women participating in the present study, 9.7% had family histories of breast cancer. Yet, the rate of BSE was found to be lower in this group. Similar to this study, Duman, *et al.,*[16] found that women with family histories of breast cancer had a low rate of regular BSE. Consistent with these studies, Özçam, *et al.,*[31] reported that family history of breast cancer was not typically associated with BSE. In addition, they determined that the main reasons for not practicing BSE were age, marital status, socio-cultural factors and inadequate education programs about breast health.

A recent study declared that regular mammography screening reduces the risk of breast cancer by 14%–29%.[12] Likewise, Duffy, *et al.,*[32] reported that the mortality rate of breast cancer for women attended mammography screening within 10 years decreased by 41%. The rate of mammography for women in the present study over 40 was approximately 33%. In a study conducted among women in Turkey, the rate of screening mammography was 34.7%.[14] In another study among African-American women aged 40 years, 43.0% of participants had undergone mammography screening.[33] That study found that women who did not schedule regular mammography screening cited vision and cancer concerns, realistic or not, demonstrating that mammography is not taken seriously enough as a screening method and awareness is low.

Cervical cancer is the fourth most common cancer in women.[18] It has been found that the risk of cervical cancer can be reduced by regular pap smear tests and the HPV vaccine.[34,35] In a 2015–2016 study, of 300 women admitted to primary health care facilities in Bahrain, 122 (40.7%) had had pap smears, and only 11(3.7%) had heard of the HPV vaccine.[36] Another study by Heena, *et al.,*[37] found that 26.2% of health care workers had had at least one pap smear test, while 5.6% had received the HPV vaccine. In this study, it was found that 23.3% of the participants had undergone regular pap smears. This rate was lower than in the previously mentioned studies. However, the rates for HPV vaccination in the current study were similar to these studies.

Women cited many reasons for failure to have pap smears, the most common being "forget and neglect," neglecting the test and regarding it as unnecessary. Consistent with these findings, some studies reported simple neglect as one of the main reasons for missing a pap smear.[14,37]

The present study found that married women over 40 years of age had higher mammography screenings and pap smears, but these findings were not related to their education levels. A possible reason for this finding may be that mammography screening should be more emphatically recommended after 40 by Health Directorate offices in Turkey.

There were some limitations to this study. The first was that the results were obtained only from women admitted to a single-center, leaving the findings not generalized to the general population. The second was that socio-demographic differences were not equally distributed. In addition, data on breast and cervical cancers were based on women's statements, and thus the data might not be objective.

Conclusion

This study indicates that women's levels of knowledge of breast and cervical cancers remain inadequate. Therefore, women should be educated—and educate themselves—about these cancers, be encouraged to practice BSE, and get regular pap smear tests. Women with family histories of cancer should seek out individual counseling and learn about regular mammography. Promoting cancer awareness through mass media campaigns can play a genuine role in improving women's knowledge of these diseases, lower their risks, and show them how to respond effectively if signs and symptoms should appear.

Abbreviations

HPV: *Human papillomavirus*; BSE: Breast Self Examination; CBE: Clinical breast examination; WHO: World Health Organization; IARC: International Center for Cancer Research.

Ethics Approval and Consent to Participate

The study was approved by the Ethics Committee of Karabük University (Approval ID 2019/43.1).

Competing Interest

The author declares that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

Availability of Data and Materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Authors' Contribution

Nergiz Sevinç: project administrator, study designer, data curator, analysis, and original draft; Belgin Oral: study designer, data curator and analysis, supervision, writing–original draft; Burcu Korkut: writing–review and editing. All authors have read and approved the final manuscript.

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